

Monitors

Universal Controller 7.5.x

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1 Monitor Task Types

[Task Monitor Task](#)

[Agent File Monitor Task](#)

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[Universal Monitor Task](#)

2 Task Information

[Creating Tasks](#)

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3 Task Actions

[Creating Task Actions](#)

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The information on these pages in PDF form can be found [here](#).

4 Task Monitor Task

4.1 Overview

The Task Monitor task monitors another task or tasks for one or more specific statuses.

When setting up a Task Monitor task, you can monitor:

- All tasks
- Specific task
- Task type, such as a Windows task
- Group of tasks based on the name, such as all tasks whose name contains the string **DEV**

You also can monitor for any combination of [task statuses](#).

For example, you can monitor for:

- All tasks with a status of RESOURCE WAIT or UNDELIVERABLE
- All Windows tasks in a FAILED status
- All tasks whose name contains **REPORT** that have a status of SUCCESS.

For Task Monitors within a workflow, you can also specify a Time Scope, or window of time, during which the event being monitored for must be satisfied.

4.2 Built-In Variables

The following [built-in variables](#) can be used in a Task Monitor task to pass data where appropriate:

- [Task Instance variables](#)
- [Task Monitor Task variables](#)

4.3 Processing Flow for Task Monitors

The processing on a Task Monitor may differ depending on which of the following methods was used to launch it:

- Launched by a workflow
- Launched by a Task Monitor trigger
- Launched manually or by another trigger

Each method is described in detail below.

Note

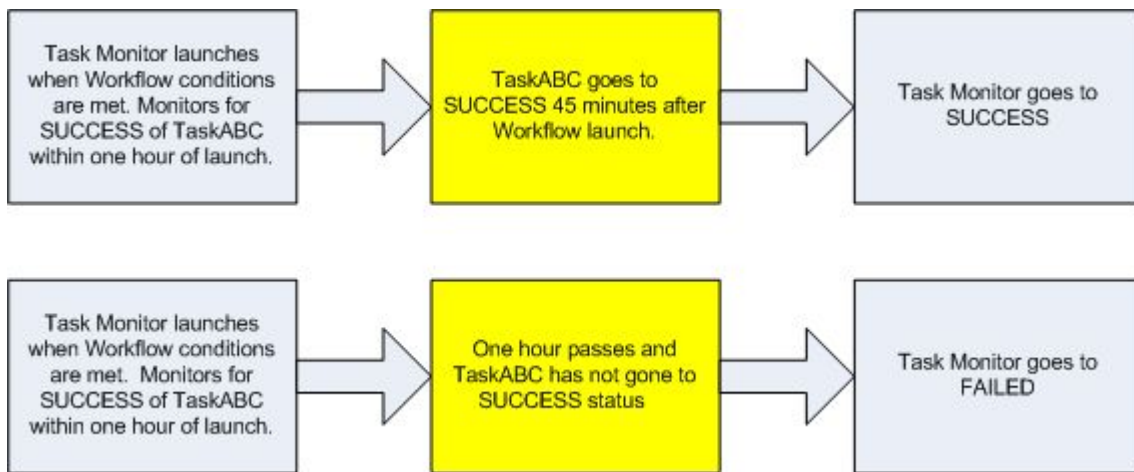
Any changes made to a Task Monitor task are not recognized by its respective Triggers until those Triggers are disabled and re-enabled.

4.3.1 Launching a Task Monitor Task Within a Workflow

Within a Workflow, the Task Monitor task launches like any other task in the Workflow; that is, whenever the Workflow conditions warrant it. The Task Monitor runs until one of the conditions described below occurs:

- When the conditions specified in the Task Monitor are met, the Task Monitor goes to a status of SUCCESS.
- When the time window specified in the Task Monitor passes and the conditions in the Task Monitor are not met, the Task Monitor goes to a status of FAILED. If the time window is entirely in the past and Universal Controller does not locate the required event in the Activity table when the Task Monitor launches, the Task Monitor goes immediately to a FAILED status.
- If no time window is specified in the Task Monitor and the Task Monitor conditions are not met, the Task Monitor task continues running.
- A user can manually force finish the Task Monitor task.

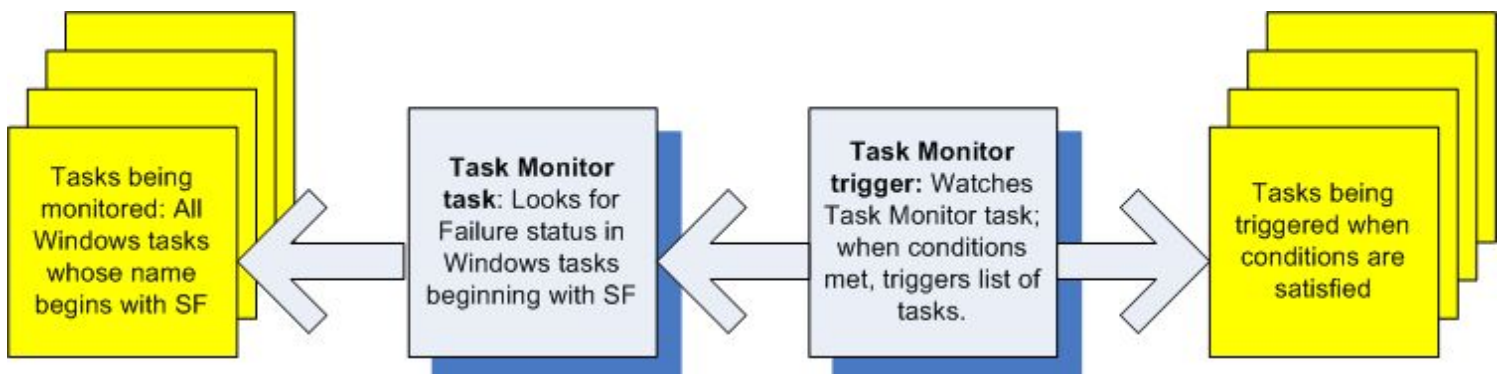
The following diagram illustrates how a Task Monitor might go to SUCCESS and FAILED status within a workflow.



4.3.2 Launching a Task Monitor Task Using a Task Monitor Trigger

The Task Monitor task launches when the user enables the Task Monitor trigger. Each time the conditions in the Task Monitor task are satisfied, the tasks specified in the trigger are launched. This process continues until a user disables the associated Task Monitor trigger.

The following diagram shows an example of how you might set up a task monitoring scheme using the Task Monitor task and Task Monitor trigger.



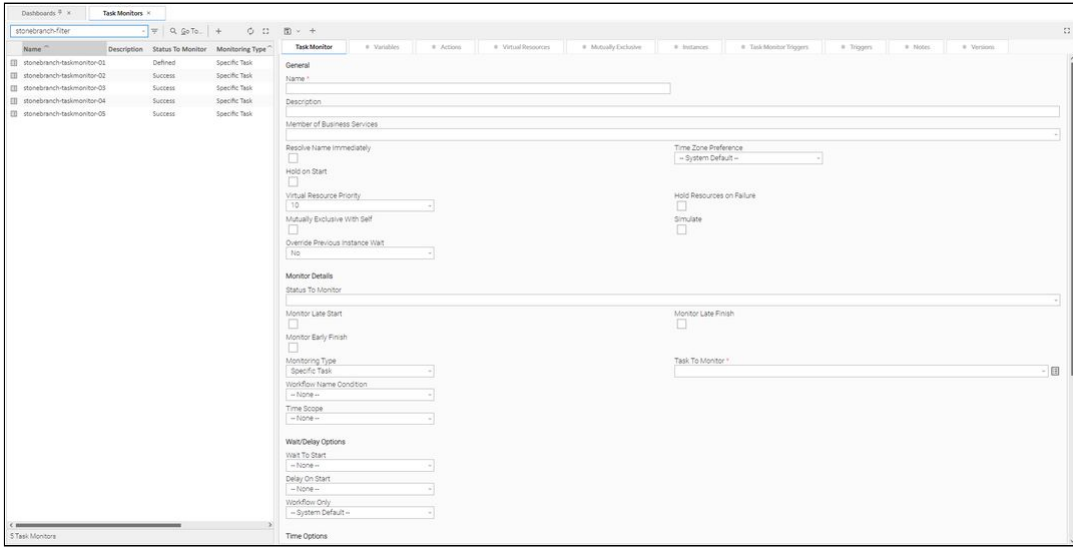


4.3.3 Launching a Task Monitor Task Manually or Via Other Trigger

If you manually launch a Task Monitor task or launch it using a trigger other than a Task Monitor trigger, such as a Time trigger, the task continues running until its specified conditions are met. When that occurs, the Task Monitor goes to SUCCESS. No other processing occurs unless you have configured notifications with the task or set up some other task(s) to launch based on the status of this task.

The Task Monitor runs until one of the conditions described below occurs:

- When the time window specified in the Task Monitor passes and the conditions in the Task Monitor are not met, the Task Monitor goes to a status of FAILED. If the time window is entirely in the past and the Controller does not locate the required event in the Activity table when the Task Monitor launches, the Task Monitor goes immediately to a FAILED status.
- If no time window is specified in the Task Monitor and the Task Monitor conditions are not met, the Task Monitor task continues running.

4.4 Creating a Task Monitor Task

<p>Step 1</p>	<p>From the Automation Center navigation pane, select Tasks > Task Monitor Tasks. The Task Monitor Tasks list displays a list of all currently defined Task Monitor tasks.</p> <p>To the right of the list, Task Monitor Task Details for a new Task Monitor task displays.</p> 
<p>Step 2</p>	<p>Enter/select Details for a new Task Monitor task, using the field descriptions below as a guide.</p> <ul style="list-style-type: none"> • Required fields display an asterisk (*) after the field name. • Default values for fields, if available, display automatically. <p>To display more of the Details fields on the screen, you can either:</p> <ul style="list-style-type: none"> • Use the scroll bar. • Temporarily hide the list above the Details. • Click the  button above the list to display a pop-up version of the Details.
<p>Step 3</p>	<p>Click the  button. The task is added to the database, and all buttons and tabs in the Task Details are enabled.</p>

Note

To [open](#) an existing record on the list, either:

- Click a record in the list to display its record Details below the list. (To clear record Details below the list, click the **New** button that displays above and below the Details.)
- Clicking the [Details icon](#) next to a record name in the list, or right-click a record in the list and then click **Open** in the [Action menu](#) that displays, to display a pop-up version of the record Details.
- Right-click a record in the a list, or open a record and right-click in the record Details, and then click **Open In Tab** in the [Action menu](#) that displays, to display the record Details under a new tab on the record list page (see [Record Details as Tabs](#)).

4.4.1 Task Monitor Task Details

The following Task Monitor Task Details is for an existing Task Monitor task.

Depending on the values that you enter / select for these fields, and whether or not the Task Monitor task has ever been launched, more (or less) fields may display. See the [field descriptions](#), below, for a description of all fields that may display in the Task Monitor Task Details.

Dashboards ↗ ×
Task Monitors ×
Task Monitor Details: stonebranch-taskmonitor-01 ↗ ×

Launch ↗
View Parents ↗
↻

Task Monitor
Variables
Actions
Virtual Resources
Mutually Exclusive
Instances
Task Monitor Triggers

General

Name * Version

Description

Member of Business Services

Resolve Name Immediately

Hold on Start

Virtual Resource Priority

Mutually Exclusive With Self

Override Previous Instance Wait

Time Zone Preference

Hold Resources on Failure

Simulate

Monitor Details

Status To Monitor

Monitor Late Start

Monitor Early Finish

Monitoring Type

Workflow Name Condition

Time Scope

Monitor Late Finish

Task To Monitor *

Wait/Delay Options

Wait To Start

Delay On Start

Workflow Only

Time Options

Late Start

Late Finish

Early Finish

User Estimated Duration

Day	Hour	Min	Sec
<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>

Critical Path Options

CP Duration

CP Duration Unit

Workflow Execution Options

Execution Restriction

Self-Service Options

Enforce Variables

Lock Variables

4.4.2 Task Monitor Task Details Field Descriptions

The following table describes the fields, buttons, and tabs that display in the Task Monitor Task Details.

Field Name	Description
General	This section contains general information about the task.
Name	User-defined name of this task (Maximum = 255 alphanumeric characters); variables supported. It is the responsibility of the user to develop a workable naming scheme for tasks.
Version	System-supplied; version number of the current record, which is incremented by the Controller every time a user updates a record. Click the Versions tab to view previous versions. For details, see Record Versioning .
Description	Description of this record. (Maximum = 255 characters.)
Member of Business Services	User-defined; Allows you to select one or more Business Services that this record belongs to. (You also can Check All or Uncheck All Business Services for this record.) You can select up to 62 Business Services for any record type, and enter a maximum of 2048 characters for each Business Service. If the Business Service Visibility Restricted Universal Controller system property is set to true, depending on your assigned (or inherited) Permissions or Roles , Business Services available for selection may be restricted.
Resolve Name Immediately	If enabled, the Instance Name of the task instance will be resolved immediately at trigger/launch time.
Time Zone Preference	User-defined; Allows you to specify the time zone that will be applied to the task. Options: <ul style="list-style-type: none"> • – System Default – Time zone is based on the value of the Task Time Zone Preference Universal Controller system property: Server or Inherited. • Server (xxx) Where (xxx) is the time zone ID of the server; time zone is evaluated in the time zone of the server. • Inherited Time zone is evaluated in the time zone of the Parent Workflow or Trigger / Launch specification in the case there is no Parent Workflow.
Hold on Start	If enabled, when the task is launched it appears in the Activity Monitor with a status of Held . The task runs when the user releases it.
Hold Reason	Information about why the task will be put on hold when it starts.
Virtual Resource Priority	Priority for acquiring a resource when two or more tasks are waiting for the resource. This priority applies to all resources required by the task. Options: 1 (high) - 100 (low). Default is 10.
Hold Resources on Failure	If enabled, the task instance will continue to hold Renewable resources if the task instance fails. Renewable resources will be returned only if the task instance status is either Complete, Finished, or Skipped.
Mutually Exclusive With Self	If enabled, the task will not be allowed to run concurrently with itself. Task will not start until the instance that is running finishes. An instance will transition to Exclusive Wait status if it cannot start due to another instance already running.
Simulate	Specifies if the instance should execute under simulation mode .

<p>Override Previous Instance Wait</p>	<p>Specifies whether or not to override the parent workflow's Previous Instance Wait configuration. This option only applies for an instance running within a workflow.</p> <p>Options:</p> <ul style="list-style-type: none"> • No Behavior determined by the parent workflow configuration. • Yes / -- None -- Regardless of the parent workflow configuration, the task instance will never wait for a previous instance to complete. • Yes / Wait for Last Regardless of the parent workflow configuration, the task instance will remain in Instance Wait until the most recent prior instance of the same task has completed. • Yes / Wait for Last / Same Workflow Regardless of the parent workflow configuration, the task instance will remain in Instance Wait until the most recent prior instance of the same task, within an instance of the same workflow, have completed. • Yes / Wait for All Regardless of the parent workflow configuration, the task instance will remain in Instance Wait until all prior instances of the same task has completed. • Yes / Wait for All / Same Workflow Regardless of the parent workflow configuration, the task instance will remain in Instance Wait until all prior instances of the same task, within an instance of the same workflow, have completed.
<p>Monitor Details</p>	<p>This section contains assorted detailed information about the task.</p>
<p>Status To Monitor</p>	<p>Status being monitored for. When the task being monitored goes to a status specified in this field, the associated trigger is satisfied and the tasks specified in the trigger launch. You can specify as many statuses as needed (see Task Statuses).</p>
<p>Monitor Late Start</p>	<p>Specifies to monitor for an instance or instances that started late. When specifying a Time Scope, the instance Created Time must fall within the time window.</p>
<p>Monitor Late Finish</p>	<p>Specifies to monitor for an instance or instances that finished late. When specifying a Time Scope, the instance Created Time must fall within the time window.</p>
<p>Monitor Early Finish</p>	<p>Specifies to monitor for an instance or instances that finished early. When specifying a Time Scope, the instance Created Time must fall within the time window.</p>
<p>Monitoring Type</p>	<p>Specifies which task or tasks are being monitored.</p> <p>Options:</p> <ul style="list-style-type: none"> • Specific Task - One task is being monitored. Use the Task to Monitor field to specify the task name. • General Tasks - Allows you to specify selection parameters that determine which task or tasks to be monitored. Use the Task Name Condition and Task Type to Monitor fields to create your selection parameters.
<p>Task to Monitor</p>	<p>If Monitoring Type = Specific Task; specifies the task to monitor. Enter a task name or select a task from the drop-down list. To display details about a task on the list, select it and then click the Task To Monitor icon.</p>
<p>Task Name Condition</p>	<p>If Monitoring Type = General Task(s); specifies a type of condition for the name of tasks being monitored for. If you select a condition type, a corresponding field displays that allows you to enter a value for that condition. Only tasks meeting the specified condition value will be monitored for.</p> <p>Options:</p> <ul style="list-style-type: none"> • -- None -- • Equals • Starts With • Contains • Ends With • Wildcard

Task Type to Monitor	If Monitoring Type = General Tasks; allows you to define specific task types to monitor for. For example, to monitor all SQL tasks, you would select Monitoring Type = General Tasks, then select Task Type to Monitor = SQL Tasks.
Name Starts With	Required if Task Name Condition = Starts With; Character string at the start of the name of a task or tasks being monitored for.
Name Contains	Required if Task Name Condition = Contains; Character string in the name of a task or tasks being monitored for.
Name Ends With	Required if Task Name Condition = Ends With; Character string at the end of the name of a task or tasks being monitored for.
Name Equals	Required if Task Name Condition = Equals; Character string equaling the name of a task or tasks being monitored for.
Name Wildcard	Required if Task Name Condition = Wildcard; Character string equaling the name of a wildcard in a task or tasks being monitored for.
Resolve Task Name Condition	If Monitoring Type = General Task(s) and Task Name Condition = Starts With, Contains, Ends With, or Equals; Specification (true or false) for whether or not to resolve at run time any variables in the task name of the task(s) being monitored. Default is false.
Workflow Name Condition	Type of condition for the name of a workflow or workflows containing the task being monitored for. If you select a condition type, a corresponding field displays that allows you to enter a value for that condition. Only tasks in workflows meeting the specified condition value will be monitored for. Options: <ul style="list-style-type: none"> • -- None -- • Equals • Starts With • Contains • Ends With • Wildcard
Workflow Name Equals	Optional if Workflow Name Condition = Equals; Exact name of a workflow or workflows containing the task being monitored for. If the field is blank, the Task Monitor will consider a Task Instance for a match only if the Task Instance is not contained within a workflow.
Workflow Name Starts With	Required if Workflow Name Condition = Starts With; Character string at the start of the name of a workflow or workflows containing the task being monitored for.
Workflow Name Contains	Required if Workflow Name Condition = Contains; Character string in the name of a workflow or workflows containing the task being monitored for.
Workflow Name Ends With	Required if Workflow Name Condition = Ends With; Character string at the end of the name of a workflow or workflows containing the task being monitored for.
Workflow Name Wildcard	Required if Workflow Name Condition = Ends With; Character string of a wildcard in the name of a workflow or workflows containing the task being monitored for.

<p>Time Scope</p>	<p>Used for Task Monitor tasks not associated with a trigger.</p> <p>The Time Scope fields are used to create a window during which the Task Monitor conditions must be met in order for the Task Monitor to be satisfied.</p> <p>Options:</p> <ul style="list-style-type: none"> • -- None -- • Relative • Relative / Last Run <p>The Time Scope window is always relative to the time that the Task Monitor launched. For example, if you put -01:00 in the From time field and 02:00 in the To time field, the window's begin time is one hour before the Task Monitor is launched and its end time is two hours after it is launched.</p> <p>Use Relative / Last Run if you want to match the most recent prior instance.</p> <div style="border: 1px solid orange; padding: 5px; margin-top: 10px;"> <p>Note</p> <p>For additional details, see Understanding Relative Time Scope, below.</p> </div>
<p>Expiration Action</p>	<p>If Time Scope = Relative or Relative / Last Run and the Task Monitor cannot find any matches during the specified criteria and time interval; State to transition to if Relative Time Scope conditions are not met within the specified window.</p> <p>Options:</p> <ul style="list-style-type: none"> • Failed • Finished • Failed If Potential Match Found Else Finished • Finished If Potential Match Found Else Failed
<p>From</p>	<p>Format is (+/-)hh:mm</p> <p>If Time Scope = Relative or Relative / Last Run; used for Task Monitor tasks not associated with a trigger.</p> <p>hh must be a positive integer. mm must be a positive integer between 0 and 59 inclusive. For example, -124:00, -12:00, -6:00, 00:00, 6:00, 12:00, or 124:00.</p> <p>Together with the Time Scope To field, it allows you to specify a window of time, relative to the time the Task Monitor task launched, during which the conditions of the Task Monitor must be met.</p> <p>If the conditions are not met within the specified window, the Task Monitor task instance will transition to Failed (default) or Finished status determined by the Expiration Action.</p> <ul style="list-style-type: none"> • Required if Time Scope = Relative. • Optional if Time Scope = Relative / Last Run; if a value is not specified, the Task Monitor has no limit on how far back it can look for a match.
<p>To</p>	<p>Format is (+/-)hh:mm</p> <p>If Time Scope = Relative or Relative / Last Run; used for Task Monitor tasks not associated with a trigger.</p> <p>hh must be a positive integer. mm must be a positive integer between 0 and 59 inclusive. For example, -124:00, -12:00, -6:00, 00:00, 6:00, 12:00, or 124:00.</p> <p>Together with the Time Scope From field, it allows you to specify a window of time, relative to the time the Task Monitor task launched, during which the conditions of the Task Monitor must be met.</p> <p>If the conditions are not met within the specified window, the Task Monitor task instance will transition to Failed (default) or Finished status determined by the Expiration Action.</p>
<p>Wait / Delay Options</p>	<p>This section contains specifications for waiting to start and/or delaying on start the task.</p>

<p>Wait To Start</p>	<p>Amount of time to wait before starting a task from the time that it was launched.</p> <p>Options are:</p> <ul style="list-style-type: none"> • – None – • Time • Relative Time • Duration • Seconds
<p>Wait Time</p>	<p>If Wait To Start = Time or Relative Time; Number of hours and minutes to wait before starting the task.</p>
<p>Wait Day Constraint</p>	<p>If Wait Time = Time or Relative Time; Specification for whether or not to advance the wait time to another day.</p> <p>Valid values:</p> <ul style="list-style-type: none"> • -- None -- <ul style="list-style-type: none"> • If Wait To Start = Time; Advance to the next day if the specified wait time is before the time that the task instance is eligible to start; that is, all dependencies have been met. For example: it is not being held, and it is not waiting on any predecessors. • If Wait To Start = Relative Time; Advance to the next day if the specified wait time is before the task instance Trigger Time or, if there is no Trigger Time, before the task instance Launch Time. In the latter case, when a task instance is within a workflow, it will inherit the Launch Time of the top-level parent workflow task instance. • Same Day Do not advance day. • Next Day Advance to the next day. • Next Business Day Advance to the next business day. • Sunday If today is not Sunday, advance to next Sunday. • Monday If today is not Monday, advance to next Monday. • Tuesday If today is not Tuesday, advance to next Tuesday. • Wednesday If today is not Wednesday, advance to next Wednesday. • Thursday If today is not Thursday, advance to next Thursday. • Friday If today is not Friday, advance to next Friday. • Saturday If today is not Saturday, advance to next Saturday. <p>Default is – None –.</p>
<p>Wait Duration</p>	<p>If Wait To Start = Duration; Number of days, hours, minutes, and seconds to wait before starting the task.</p>
<p>Wait Duration In Seconds</p>	<p>If Wait To Start = Seconds; Number of seconds to wait before starting the task.</p>
<p>Delay On Start</p>	<p>Amount of time to delay the start of a task, after it has been launched, from the time that it is eligible to start; that is, all dependencies have been met. For example: it is not being held, it is not waiting on any predecessors, or there is no wait time specified.</p> <p>Options are:</p> <ul style="list-style-type: none"> • – None – • Duration • Seconds

Delay Duration	If Delay On Start = Duration; Number of days, hours, minutes, and seconds to delay after starting the task.
Delay Duration In Seconds	If Delay On Start = Seconds; Number of seconds to delay after starting the task.
Workflow Only	Specification for whether or not to apply the Wait To Start and Delay On Start specifications only if the task is in a Workflow. Options are: <ul style="list-style-type: none"> • -- System Default -- Apply the Wait To Start and Delay On Start specifications as defined by the System Default Wait/Delay Workflow Only system property. (Default is yes.) • Yes Apply the Wait To Start and Delay On Start specifications only if the task is in a Workflow. • No Apply the Wait To Start and Delay On Start specifications whether or not the task is in a Workflow.
Time Options	This section contains time-related specifications for task instances of the task.
Late Start	If enabled, and if the task instance starts after the time or period specified, the task instance is flagged as late. You can specify a time or duration to determine a late start (see Late Start Type). To determine whether a task instance started late, open the task instance and locate the Started Late field; the field is checked if the instance started after the specified time. The Started Late field displays in the task instance Details only if the user specified a Late Start in the task Details.
Late Start Type	Required if Late Start is enabled. Options: <ul style="list-style-type: none"> • Time - Flag the task if it starts after the specified time. • Duration - Flag the task if it starts a certain amount of time after the programmed start time. The task must have a specific start time.
Late Start Time	If Late Start Type = Time; Time after which the task start time is considered late. Use HH:MM, 24-hour time.
Late Start Day Constraint	If Late Start Type = Time; Specification for whether or not to advance the late start time to another day. Valid values: <ul style="list-style-type: none"> • -- None -- Advance to the next day if the specified late start time is before the Created time of the task instance. • Same Day Do not advance day. • Next Day Advance to the next day. • Next Business Day Advance to the next business day. • Sunday If today is not Sunday, advance to next Sunday. • Monday If today is not Monday, advance to next Monday. • Tuesday If today is not Tuesday, advance to next Tuesday. • Wednesday If today is not Wednesday, advance to next Wednesday. • Thursday If today is not Thursday, advance to next Thursday. • Friday If today is not Friday, advance to next Friday. • Saturday If today is not Saturday, advance to next Saturday. • Nth Day Advance to a specific number of days in the future. Default is -- None --.

Late Start Nth Amount	If Late Start Day Constraint = Nth Day; Number of days to advance.
Late Start Duration	<p>If Late Start Type = Duration; Duration (amount of relative time) after which the task is considered to have started late.</p> <p>For a task within a workflow, the duration is the period between the time the workflow starts and the time the task itself starts. For example, a task might have a Late Start Duration of 60 minutes. If the workflow starts at 9:00 a.m. but the task itself does not start until 10:30, the task has started late.</p> <p>For a task that is not within a workflow, Late Start Duration has meaning only if the task has been held upon starting. For example, if a task has a Late Start Duration of 60 minutes and the Hold on Start field is enabled, if the task is not released from hold within the amount of time specified in the Late Start Duration field, the task has started late.</p>
Late Finish	If enabled, and if the task instance finishes after the time or period specified, the task instance is flagged as late. You can specify a time or duration to determine a late finish (see Late Finish Type). To determine whether a task instance finished late, open the task instance and locate the Finished Late field; the field is checked if the instance finished after the specified time or lasted longer than expected. This field only appears on the task instance if the user specified a Late Finish in the task definition.
Late Finish Type	<p>Required if Late Finish is enabled.</p> <p>Options:</p> <ul style="list-style-type: none"> • Time - Flag the task if it finishes after the specified time (see Late Finish Time). • Duration - Flag the task if it finishes a certain amount of time after the programmed finish time (see Late Finish Duration). The task must have a specific finish time. • Average Duration - Flag the task if it finishes before the average duration (see Average Instance Time) for the task, less an offset (see Late Finish Offset Type), if specified.
Late Finish Offset Type	<p>If Late Finish Type = Average Duration;</p> <p>Options:</p> <ul style="list-style-type: none"> • Percentage • Duration
Late Finish Percentage Offset (+)	Required if Late Finish Offset Type = <i>Percentage</i> ; Percentage of Average Duration to use as an offset. The late finish time is calculated by adding the offset to the Average Duration .
Late Finish Duration Offset (+)	Required if Late Finish Offset Type = <i>Duration</i> ; Duration to use as an offset. The late finish time is calculated by adding the offset to the Average Duration .
Late Finish Duration Offset Unit	<p>If Late Finish Offset Type = Duration;</p> <p>Options:</p> <ul style="list-style-type: none"> • Seconds • Minutes • Hours
Late Finish Time	If Late Finish Type = Time; Time after which the task finish time is considered late. Use HH:MM, 24-hour time.

<p>Late Finish Day Constraint</p>	<p>If Late Finish Type = Time; Specification for whether or not to advance the late finish time to another day.</p> <p>Valid values:</p> <ul style="list-style-type: none"> • -- None -- Advance to the next day if the specified late finish time is before the Created time of the task instance. • Same Day Do not advance day. • Next Day Advance to the next day. • Next Business Day Advance to the next business day. • Sunday If today is not Sunday, advance to next Sunday. • Monday If today is not Monday, advance to next Monday. • Tuesday If today is not Tuesday, advance to next Tuesday. • Wednesday If today is not Wednesday, advance to next Wednesday. • Thursday If today is not Thursday, advance to next Thursday. • Friday If today is not Friday, advance to next Friday. • Saturday If today is not Saturday, advance to next Saturday. • Nth Day Advance to a specific number of days in the future. <p>Default is -- None --.</p>
<p>Late Finish Nth Amount</p>	<p>If Late Finish Day Constraint = Nth Day; Number of days to advance.</p>
<p>Late Finish Duration</p>	<p>If Late Finish Type = Duration; Longest amount of time this task instance should take to run.</p>
<p>Early Finish</p>	<p>If enabled, and if the task instance finishes before the time or period specified, the task instance is flagged as early. You can specify a time or duration to determine an early finish (see Early Finish Type). To determine whether a task instance finished early, open the task instance and locate the Finished Early field; the field is checked if the instance finished before the specified time or did not last as long as expected. This field only appears on the task instance if the user added Early Finish specifications to the task definition.</p>
<p>Early Finish Type</p>	<p>Required if Early Finish is enabled.</p> <p>Options:</p> <ul style="list-style-type: none"> • Time - Flag the task if it finishes before the specified time (see Early Finish Time). • Duration - Flag the task if it finishes a certain amount of time before the programmed finish time (see Early Finish Duration). The task must have a specific finish time. • Average Duration - Flag the task if it finishes before the average duration (see Average Instance Time) for the task, less an offset (see Early Finish Offset Type), if specified.
<p>Early Finish Offset Type</p>	<p>If Early Finish Type = Average Duration;</p> <p>Options:</p> <ul style="list-style-type: none"> • Percentage • Duration
<p>Early Finish Percentage Offset (-)</p>	<p>Required if Early Finish Offset Type = <i>Percentage</i>; Percentage of Average Duration to use as an offset. The early finish time is calculated by subtracting the offset from the Average Duration.</p>
<p>Early Finish Duration Offset (-)</p>	<p>Required if Early Finish Offset Type = <i>Duration</i>; Duration to use as an offset. The early finish time is calculated by subtracting the offset from the Average Duration.</p>

<p>Early Finish Duration Offset Unit</p>	<p>If Early Finish Offset Type = Duration; Options:</p> <ul style="list-style-type: none"> • Seconds • Minutes • Hours
<p>Early Finish Time</p>	<p>If Early Finish Type = Time; Time before which the task finish time is considered early. That is, enter a time at which the task should still be running. Use HH:MM, 24-hour time.</p>
<p>Early Finish Day Constraint</p>	<p>If Early Finish Type = Time; Specification for whether or not to advance the early finish time to another day.</p> <p>Valid values:</p> <ul style="list-style-type: none"> • -- None -- Advance to the next day if the specified early finish time is before the Created time of the task instance. • Same Day Do not advance day. • Next Day Advance to the next day. • Next Business Day Advance to the next business day. • Sunday If today is not Sunday, advance to next Sunday. • Monday If today is not Monday, advance to next Monday. • Tuesday If today is not Tuesday, advance to next Tuesday. • Wednesday If today is not Wednesday, advance to next Wednesday. • Thursday If today is not Thursday, advance to next Thursday. • Friday If today is not Friday, advance to next Friday. • Saturday If today is not Saturday, advance to next Saturday. • Nth Day Advance to a specific number of days in the future. <p>Default is -- None --.</p>
<p>Early Finish Nth Amount</p>	<p>If Early Finish Day Constraint = Nth Day; Number of days to advance.</p>
<p>Early Finish Duration</p>	<p>If Early Finish Type = Duration; Shortest amount of time this task instance should take to run.</p>
<p>User Estimated Duration</p>	<p>Required if Early Finish Type or Late Finish Type = Average Duration; Estimated amount of time it should normally take to run this task. The Controller uses this information to calculate the User Estimated End Time on a task instance record.</p> <p>User Estimated Duration is used when the Average Duration is not available; for example, on the first launch of a task.</p>
<p>Critical Path Options</p>	<p>This section contains Critical Path-related specifications for the task.</p>
<p>CP Duration</p>	<p>Optional; Allows you to override the estimated Critical Path Duration of the task when running in a Workflow; used in conjunction with the CP Duration Unit field. In most cases, this field should be left blank, which implies that the Controller will estimate the Critical Path Duration based on historical executions. Valid values are any integer equal to or greater than 0. Variables and Functions are supported.</p>
<p>CP Duration (Resolved)</p>	<p>Displays the current resolved value of the CP Duration field, which may contain variables or functions that will be displayed as unresolved until the task instance starts. The CP Duration (Resolved) field can continue to change value until the task instance starts, at which time CP Duration will display as resolved and CP Duration (Resolved) will no longer be visible unless there was an issue resolving the variables and/or functions contained within CP Duration. If the Controller is unable to resolve CP Duration or it resolves to an invalid value, CP Duration will be ignored and the Controller will estimate the Critical Path Duration based on historical executions.</p>

<p>CP Duration Unit</p>	<p>Type of CP Duration; used in conjunction with the CP Duration field. For example, for a CP Duration of two minutes, specify 2 in the CP Duration field and select Minutes in this field.</p> <p>Options:</p> <ul style="list-style-type: none"> • Seconds • Minutes • Hours <p>Default is Minutes.</p>
<p>Workflow Execution Options</p>	<p>This section contains Execution Restriction specifications for the task if it is within a Workflow.</p>
<p>Execution Restriction</p>	<p>Specification for whether or not there is a restriction for this task to be run, skipped, or held.</p> <p>Options are:</p> <ul style="list-style-type: none"> • -- None -- No restriction for this task. • Run Restriction for when this task will be run. • Skip Restriction for when this task will be skipped. • Hold Restriction for when this task will be held. <p>If Execution Restriction on a task is Run or Skip, then when it is part of a Workflow that is being launched, the Restriction Period is evaluated. The task instance will be skipped if Execution Restriction is Skip and the date is within the Restriction Period or Execution Restriction is Run and the date is not within the Restriction Period. Execution Restriction can be set to Skip with a Restriction Period of - None -, meaning the restriction is always active and the task will be skipped when it is part of a Workflow.</p>
<p>Restriction Period</p>	<p>If Execution Restriction = Run, Skip, or Hold; Period of time when the task is restricted.</p> <p>Options are:</p> <ul style="list-style-type: none"> • -- None -- No period of restriction for this task. • Before Restriction is valid if the date is before the Before Date value. • After Restriction is valid if the date is after the After Date value. • Span Restriction is valid if the date is before the Before Date value and after After Date value. • On Restriction is valid if the date is one of the Date List values.
<p>Before Date</p>	<p>If Restriction Period = Before or Span; Date before which the restriction is valid.</p>
<p>Before Time</p>	<p>If Restriction Period = Before or Span; Time on the selected date before which the restriction is valid.</p>
<p>After Date</p>	<p>If Restriction Period = After or Span; Date after which the restriction is valid.</p>
<p>After Time</p>	<p>If Restriction Period = After or Span; Time on the selected date after which the restriction is valid.</p>
<p>Date List</p>	<p>If Restriction Period = On; Date(s) on which the restriction is valid.</p>
<p>Self-Service Options</p>	<p>This section contains Self-Service specifications for the task.</p>
<p>Enforce Variables</p>	<p>Specifies whether or not to enforce Launch with Variables... when launching a task using the User Interface.</p>
<p>Lock Variables</p>	<p>Specifies whether or not to prevent editing variables when using Launch with Variables... from the User Interface.</p>
<p>Statistics</p>	<p>This section contains time-related statistics for task instances of the task.</p>
<p>First Execution</p>	<p>System-supplied; End Time of the first instance of this task to complete.</p>

Last Execution	System-supplied; End Time of the last instance of this task to complete.
Last Instance Duration	System-supplied; Amount of time the task took to run the last time it ran.
Lowest Instance Time	System-supplied; Lowest amount of time this task has taken to run.
Average Instance Time	System-supplied; Average amount of time this task takes to run.
Highest Instance Time	System-supplied; Highest amount of time this task has taken to run.
Number of Instances	System-supplied; Number of instances in the database for this task.
Metadata	This section contains Metadata information about this record.
UUID	Universally Unique Identifier of this record.
Updated By	Name of the user that last updated this record.
Updated	Date and time that this record was last updated.
Created By	Name of the user that created this record.
Created	Date and time that this record was created.
Buttons	This section identifies the buttons displayed above and below the Task Details that let you perform various actions.
Save	Saves a new task record in the Controller database.
Save & New	Saves a new record in the Controller database and redisplay empty Details so that you can create another new record.
Save & View	Saves a new record in the Controller database and continues to display that record.
New	Displays empty (except for default values) Details for creating a new task.
Update	Saves updates to the record.
Launch	Manually launches the task.
View Parents	Displays a list of any parent Workflow tasks for this task.
Copy	Creates a copy of this task, which you are prompted to rename.
Delete	Deletes the current record. <div style="border: 2px solid yellow; padding: 10px; margin: 10px 0;"> <p>Note</p> <p>You cannot delete a task if it is either:</p> <ul style="list-style-type: none"> • Specified in an enabled Trigger. • The only task specified in a disabled Trigger. </div>
Refresh	Refreshes any dynamic data displayed in the Details.
Close	For pop-up view only; closes the pop-up view of this task.

Tabs	This section identifies the tabs across the top of the Task Details that provide access to additional information about the task.										
Variables	Lists all user-defined variables associated with this record; that is, variables that have been defined for this specific record.										
Actions	<p>Allows you to specify actions that the Controller will take automatically based on events that occur during the execution of this task.</p> <p>Events are:</p> <ul style="list-style-type: none"> • Task instance status • Exit codes • Late start • Late finish • Early finish <p>Actions are:</p> <table border="1"> <tr> <td>Abort Action</td> <td>Abort the task if certain events occur. For details, see Abort Actions.</td> </tr> <tr> <td>Email Notification</td> <td>Send an email if certain events occur. For details, see Email Notification Actions.</td> </tr> <tr> <td>Set Variable</td> <td>Used in tasks and workflows to set a variable based on the occurrence of certain events. For details, see Creating a Set Variable Action within a Task or Workflow.</td> </tr> <tr> <td>SNMP Notification</td> <td>Send an email if certain events occur. For details, see SNMP Notification Actions.</td> </tr> <tr> <td>System Operation</td> <td>Run an Universal Controller system operation based on specified conditions. For details, see System Operation Actions.</td> </tr> </table>	Abort Action	Abort the task if certain events occur. For details, see Abort Actions .	Email Notification	Send an email if certain events occur. For details, see Email Notification Actions .	Set Variable	Used in tasks and workflows to set a variable based on the occurrence of certain events. For details, see Creating a Set Variable Action within a Task or Workflow .	SNMP Notification	Send an email if certain events occur. For details, see SNMP Notification Actions .	System Operation	Run an Universal Controller system operation based on specified conditions. For details, see System Operation Actions .
Abort Action	Abort the task if certain events occur. For details, see Abort Actions .										
Email Notification	Send an email if certain events occur. For details, see Email Notification Actions .										
Set Variable	Used in tasks and workflows to set a variable based on the occurrence of certain events. For details, see Creating a Set Variable Action within a Task or Workflow .										
SNMP Notification	Send an email if certain events occur. For details, see SNMP Notification Actions .										
System Operation	Run an Universal Controller system operation based on specified conditions. For details, see System Operation Actions .										
Virtual Resources	<p>Lists all Virtual Resources to which this task is assigned.</p> <p>If you want to create a Task Virtual Resource for this task, you can select an existing Virtual Resource (or, optionally, first create a new Virtual Resource and then select it as the Task Virtual Resource) or enter a Virtual Resource variable. The variable must be a supported type as described in Variables and Functions.</p>										
Mutually Exclusive	Lists all tasks that have been set to be mutually exclusive of this task.										
Instances	Lists all instances of the task.										
Task Monitor Triggers	Lists all Task Monitor triggers that reference this task in the Task Monitor field of the trigger Details; that is, a list of all Task Monitor triggers that execute this task. For instructions on creating triggers, see Triggers .										
Triggers	List of all triggers that reference this task in the Task(s) field of the trigger Details; that is, a list of all triggers that have been defined to launch this task. Also allows you to add new triggers. If you add a new trigger from this location, the Controller automatically constructs a default trigger name as follows: <current task name>#TRIGGER#. You can change the default name if desired. For instructions on creating triggers, see Triggers .										
Notes	Lists all notes associated with this record.										

Versions	Stores copies of all previous versions of the current record. See Record Versioning .
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4.5 Viewing a Task Monitor Task Instance

When a Task Monitor task is launched, the Controller creates a task instance record of that task.

A task instance contains detailed information about a single execution of that task.

You can access a task instance from:

- **Instances tab** on the [Task Monitor Task Details](#) for that task
- [Activity Monitor](#)
- [Task Instances list](#)

4.5.1 Task Monitor Task Instance Details

The following Task Monitor Task Instance Details contains information on the execution of the task shown in the [Task Monitor Task Details](#).

General

Instance Name: stonebranch-taskmonitor-01 Instance Number: 1

Description:

Member of Business Services:

Task: stonebranch-taskmonitor-01 Source Version: 4

Launch Source: Launch Task / User Interface

Invoked By: Manually Launched Execution User: Admin

Calendar: System Default Time Zone Preference: -- System Default --

Virtual Resource Priority: 10 Hold Resources on Failure:

Mutually Exclusive With Self: Simulate:

Previous Instance Wait Resolved: -- None --

Status

Status: Finished

Status Description: State was forced from RUNNING to FINISHED

Operational Memo:

Trigger Time: Launch Time: 2023-09-19 14:34:21 -0400

Wait Until Time:

Start Time: 2023-09-19 14:34:21 -0400 End Time: 2023-09-19 14:34:28 -0400

Duration: 7 Seconds Trigger:

Task Instance Matched:

Monitor Details

Status To Monitor: Defined

Monitor Late Start: Monitor Late Finish:

Monitor Early Finish:

Monitoring Type: Specific Task Task To Monitor: stonebranch-windowstask-01

Workflow Name Condition: -- None --

Time Scope: -- None --

Wait/Delay Options

Wait To Start:

Delay On Start:

Statistics

User Estimated End Time: Average Estimated End Time: 2023-09-19 14:34:21 -0400

Lowest Estimated End Time: Highest Estimated End Time:

4.5.2 Task Monitor Task Instance Details Field Descriptions

The following table describes the fields, buttons, and tabs that display in Task Monitor Task Instance Details.

Field Name	Description
General	This section contains general information about the task instance.
Instance Name	Name of this task instance.
Instance Number	System-supplied; Sequentially assigned number, maintained per task, representing the creation order of the instance.
Description	Description of this record. (Maximum = 255 characters.)
Member of Business Services	<p>User-defined; Allows you to select one or more Business Services that this record belongs to. (You also can Check All or Uncheck All Business Services for this record.)</p> <p>You can select up to 62 Business Services for any record type, and enter a maximum of 2048 characters for each Business Service.</p> <p>If the Business Service Visibility Restricted Universal Controller system property is set to true, depending on your assigned (or inherited) Permissions or Roles, Business Services available for selection may be restricted.</p>
Task	Name of the task that was run to create this task instance. Click the icon to display Task Details for the task.
Source Version	Version of the task that was run to create this task instance.

<p>Launch Source</p>	<p>System-supplied; Source from which this task was launched.</p> <p>Options:</p> <ul style="list-style-type: none"> • Scheduled Trigger If the instance was directly launched by a scheduled trigger, the Trigger (trigger_id) column is assigned the UUID of the scheduled trigger. • Trigger Monitor If the instance is a monitor associated with monitor trigger, the Trigger (trigger_id) column is assigned the UUID of the monitor trigger. • Trigger Now / User Interface If the instance was directly launched by a Trigger Now command, the Trigger (trigger_id) column is assigned the UUID of the trigger. • Trigger Now / System Operation If the instance was directly launched by a Trigger Now command, the Trigger (trigger_id) column is assigned the UUID of the trigger and the Source Instance (source_instance) column will be assigned the UUID of the instance invoking the System Operation. • Trigger Now / Web Service If the instance was directly launched by a Trigger Now command, the Trigger (trigger_id) column is assigned the UUID of the trigger. • Trigger Now / Command Line If the instance was directly launched by a Trigger Now command, the Trigger (trigger_id) column is assigned the UUID of the trigger. • Workflow If the instance was launched by a workflow, the Workflow (workflow_id) column is assigned the UUID of the workflow instance. Likewise, the Source Instance (source_instance) column will also be assigned the UUID of the workflow instance. • Launch Task / User Interface If the instance was directly launched by the Launch Task command, the Source Instance (source_instance) column will be null. • Launch Task / System Operation If the instance was directly launched by the Launch Task command, the Source Instance (source_instance) column will be assigned the UUID of the instance invoking the System Operation. • Launch Task / Web Service If the instance was directly launched by the Launch Task command, the Source Instance (source_instance) column will be null. • Launch Task / Command Line If the instance was directly launched by the Launch Task command, the Source Instance (source_instance) column will be null. • Recurring If the instance was directly launched by a Recurring Task Instance, the Source Instance (source_instance) column will be assigned the UUID of the Recurring Task Instance.
<p>Source Instance</p>	<p>System-supplied; UUID of the source instance.</p> <ul style="list-style-type: none"> • If the instance was directly launched by a Trigger Now command; the UUID of the instance invoking the System Operation. • If the instance was launched by a workflow; the UUID of the workflow instance. • If the instance was directly launched by the Launch Task command; the UUID of the instance invoking the System Operation. • If the instance was directly launched by a Recurring Task Instance; the UUID of the Recurring Task Instance.
<p>Invoked by</p>	<p>System-supplied; how the task instance was launched.</p> <p>Options:</p> <ul style="list-style-type: none"> • Trigger: (Trigger Name) Instance was launched by the named trigger. • Workflow: (Workflow Name) Instance was launched by the named workflow. • Manually Launched Instance was launched by a user. To identify the user, check the Execution User column for that task instance on the Task Instances screen or, on most task instance screens, the Execution User field.

Execution User	System-supplied; If the task was launched manually; ID of the user who launched it.
Calendar	Calendar associated with the task instance.
Time Zone Preference	User-defined; Allows you to specify the time zone that will be applied to the task. Options: <ul style="list-style-type: none"> • – System Default – Time zone is based on the value of the Task Time Zone Preference Universal Controller system property: Server or Inherited. • Server (xxx) Where (xxx) is the time zone ID of the server; time zone is evaluated in the time zone of the server. • Inherited Time zone is evaluated in the time zone of the Parent Workflow or Trigger / Launch specification in the case there is no Parent Workflow.
Virtual Resource Priority	Priority for acquiring a resource when two or more tasks are waiting for the resource. This priority applies to all resources required by the task. Options: 1 (high) - 100 (low). Default is 10.
Hold Resources on Failure	If enabled, the task instance will continue to hold Renewable resources if the task instance fails. Renewable resources will be returned only if the task instance status is either Complete, Finished, or Skipped.
Mutually Exclusive With Self	If enabled, the task will not be allowed to run concurrently with itself. Task will not start until the instance that is running finishes. An instance will transition to Exclusive Wait status if it cannot start due to another instance already running.
Simulate	Specifies if the instance should execute under simulation mode .
Previous Instance Wait Resolved	System-supplied; If the Override Previous Instance Wait field for the task is set to No, the Previous Instance Wait Resolved field will be set to the value of the Previous Instance Wait field of the parent workflow. Otherwise, it will be set to the value specified by the Override Previous Instance Wait . Options: <ul style="list-style-type: none"> • -- None -- • Wait for Last Every task instance directly within the workflow instance will remain in Instance Wait until the most recent prior instance of the same task has completed. • Wait for Last / Same Workflow Every task instance directly within the workflow instance will remain in Instance Wait until the most recent prior instance of the same task, within an instance of the same workflow, have completed. • Wait for All Every task instance directly within the workflow instance will remain in Instance Wait until all prior instances of the same task has completed. • Wait for All / Same Workflow Every task instance directly within the workflow instance will remain in Instance Wait until all prior instances of the same task, within an instance of the same workflow, have completed.
Status	This section contains information about the current status of the task instance.
Status	System-supplied; see Task Instance Statuses .
Exit Code	System-supplied; the exit code captured by the Agent when executing the task (for example, a command or script).
Status Description	System-supplied; additional information, if any, about the status of the task instance.
Operational Memo	User-defined operational memo.

Evaluation Time	If time zone of user is different than time zone of task instance; Time at which Execution Restrictions and Run Criteria were evaluated based upon the requested time zone. (Time zone of task instance displays in parentheses.)
Critical	Indicates that this task is in the Critical Path of a workflow.
Critical Endpoint	Indicates that this task was defined as a Critical Endpoint of a Critical Path in a workflow.
Wait Until Time	Amount of time calculated to wait before the task was started, based on Wait To Start and Delay On Start times.
Queued Time	System-supplied; Date and time the task was queued for processing.
Trigger Time	System-supplied; Date and time the task instance was triggered.
Launch Time	System-supplied; Date and time the task instance was launched.
Start Time	System-supplied; Date and time the task instance started.
End Time	System-supplied; Date and time the task instance completed.
Duration	System-supplied; amount of time the task instance took to run.
Trigger	Trigger, if any, on whose behalf the Task Monitor task is monitoring other tasks.
Task Instance Matched	Last task that matched the specifications of the task(s) being monitored.
Monitor Details	This section contains assorted detailed information about the task instance.
Status To Monitor	Status being monitored for. When the task being monitored goes to a status specified in this field, the associated trigger is satisfied and the tasks specified in the trigger launch. You can specify as many statuses as needed (see Task Statuses).
Monitor Late Start	Specifies to monitor for an instance or instances that started late. When specifying a Time Scope, the instance Created Time must fall within the time window.
Monitor Late Finish	Specifies to monitor for an instance or instances that finished late. When specifying a Time Scope, the instance Created Time must fall within the time window.
Monitor Early Finish	Specifies to monitor for an instance or instances that finished early. When specifying a Time Scope, the instance Created Time must fall within the time window.
Monitoring Type	Specifies which task or tasks are being monitored. Options: <ul style="list-style-type: none"> • Specific Task - One task is being monitored. Use the Task to Monitor field to specify the task name. • General Tasks - Allows you to specify selection parameters that determine which task or tasks to be monitored. Use the Task Name Condition and Task Type to Monitor fields to create your selection parameters.
Task to Monitor	If Monitoring Type = Specific Task; specifies the task to monitor. Enter a task name or select a task from the drop-down list. To display details about a task on the list, select it and then click the Task To Monitor icon.

Task Name Condition	<p>If Monitoring Type = General Task(s); specifies a type of condition for the name of tasks being monitored for. If you select a condition type, a corresponding field displays that allows you to enter a value for that condition. Only tasks meeting the specified condition value will be monitored for.</p> <p>Options:</p> <ul style="list-style-type: none"> • -- None -- • Equals • Starts With • Contains • Ends With • Wildcard
Task Type to Monitor	<p>If Monitoring Type = General Tasks; allows you to define specific task types to monitor for. For example, to monitor all SQL tasks, you would select Monitoring Type = General Tasks, then select Task Type to Monitor = SQL Tasks.</p>
Name Starts With	<p>Required if Task Name Condition = Starts With; Character string at the start of the name of a task or tasks being monitored for.</p>
Name Contains	<p>Required if Task Name Condition = Contains; Character string in the name of a task or tasks being monitored for.</p>
Name Ends With	<p>Required if Task Name Condition = Ends With; Character string at the end of the name of a task or tasks being monitored for.</p>
Name Equals	<p>Required if Task Name Condition = Equals; Character string equaling the name of a task or tasks being monitored for.</p>
Name Wildcard	<p>Required if Task Name Condition = Wildcard; Character string equaling the name of a wildcard in a task or tasks being monitored for.</p>
Resolve Task Name Condition	<p>If Monitoring Type = General Task(s) and Task Name Condition = Starts With, Contains, Ends With, or Equals; Specification (true or false) for whether or not to resolve at run time any variables in the task name of the task(s) being monitored.</p> <p>Default is false.</p>
Workflow Name Condition	<p>Type of condition for the name of a workflow or workflows containing the task being monitored for. If you select a condition type, a corresponding field displays that allows you to enter a value for that condition.</p> <p>Only tasks in workflows meeting the specified condition value will be monitored for.</p> <p>Options:</p> <ul style="list-style-type: none"> • -- None -- • Equals • Starts With • Contains • Ends With • Wildcard
Workflow Name Equals	<p>Optional if Workflow Name Condition = Equals; Exact name of a workflow or workflows containing the task being monitored for. If the field is blank, the Task Monitor will consider a Task Instance for a match only if the Task Instance is not contained within a workflow.</p>
Workflow Name Starts With	<p>Required if Workflow Name Condition = Starts With; Character string at the start of the name of a workflow or workflows containing the task being monitored for.</p>
Workflow Name Contains	<p>Required if Workflow Name Condition = Contains; Character string in the name of a workflow or workflows containing the task being monitored for.</p>
Workflow Name Ends With	<p>Required if Workflow Name Condition = Ends With; Character string at the end of the name of a workflow or workflows containing the task being monitored for.</p>
Workflow Name Wildcard	<p>Required if Workflow Name Condition = Ends With; Character string of a wildcard in the name of a workflow or workflows containing the task being monitored for.</p>

<p>Time Scope</p>	<p>Used for Task Monitor tasks not associated with a trigger.</p> <p>The Time Scope fields are used to create a window during which the Task Monitor conditions must be met in order for the Task Monitor to be satisfied.</p> <p>Options:</p> <ul style="list-style-type: none"> • -- None -- • Relative • Relative / Last Run <p>The Time Scope window is always relative to the time that the Task Monitor launched. For example, if you put -01:00 in the From time field and 02:00 in the To time field, the window's begin time is one hour before the Task Monitor is launched and its end time is two hours after it is launched.</p> <p>Use Relative / Last Run if you want to match the most recent prior instance.</p> <div style="border: 1px solid orange; padding: 5px; margin-top: 10px;"> <p>Note</p> <p>For additional details, see Understanding Relative Time Scope, below.</p> </div>
<p>Expiration Action</p>	<p>If Time Scope = Relative or Relative / Last Run and the Task Monitor cannot find any matches during the specified criteria and time interval; State to transition to if Relative Time Scope conditions are not met within the specified window.</p> <p>Options:</p> <ul style="list-style-type: none"> • Failed • Finished • Failed If Potential Match Found Else Finished • Finished If Potential Match Found Else Failed
<p>From</p>	<p>Format is (+/-)hh:mm</p> <p>If Time Scope = Relative or Relative / Last Run; used for Task Monitor tasks not associated with a trigger.</p> <p>hh must be a positive integer. mm must be a positive integer between 0 and 59 inclusive. For example, -124:00, -12:00, -6:00, 00:00, 6:00, 12:00, or 124:00.</p> <p>Together with the Time Scope To field, it allows you to specify a window of time, relative to the time the Task Monitor task launched, during which the conditions of the Task Monitor must be met.</p> <p>If the conditions are not met within the specified window, the Task Monitor task instance will transition to Failed (default) or Finished status determined by the Expiration Action.</p> <ul style="list-style-type: none"> • Required if Time Scope = Relative. • Optional if Time Scope = Relative / Last Run; if a value is not specified, the Task Monitor has no limit on how far back it can look for a match.
<p>To</p>	<p>Format is (+/-)hh:mm</p> <p>If Time Scope = Relative or Relative / Last Run; used for Task Monitor tasks not associated with a trigger.</p> <p>hh must be a positive integer. mm must be a positive integer between 0 and 59 inclusive. For example, -124:00, -12:00, -6:00, 00:00, 6:00, 12:00, or 124:00.</p> <p>Together with the Time Scope From field, it allows you to specify a window of time, relative to the time the Task Monitor task launched, during which the conditions of the Task Monitor must be met.</p> <p>If the conditions are not met within the specified window, the Task Monitor task instance will transition to Failed (default) or Finished status determined by the Expiration Action.</p>
<p>Wait / Delay Options</p>	<p>This section contains specifications for waiting to start and/or delaying on start the task.</p>

<p>Wait To Start</p>	<p>Amount of time to wait before starting a task from the time that it was launched.</p> <p>Options are:</p> <ul style="list-style-type: none"> • – None – • Time • Relative Time • Duration • Seconds
<p>Wait Time</p>	<p>If Wait To Start = Time or Relative Time; Number of hours and minutes to wait before starting the task.</p>
<p>Wait Day Constraint</p>	<p>If Wait Time = Time or Relative Time; Specification for whether or not to advance the wait time to another day.</p> <p>Valid values:</p> <ul style="list-style-type: none"> • -- None -- <ul style="list-style-type: none"> • If Wait To Start = Time; Advance to the next day if the specified wait time is before the time that the task instance is eligible to start; that is, all dependencies have been met. For example: it is not being held, and it is not waiting on any predecessors. • If Wait To Start = Relative Time; Advance to the next day if the specified wait time is before the task instance Trigger Time or, if there is no Trigger Time, before the task instance Launch Time. In the latter case, when a task instance is within a workflow, it will inherit the Launch Time of the top-level parent workflow task instance. • Same Day Do not advance day. • Next Day Advance to the next day. • Next Business Day Advance to the next business day. • Sunday If today is not Sunday, advance to next Sunday. • Monday If today is not Monday, advance to next Monday. • Tuesday If today is not Tuesday, advance to next Tuesday. • Wednesday If today is not Wednesday, advance to next Wednesday. • Thursday If today is not Thursday, advance to next Thursday. • Friday If today is not Friday, advance to next Friday. • Saturday If today is not Saturday, advance to next Saturday. <p>Default is – None –.</p>
<p>Wait Duration</p>	<p>If Wait To Start = Duration; Number of days, hours, minutes, and seconds to wait before starting the task.</p>
<p>Wait Duration In Seconds</p>	<p>If Wait To Start = Seconds; Number of seconds to wait before starting the task.</p>
<p>Delay On Start</p>	<p>Amount of time to delay the start of a task, after it has been launched, from the time that it is eligible to start; that is, all dependencies have been met. For example: it is not being held, it is not waiting on any predecessors, or there is no wait time specified.</p> <p>Options are:</p> <ul style="list-style-type: none"> • – None – • Duration • Seconds

Delay Duration	If Delay On Start = Duration; Number of days, hours, minutes, and seconds to delay after starting the task.
Delay Duration In Seconds	If Delay On Start = Seconds; Number of seconds to delay after starting the task.
Time Options	This section contains time-related specifications for the task instance.
Late Start	If enabled, and if the task instance starts after the time or period specified, the task instance is flagged as late. You can specify a time or duration to determine a late start (see Late Start Type). To determine whether a task instance started late, open the task instance and locate the Started Late field; the field is checked if the instance started after the specified time. The Started Late field displays in the task instance Details only if the user specified a Late Start in the task Details.
Started Late	System-supplied; this field is flagged if the task started later than the time specified in the Late Start fields.
Late Start Type	Required if Late Start is enabled. Options: <ul style="list-style-type: none"> • Time - Flag the task if it starts after the specified time. • Duration - Flag the task if it starts a certain amount of time after the programmed start time. The task must have a specific start time.
Late Start Time	If Late Start Type = Time; Time after which the task start time is considered late. Use HH:MM, 24-hour time.
Late Start Day Constraint	If Late Start Type = Time; Specification for whether or not to advance the late start time to another day. Valid values: <ul style="list-style-type: none"> • -- None -- Advance to the next day if the specified late start time is before the Created time of the task instance. • Same Day Do not advance day. • Next Day Advance to the next day. • Next Business Day Advance to the next business day. • Sunday If today is not Sunday, advance to next Sunday. • Monday If today is not Monday, advance to next Monday. • Tuesday If today is not Tuesday, advance to next Tuesday. • Wednesday If today is not Wednesday, advance to next Wednesday. • Thursday If today is not Thursday, advance to next Thursday. • Friday If today is not Friday, advance to next Friday. • Saturday If today is not Saturday, advance to next Saturday. • Nth Day Advance to a specific number of days in the future. Default is -- None --.
Late Start Nth Amount	If Late Start Day Constraint = Nth Day; Number of days to advance.

Late Start Duration	<p>If Late Start Type = Duration; Duration (amount of relative time) after which the task is considered to have started late.</p> <p>For a task within a workflow, the duration is the period between the time the workflow starts and the time the task itself starts. For example, a task might have a Late Start Duration of 60 minutes. If the workflow starts at 9:00 a.m. but the task itself does not start until 10:30, the task has started late.</p> <p>For a task that is not within a workflow, Late Start Duration has meaning only if the task has been held upon starting. For example, if a task has a Late Start Duration of 60 minutes and the Hold on Start field is enabled, if the task is not released from hold within the amount of time specified in the Late Start Duration field, the task has started late.</p>
Computed Late Start Time	<p>If Late Start is enabled, the computed Date/Time for when the task instance will be Late Started.</p>
Late Finish	<p>If enabled, and if the task instance finishes after the time or period specified, the task instance is flagged as late. You can specify a time or duration to determine a late finish (see Late Finish Type). To determine whether a task instance finished late, open the task instance and locate the Finished Late field; the field is checked if the instance finished after the specified time or lasted longer than expected. This field only appears on the task instance if the user specified a Late Finish in the task definition.</p>
Finished Late	<p>System-supplied; this field is flagged if the task finished later than the time or duration specified in the Late Finish fields.</p>
Late Finish Type	<p>Required if Late Finish is enabled.</p> <p>Options:</p> <ul style="list-style-type: none"> • Time - Flag the task if it finishes after the specified time (see Late Finish Time). • Duration - Flag the task if it finishes a certain amount of time after the programmed finish time (see Late Finish Duration). The task must have a specific finish time. • Average Duration - Flag the task if it finishes before the average duration (see Average Instance Time) for the task, less an offset (see Late Finish Offset Type), if specified.
Late Finish Offset Type	<p>If Late Finish Type = Average Duration;</p> <p>Options:</p> <ul style="list-style-type: none"> • Percentage • Duration
Late Finish Percentage Offset (+)	<p>Required if Late Finish Offset Type = <i>Percentage</i>; Percentage of Average Duration to use as an offset. The late finish time is calculated by adding the offset to the Average Duration.</p>
Late Finish Duration Offset (+)	<p>Required if Late Finish Offset Type = <i>Duration</i>; Duration to use as an offset. The late finish time is calculated by adding the offset to the Average Duration.</p>
Late Finish Duration Offset Unit	<p>If Late Finish Offset Type = Duration;</p> <p>Options:</p> <ul style="list-style-type: none"> • Seconds • Minutes • Hours
Late Finish Time	<p>If Late Finish Type = Time; Time after which the task finish time is considered late. Use HH:MM, 24-hour time.</p>

<p>Late Finish Day Constraint</p>	<p>If Late Finish Type = Time; Specification for whether or not to advance the late finish time to another day.</p> <p>Valid values:</p> <ul style="list-style-type: none"> • -- None -- Advance to the next day if the specified late finish time is before the Created time of the task instance. • Same Day Do not advance day. • Next Day Advance to the next day. • Next Business Day Advance to the next business day. • Sunday If today is not Sunday, advance to next Sunday. • Monday If today is not Monday, advance to next Monday. • Tuesday If today is not Tuesday, advance to next Tuesday. • Wednesday If today is not Wednesday, advance to next Wednesday. • Thursday If today is not Thursday, advance to next Thursday. • Friday If today is not Friday, advance to next Friday. • Saturday If today is not Saturday, advance to next Saturday. • Nth Day Advance to a specific number of days in the future. <p>Default is -- None --.</p>
<p>Late Finish Nth Amount</p>	<p>If Late Finish Day Constraint = Nth Day; Number of days to advance.</p>
<p>Late Finish Duration</p>	<p>If Late Finish Type = Duration; Longest amount of time this task instance should take to run.</p>
<p>Computed Late Finish Time</p>	<p>If Late Finish is enabled, the computed Date/Time for when the task instance will be Late Finished.</p>
<p>Early Finish</p>	<p>If enabled, and if the task instance finishes before the time or period specified, the task instance is flagged as early. You can specify a time or duration to determine an early finish (see Early Finish Type). To determine whether a task instance finished early, open the task instance and locate the Finished Early field; the field is checked if the instance finished before the specified time or did not last as long as expected. This field only appears on the task instance if the user added Early Finish specifications to the task definition.</p>
<p>Finished Early</p>	<p>System-supplied; this field is flagged if the task finished earlier than the time specified in the Early Finish fields.</p>
<p>Early Finish Type</p>	<p>Required if Early Finish is enabled.</p> <p>Options:</p> <ul style="list-style-type: none"> • Time - Flag the task if it finishes before the specified time (see Early Finish Time). • Duration - Flag the task if it finishes a certain amount of time before the programmed finish time (see Early Finish Duration). The task must have a specific finish time. • Average Duration - Flag the task if it finishes before the average duration (see Average Instance Time) for the task, less an offset (see Early Finish Offset Type), if specified.
<p>Early Finish Offset Type</p>	<p>If Early Finish Type = Average Duration;</p> <p>Options:</p> <ul style="list-style-type: none"> • Percentage • Duration
<p>Early Finish Percentage Offset (-)</p>	<p>Required if Early Finish Offset Type = <i>Percentage</i>; Percentage of Average Duration to use as an offset. The early finish time is calculated by subtracting the offset from the Average Duration.</p>

Early Finish Duration Offset (-)	Required if Early Finish Offset Type = <i>Duration</i> ; Duration to use as an offset. The early finish time is calculated by subtracting the offset from the Average Duration .
Early Finish Duration Offset Unit	If Early Finish Offset Type = <i>Duration</i> ; Options: <ul style="list-style-type: none"> • Seconds • Minutes • Hours
Early Finish Time	If Early Finish Type = <i>Time</i> ; Time before which the task finish time is considered early. That is, enter a time at which the task should still be running. Use HH:MM, 24-hour time.
Early Finish Day Constraint	If Early Finish Type = <i>Time</i> ; Specification for whether or not to advance the early finish time to another day. Valid values: <ul style="list-style-type: none"> • -- None -- Advance to the next day if the specified early finish time is before the Created time of the task instance. • Same Day Do not advance day. • Next Day Advance to the next day. • Next Business Day Advance to the next business day. • Sunday If today is not Sunday, advance to next Sunday. • Monday If today is not Monday, advance to next Monday. • Tuesday If today is not Tuesday, advance to next Tuesday. • Wednesday If today is not Wednesday, advance to next Wednesday. • Thursday If today is not Thursday, advance to next Thursday. • Friday If today is not Friday, advance to next Friday. • Saturday If today is not Saturday, advance to next Saturday. • Nth Day Advance to a specific number of days in the future. Default is -- None --.
Early Finish Nth Amount	If Early Finish Day Constraint = <i>Nth Day</i> ; Number of days to advance.
Early Finish Duration	If Early Finish Type = <i>Duration</i> ; Shortest amount of time this task instance should take to run.
User Estimated Duration	Required if Early Finish Type or Late Finish Type = <i>Average Duration</i> ; Estimated amount of time it should normally take to run this task. The Controller uses this information to calculate the User Estimated End Time on a task instance record. User Estimated Duration is used when the Average Duration is not available; for example, on the first launch of a task.
Projected Late	System-provided if Late Start Time , Late Start Duration , or Late Finish Time is specified; This field is flagged if the task instance is projected to be late based on critical path projected end times (see Critical Path Projected Late Action Maximum and Critical Path Projected Late Threshold In Minutes Universal Controller system properties). .
Critical Path Options	This section contains Critical Path-related specifications for the task.

CP Duration	Optional; Allows you to override the estimated Critical Path Duration of the task when running in a Workflow; used in conjunction with the CP Duration Unit field. In most cases, this field should be left blank, which implies that the Controller will estimate the Critical Path Duration based on historical executions. Valid values are any integer equal to or greater than 0. Variables and Functions are supported.
CP Duration (Resolved)	Displays the current resolved value of the CP Duration field, which may contain variables or functions that will be displayed as unresolved until the task instance starts. The CP Duration (Resolved) field can continue to change value until the task instance starts, at which time CP Duration will display as resolved and CP Duration (Resolved) will no longer be visible unless there was an issue resolving the variables and/or functions contained within CP Duration . If the Controller is unable to resolve CP Duration or it resolves to an invalid value, CP Duration will be ignored and the Controller will estimate the Critical Path Duration based on historical executions.
CP Duration Unit	Type of CP Duration; used in conjunction with the CP Duration field. For example, for a CP Duration of two minutes, specify 2 in the CP Duration field and select Minutes in this field. Options: <ul style="list-style-type: none"> • Seconds • Minutes • Hours Default is Minutes.
Workflow Execution Options	This section contains Execution Restriction specifications for the task if it is within a Workflow.
Execution Restriction	Specification for whether or not there is a restriction for this task to be run, skipped, or held. Options are: <ul style="list-style-type: none"> • -- None -- No restriction for this task. • Run Restriction for when this task will be run. • Skip Restriction for when this task will be skipped. • Hold Restriction for when this task will be held. If Execution Restriction on a task is Run or Skip, then when it is part of a Workflow that is being launched, the Restriction Period is evaluated. The task instance will be skipped if Execution Restriction is Skip and the date is within the Restriction Period or Execution Restriction is Run and the date is not within the Restriction Period . Execution Restriction can be set to Skip with a Restriction Period of - None -, meaning the restriction is always active and the task will be skipped when it is part of a Workflow.
Restriction Period	If Execution Restriction = Run, Skip, or Hold; Period of time when the task is restricted. Options are: <ul style="list-style-type: none"> • -- None -- No period of restriction for this task. • Before Restriction is valid if the date is before the Before Date value. • After Restriction is valid if the date is after the After Date value. • Span Restriction is valid if the date is before the Before Date value and after After Date value. • On Restriction is valid if the date is one of the Date List values.
Before Date	If Restriction Period = Before or Span; Date before which the restriction is valid.
Before Time	If Restriction Period = Before or Span; Time on the selected date before which the restriction is valid.
After Date	If Restriction Period = After or Span; Date after which the restriction is valid.

After Time	If Restriction Period = After or Span; Time on the selected date after which the restriction is valid.
Date List	If Restriction Period = On; Date(s) on which the restriction is valid.
Statistics	This section contains time-related statistics for the task instance.
User Estimated End Time	System-supplied; If the user entered information into the User Estimated Duration field in the task Details, the Controller uses this information to calculate an end time for the task instance, based on the date/time the task instance started.
Lowest Estimated End Time	System-supplied; Lowest estimated end time of the task instance, calculated by the Controller based on the date/time the task instance started.
Average Estimated End Time	System-supplied; Average estimated end time of the task instance, calculated by the Controller based on the date/time the task instance started.
Highest Estimated End Time	System-supplied; Highest estimated end time of the task instance, calculated by the Controller based on the date/time the task instance started.
Projected Start Time	System-supplied; projected start time of the task instance, calculated by the Controller based on Projected End Time minus Projected Duration .
Projected End Time	System-supplied; projected end time of the task instance, calculated by the Controller based on the projected end time of its predecessor (or the maximum projected end time of all its predecessors, if more than one path exists to that task instance) plus its estimated critical path duration .
Metadata	This section contains Metadata information about this record.
UUID	Universally Unique Identifier of this record.
Updated By	Name of the user that last updated this record.
Updated	Date and time that this record was last updated.
Created By	Name of the user that created this record.
Created	Date and time that this record was created.
Status History	History of all statuses that the task instance has gone through.
Buttons	This section identifies the buttons displayed above and below the Task Instance Details that let you perform various actions.
Update	Saves updates to the record.
Force Finish	See Force Finishing a Task .
Hold	Places the task instance on Hold (see Putting a Task on Hold).
Skip	For tasks loaded into the schedule that have not yet run; allows you to tell the Controller to skip this task. See Skipping a Task .

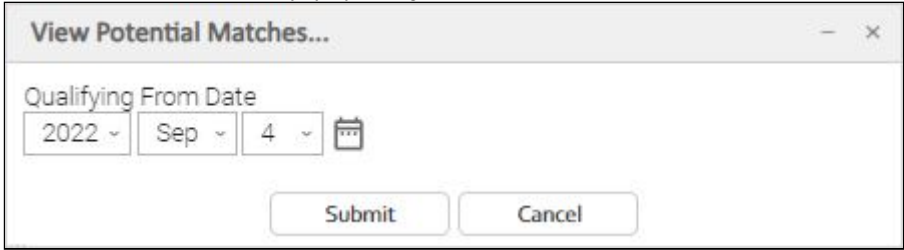
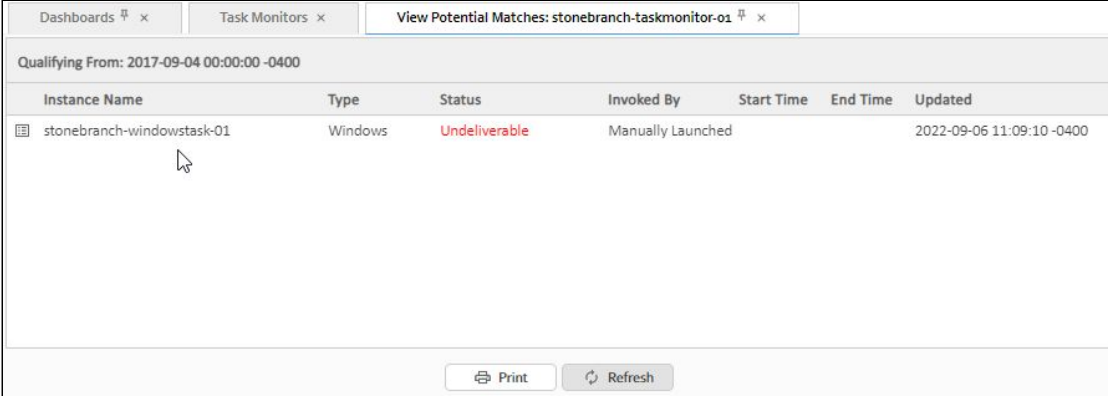
<p>Re-run</p>	<p>See Re-running a Task Instance.</p> <div style="border: 2px solid orange; padding: 10px; margin: 10px 0;"> <p>Note</p> <p>If the Re-run (Suppress Intermediate Failures) Permitted Universal Controller system property is set to true, the Re-run button is a drop-down list containing the following options:</p> <ul style="list-style-type: none"> • Re-run • Re-run (Suppress Intermediate Failures) </div> <p>The Re-run button does not display if the task instance does not qualify for Re-run. If the task instance qualifies for Re-run, but already has Retry Options enabled, Re-run (Suppress Intermediate Failures) displays as disabled in the drop-down list.</p>
<p>View Parent</p>	<p>Displays the task instance Details for the parent Workflow of this task instance.</p>
<p>Delete</p>	<p>Deletes the current record.</p>
<p>View Potential Matches</p>	<p>For Task Monitor task instances in Running status; Allows you to view a list of running task instances that have the potential to match the specifications for tasks being monitored by the running Task Monitor instance (see Viewing Potential Matches for a Running Task Monitor Task Instance, below).</p>
<p>Refresh</p>	<p>Refreshes any dynamic data displayed in the Details.</p>
<p>Close</p>	<p>For pop-up view only; closes the pop-up view of this task instance.</p>
<p>Delete</p>	<p>Deletes the current record.</p>
<p>Tabs</p>	<p>This section identifies the tabs across the top of the Task Instance Details that provide access to additional information about the task instance.</p>

<p>Actions</p>	<p>Actions that the Controller took automatically based on events that occurred during the execution of this task.</p> <p>Events are:</p> <ul style="list-style-type: none"> • Task instance status • Exit codes • Late start • Late finish • Early finish <p>Actions are:</p> <table border="1" data-bbox="638 521 1541 1003"> <tr> <td data-bbox="638 521 983 607">Abort Action</td> <td data-bbox="983 521 1541 607">Abort the task if certain events occur. For details, see Abort Actions.</td> </tr> <tr> <td data-bbox="638 607 983 694">Email Notification</td> <td data-bbox="983 607 1541 694">Send an email if certain events occur. For details, see Email Notification Actions.</td> </tr> <tr> <td data-bbox="638 694 983 806">Set Variable</td> <td data-bbox="983 694 1541 806">Used in tasks and workflows to set a variable based on the occurrence of certain events. For details, see Creating a Set Variable Action within a Task or Workflow.</td> </tr> <tr> <td data-bbox="638 806 983 893">SNMP Notification</td> <td data-bbox="983 806 1541 893">Send an email if certain events occur. For details, see SNMP Notification Actions.</td> </tr> <tr> <td data-bbox="638 893 983 1003">System Operation</td> <td data-bbox="983 893 1541 1003">Run an Universal Controller system operation based on specified conditions. For details, see System Operation Actions.</td> </tr> </table>	Abort Action	Abort the task if certain events occur. For details, see Abort Actions .	Email Notification	Send an email if certain events occur. For details, see Email Notification Actions .	Set Variable	Used in tasks and workflows to set a variable based on the occurrence of certain events. For details, see Creating a Set Variable Action within a Task or Workflow .	SNMP Notification	Send an email if certain events occur. For details, see SNMP Notification Actions .	System Operation	Run an Universal Controller system operation based on specified conditions. For details, see System Operation Actions .
Abort Action	Abort the task if certain events occur. For details, see Abort Actions .										
Email Notification	Send an email if certain events occur. For details, see Email Notification Actions .										
Set Variable	Used in tasks and workflows to set a variable based on the occurrence of certain events. For details, see Creating a Set Variable Action within a Task or Workflow .										
SNMP Notification	Send an email if certain events occur. For details, see SNMP Notification Actions .										
System Operation	Run an Universal Controller system operation based on specified conditions. For details, see System Operation Actions .										
<p>Virtual Resources</p>	<p>Lists all Virtual Resources to which this task is assigned.</p> <p>If you want to create a Task Virtual Resource for this task, you can select an existing Virtual Resource (or, optionally, first create a new Virtual Resource and then select it as the Task Virtual Resource) or enter a Virtual Resource variable. The variable must be a supported type as described in Variables and Functions.</p>										
<p>Exclusive Requests</p>	<p>Lists all records in the Exclusive Requests table (<code>ops_exclusive_order</code>) for this task instance.</p>										
<p>Notes</p>	<p>Lists all notes associated with this record.</p>										

4.6 Viewing Potential Matches for a Running Task Monitor Task Instance

To view a list of running task instances that have the potential to match the specifications for tasks being monitored by the running Task Monitor task instance:

<p>Step 1</p>	<p>Either:</p> <ul style="list-style-type: none"> • From the Activity Monitor or Task Instances list, right-click the the running Task Monitor task instance and select View Potential Matches from the Action Menu. • Open the running Task Monitor task instance and click the View Potential Matches button or right-click in the task instance Details and select View Potential Matches from the Action Menu. • If the running Task Monitor task instance is part of a Workflow, right-click the task instance in the Workflow Monitor and select View Potential Matches from the menu.
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<p>Step 2</p>	<p>On the View Potential Matches pop-up dialog, select a date and click Submit.</p> 
<p>Step 3</p>	<p>A list of all potential matches displays in a new tab.</p> 
<p>Step 4</p>	<p>Click Print to print a hard copy of the list or Refresh to refresh the task instances on the list.</p>

4.7 Monitoring Task Execution

You can monitor all system activity from the [Activity Monitor](#) and can view activity history from the [History list](#).

4.8 Understanding Relative Time Scope

For any *relative* Time Scope conditions *within the past*, a Task Monitor will analyze only the current content of the database; specifically, by using the Status (ops_exec."status_code") and the State Changed Time (ops_exec."state_changed_time") to determine potential matches from the time window in the past.

Consider a Task Monitor instance monitoring for a Failed status within a time window in the past. If a potential task instance has a current status of Failed, the current State Changed Time will indicate when that task instance transitioned to the Failed status. When the Task Monitor instance runs, any task instance with a matching Status, and a State Changed Time within the time window in the past, can be considered for a match.

Note

The Task Monitor instance will consider only the *current* content (that is, *current* Status and *current* State Changed Time) of the All Task Instances (ops_exec) table when searching for qualifying task instances that *match within a time window in the past*.

Revisiting the example above, if you had a task instance with a status of Failed within the time window in the past, but prior to the Task Monitor instance running, the task instance was Finished, it would no longer be considered for a match.

Be aware that when specified, the Time Scope is *relative* to the time that the Task Monitor instance runs.

For example, consider the following Task Monitor instance:

Field	Value
Start Time	2017-11-02 15:05:00 -0400
From	-6:00
To	-2:00
Status To Monitor	Success
Task To Monitor	Sleep 0

For the *relative* Time Scope specified above, with a time window in the past, this would translate into the following query, paying particular attention to how the relative times are computed.

```
SELECT * FROM ops_exec WHERE "state_changed_time" >= '2017-11-02 09:05:00 -0400' AND
"state_changed_time" <= '2017-11-02 13:05:00 -0400' AND "status_code" = '200' AND
"task_id" = '410d6c0bc0a801c901838d8ac43b3279'
```

5 Agent File Monitor Task

5.1 Overview

The Agent File Monitor task allows you to monitor a specific remote machine for the creation, deletion, change, existence, or non-existence of one or more files at a specific location. In order to run an Agent File Monitor task, you need Universal Agent for Windows, Linux/Unix, or z/OS running on the machine where you are monitoring for the file.

5.2 Processing Flow for Agent File Monitors

Agent File Monitor tasks are meant to be launched either by using a [Agent File Monitor trigger](#) or by being included within a Workflow. However, there are no technical restrictions on how an Agent File Monitor task can be launched. The processing may differ depending on which of the following methods was used to launch it:

- Launched by a Workflow
- Launched by an Agent File Monitor trigger
- Launched manually or by another trigger type

The processing on an Agent File Monitor task for each launching method is described below.

Note

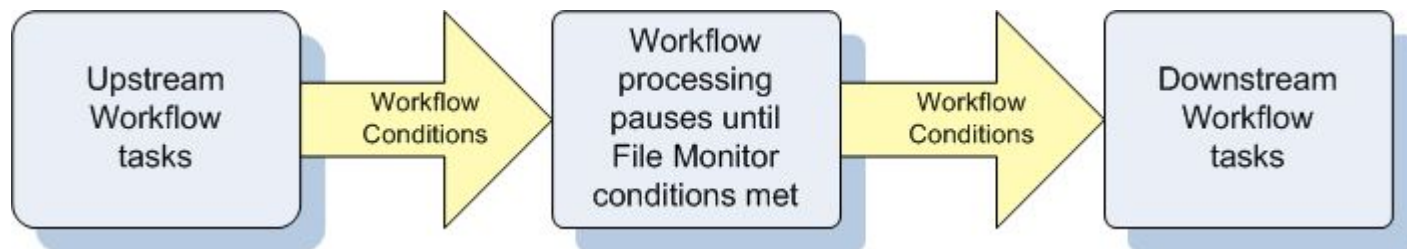
Any changes made to an Agent File Monitor task are not recognized by its respective Triggers until those Triggers are disabled and re-enabled.

5.2.1 Launching an Agent File Monitor Task Within a Workflow

The Agent File Monitor task can be launched within a [Workflow](#).

In this scenario, the task launches when the upstream workflow conditions are satisfied. Workflow processing then pauses until the conditions in the Agent File Monitor task are satisfied. If the Agent File Monitor is watching for the creation, change, or deletion of a file, the task goes to SUCCESS when the event occurs. If the Agent File Monitor is watching for the existence or non-existence of a file, the task immediately goes to SUCCESS or FAILURE. Subsequent processing depends on the conditions built into the Workflow.

The following diagram illustrates the processing for this scenario.



5.2.2 Launching an Agent File Monitor Task Using an Agent File Monitor Trigger

A common use for the Agent File Monitor task is to launch it using an [Agent File Monitor trigger](#), which specifies one or more tasks that are launched when a condition(s) is satisfied.

In this scenario, the Agent File Monitor task launches when its associated Agent File Monitor trigger is enabled.

Note

You should use an Agent File Monitor trigger to launch only Agent File Monitor tasks that specify a single Agent, not an Agent Cluster. An Agent File Monitor trigger can launch only a single task, not multiple tasks, which would be the case if an Agent Cluster was specified.

This method is best geared toward watching for the creation, deletion, or change in files. When the conditions in the Agent File Monitor task are satisfied, the Agent File Monitor task goes to SUCCESS and the tasks listed in the associated trigger are launched. The Agent File Monitor task continues running until its conditions are satisfied or until the user disables the trigger.

If you use this method to check for the existence or non-existence of a file, as soon as the task is launched it goes to SUCCESS or FINISHED status. If it goes to SUCCESS, the tasks specified in the trigger are launched. A FINISHED status indicates that it found a file that should not be there or did not find a file that should be there. Both of these cases constitute a "failure" of the conditions and therefore the tasks in the trigger are not launched.

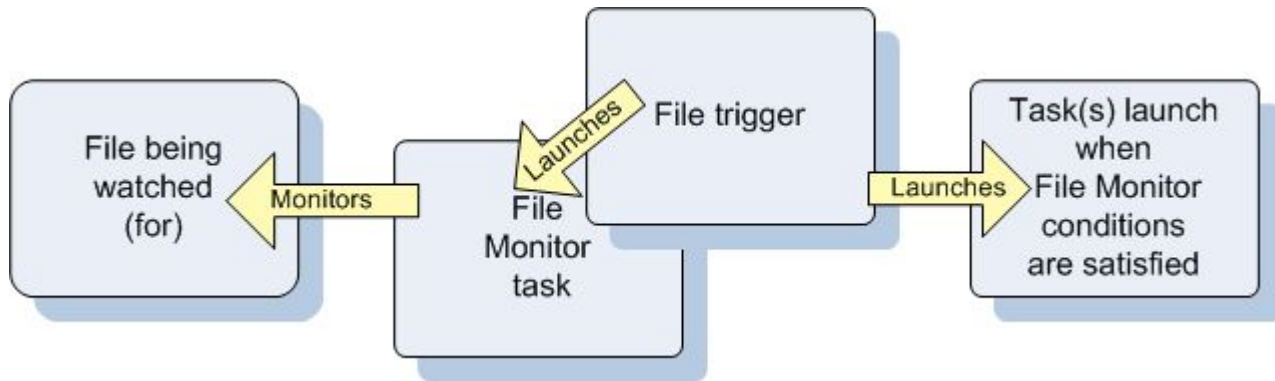
When the Agent File Monitor task goes to FINISHED or SUCCESS, the associated Agent File (Monitor) trigger is automatically disabled.

Note

Using an [Agent File Monitor trigger](#) to trigger an Agent File Monitor task that is monitoring for the creation of one or more files (**Monitor Type** = Exists) will disable the trigger. You should instead specify (**Monitor Type** = Create) and check [Trigger on Existence](#).

When you launch an Agent File Monitor task from an Agent File Monitor trigger, you cannot manually cancel or force finish the task. You can only stop the task by disabling the trigger. If you manually disable the trigger while the task is still running, the task goes to FINISHED status.

The diagram below illustrates the processing flow for this scenario.



5.2.3 Launching an Agent File Monitor Task Manually or Via Other Trigger

If you manually launch an Agent File Monitor task or launch it using a non-Agent File Monitor trigger, such as a Time trigger, the task continues running until its specified conditions are met, at which time the task goes to SUCCESS. No other processing occurs unless you have configured notifications with the task or set up some other task(s) to launch based on the status of this task.

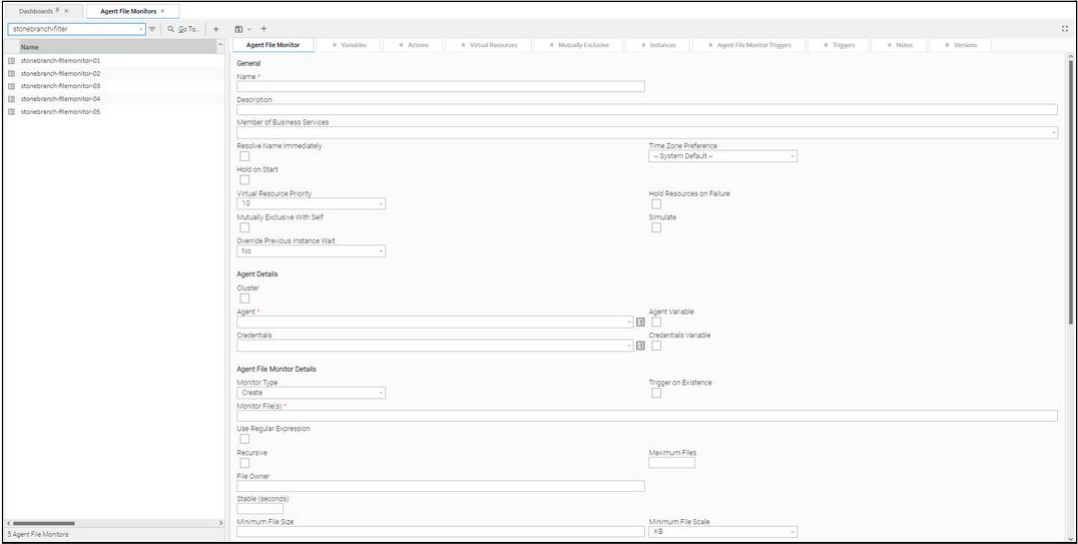


If the conditions are not met, the task runs perpetually or until a user issues a Cancel or Force Finish command against it.

5.3 Built-In Variables

The following [built-in variables](#) can be used in an Agent File Monitor task to pass data where appropriate:

- [Task Instance variables](#)
- [Agent-Based Task Instance variables](#)
- [Agent File Monitor Task variables](#)

5.4 Creating an Agent File Monitor Task

<p>Step 1</p>	<p>From the Automation Center navigation pane, select Tasks > Agent File Monitor Tasks. The Agent File Monitor Tasks list displays a list of all currently defined Agent File Monitor tasks.</p> <p>To the right of list, Agent File Monitor Task Details for a new Agent File Monitor task displays.</p> 
<p>Step 2</p>	<p>Enter/select Details for a new Agent File Monitor task, using the field descriptions below as a guide.</p> <ul style="list-style-type: none"> • Required fields display an asterisk (*) after the field name. • Default values for fields, if available, display automatically. <p>To display more of the Details fields on the screen, you can either:</p> <ul style="list-style-type: none"> • Use the scroll bar. • Temporarily hide the list above the Details. • Click the  button above the list to display a pop-up version of the Details.
<p>Step 3</p>	<p>Click the  button. The task is added to the database, and all buttons and tabs in the Task Details are enabled.</p>

Note

To [open](#) an existing record on the list, either:

- Click a record in the list to display its record Details below the list. (To clear record Details below the list, click the **New** button that displays above and below the Details.)
- Clicking the [Details icon](#) next to a record name in the list, or right-click a record in the list and then click **Open** in the [Action menu](#) that displays, to display a pop-up version of the record Details.
- Right-click a record in the a list, or open a record and right-click in the record Details, and then click **Open In Tab** in the [Action menu](#) that displays, to display the record Details under a new tab on the record list page (see [Record Details as Tabs](#)).

5.4.1 Agent File Monitor Task Details

The following Agent File Monitor Task Details is for an existing Agent File Monitor task.

Depending on the values that you enter / select for these fields, and whether or not the Agent File Monitor task has ever been launched, more (or less) fields may display. See the [field descriptions](#), below, for a description of all fields that may display in the Agent File Monitor Task Details.

Dashboards x Agent File Monitors x Agent File Monitor Details: stonebranch-filemonitor-01 x

Launch View Parents

Agent File Monitor Variables Actions Virtual Resources Mutually Exclusive Instances Agent File Monitor

General

Name * stonebranch-filemonitor-01 Version 6

Description Demo File Monitor

Member of Business Services

Resolve Name Immediately Time Zone Preference -- System Default --

Hold on Start

Virtual Resource Priority 10 Hold Resources on Failure

Mutually Exclusive With Self Simulate

Override Previous Instance Wait No

Agent Details

Cluster

Agent * qa-agentsim1 - simagent1 Agent Variable

Credentials Credentials Variable

Agent File Monitor Details

Monitor Type Create Trigger on Existence

Monitor File(s) * file 1.txt

Use Regular Expression

Recursive Maximum Files

File Owner

Stable (seconds) 5

Minimum File Size Minimum File Scale KB

Scan Text

Wait/Delay Options

Wait To Start -- None --

Delay On Start -- None --

Workflow Only -- System Default --

Time Options

Late Start

Late Finish

Early Finish

User Estimated Duration Day Hour Min Sec

Critical Path Options

CP Duration CP Duration Unit

5.4.2 Agent File Monitor Task Details Field Descriptions

The following table describes the fields, buttons, and tabs that display in the Agent File Monitor Task Details.

Field Name	Description
General	This section contains general information about the task.
Name	User-defined name of this task (Maximum = 255 alphanumeric characters); variables supported. It is the responsibility of the user to develop a workable naming scheme for tasks.
Version	System-supplied; version number of the current record, which is incremented by the Controller every time a user updates a record. Click the Versions tab to view previous versions. For details, see Record Versioning .
Description	Description of this record. (Maximum = 255 characters.)
Member of Business Services	User-defined; Allows you to select one or more Business Services that this record belongs to. (You also can Check All or Uncheck All Business Services for this record.) You can select up to 62 Business Services for any record type, and enter a maximum of 2048 characters for each Business Service. If the Business Service Visibility Restricted Universal Controller system property is set to true, depending on your assigned (or inherited) Permissions or Roles , Business Services available for selection may be restricted.
Resolve Name Immediately	If enabled, the Instance Name of the task instance will be resolved immediately at trigger/launch time.
Time Zone Preference	User-defined; Allows you to specify the time zone that will be applied to the task. Options: <ul style="list-style-type: none"> • – System Default – Time zone is based on the value of the Task Time Zone Preference Universal Controller system property: Server or Inherited. • Server (xxx) Where (xxx) is the time zone ID of the server; time zone is evaluated in the time zone of the server. • Inherited Time zone is evaluated in the time zone of the Parent Workflow or Trigger / Launch specification in the case there is no Parent Workflow.
Hold on Start	If enabled, when the task is launched it appears in the Activity Monitor with a status of Held . The task runs when the user releases it.
Hold Reason	Information about why the task will be put on hold when it starts.
Virtual Resource Priority	Priority for acquiring a resource when two or more tasks are waiting for the resource. This priority applies to all resources required by the task. Options: 1 (high) - 100 (low). Default is 10.
Hold Resources on Failure	If enabled, the task instance will continue to hold Renewable resources if the task instance fails. Renewable resources will be returned only if the task instance status is either Complete, Finished, or Skipped.
Mutually Exclusive With Self	If enabled, the task will not be allowed to run concurrently with itself. Task will not start until the instance that is running finishes. An instance will transition to Exclusive Wait status if it cannot start due to another instance already running.
Simulate	Specifies if the instance should execute under simulation mode .

<p>Override Previous Instance Wait</p>	<p>Specifies whether or not to override the parent workflow's Previous Instance Wait configuration. This option only applies for an instance running within a workflow.</p> <p>Options:</p> <ul style="list-style-type: none"> • No Behavior determined by the parent workflow configuration. • Yes / -- None -- Regardless of the parent workflow configuration, the task instance will never wait for a previous instance to complete. • Yes / Wait for Last Regardless of the parent workflow configuration, the task instance will remain in Instance Wait until the most recent prior instance of the same task has completed. • Yes / Wait for Last / Same Workflow Regardless of the parent workflow configuration, the task instance will remain in Instance Wait until the most recent prior instance of the same task, within an instance of the same workflow, have completed. • Yes / Wait for All Regardless of the parent workflow configuration, the task instance will remain in Instance Wait until all prior instances of the same task has completed. • Yes / Wait for All / Same Workflow Regardless of the parent workflow configuration, the task instance will remain in Instance Wait until all prior instances of the same task, within an instance of the same workflow, have completed.
<p>Agent Details</p>	<p>This section contains assorted detailed information about the Agent / Agent Cluster selected for this task.</p>
<p>Cluster</p>	<p>Indication that selecting an Agent Cluster is required and selecting Broadcast, which lets you select a Cluster Broadcast, is optional. If Cluster is selected, selecting an Agent is not required unless Agent Variable is selected.</p>
<p>Agent</p>	<p>Name of the Agent resource that identifies the machine where the operation will run. If you do not specify an Agent, you must specify an Agent Cluster or Cluster Broadcast.</p>
<p>Agent Variable</p>	<p>Indication of whether the Agent field is a reference field for selecting a specific Agent (unchecked) or a text field for specifying the Agent as a variable (checked). Use the format: <code>\${variable name}</code>. The variable must be a supported type as described in Variables and Functions.</p> <div style="border: 1px solid orange; padding: 10px; margin-top: 10px;"> <p>Note</p> <p>When updating multiple Tasks, to change from using an Agent reference to using an Agent variable, you must change the Agent Variable field to Yes and specify the Agent variable in the Agent Unresolved field. Conversely, to change from using an Agent variable to using an Agent reference, you must change the Agent Variable field to No and specify the Agent reference in the Agent field.</p> </div>
<p>Agent Cluster</p>	<p>If Cluster is selected and Broadcast is not selected; Group of Agents, one of which the Controller will choose to run this task (compare with Cluster Broadcast). You can specify an agent cluster in addition to or in place of a specific Agent. If you specify an Agent and an agent cluster, the Controller first tries to run the task on the specific agent. If the Agent is not available, the Controller reverts to the agent cluster. See Agent Clusters for more information.</p>

<p>Agent Cluster Variable</p>	<p>Indication of whether the Agent Cluster field is a reference field for selecting a specific Agent Cluster (unchecked) or a text field for specifying the Agent Cluster as a variable (checked). Use the format: <code>\${variable name}</code>.</p> <p>The variable must be a supported type as described in Variables and Functions.</p> <div style="border: 1px solid black; padding: 5px; margin-top: 10px;"> <p>Note</p> <p>When updating multiple Tasks, to change from using an Agent Cluster reference to using an Agent Cluster variable, you must change the Agent Cluster Variable field to Yes and specify the Agent Cluster variable in the Agent Cluster Unresolved field. Conversely, to change from using an Agent Cluster variable to using an Agent Cluster reference, you must change the Agent Cluster Variable field to No and specify the Agent Cluster reference in the Agent Cluster field.</p> </div>
<p>Broadcast</p>	<p>Displays only if Cluster is selected; Indication that selecting a Cluster Broadcast is required. Selecting Broadcast hides the Agent and Agent Cluster fields; you cannot select values for them.</p>
<p>Cluster Broadcast</p>	<p>Group of Agents, all of which will run this task (compare with Agent Cluster). If Broadcast is selected for a task, you must select a Cluster Broadcast instead of a specific Agent and/or agent cluster. Each instance of the task running on its own Agent becomes a separate task instance record in the database and displays separately on the Activity Monitor.</p>
<p>Cluster Broadcast Variable</p>	<p>Indication of whether the Cluster Broadcast field is a reference field for selecting a specific Cluster Broadcast (unchecked) or a text field for specifying the Cluster Broadcast as a variable (checked). Use the format: <code>\$(variable name)</code>.</p> <p>The variable must be a supported type as described in Variables and Functions.</p> <div style="border: 1px solid black; padding: 5px; margin-top: 10px;"> <p>Note</p> <p>When updating multiple Tasks, to change from using a Cluster Broadcast reference to using a Cluster Broadcast variable, you must change the Cluster Broadcast Variable field to Yes and specify the Cluster Broadcast variable in the Cluster Broadcast Unresolved field. Conversely, to change from using a Cluster Broadcast variable to using a Cluster Broadcast reference, you must change the Cluster Broadcast Variable field to No and specify the Cluster Broadcast reference in the Cluster Broadcast field.</p> </div>
<p>Credentials</p>	<p>Credentials under which an Agent runs this task. These Credentials override any Credentials provided in the Agent Details for any Agent running this task.</p> <p>If the user does not have a login shell, add a - character in front of the runtime credentials name. The Controller will provide a shell for that user and strip the - character from the name.</p> <p>Required if the Agent Credentials Required Universal Controller system property is true. When required, if the Credential is specified as a variable, and the variable resolves to blank, a Start Failure will occur.</p>

<p>Credentials Variable</p>	<p>Indication of whether the Credentials field is a reference field for selecting a specific Credential (unchecked) or a text field for specifying the Credential as a variable (checked). Use the format: <code>\${variable name}</code>.</p> <p>The variable must be a supported type as described in Variables and Functions.</p> <div style="border: 1px solid black; padding: 5px; margin-top: 10px;"> <p>Note</p> <p>When updating multiple Tasks, to change from using a Credentials reference to using a Credentials variable, you must change the Credentials Variable field to Yes and specify the Credentials variable in the Credentials Unresolved field. Conversely, to change from using a Credentials variable to using a Credentials reference, you must change the Credentials Variable field to No and specify the Credentials reference in the Credentials field.</p> </div>
<p>Agent File Monitor Details</p>	<p>This section contains assorted detailed information about the task.</p>
<p>Monitor Type</p>	<p>Type of file event being monitored for.</p> <p>Options:</p> <ul style="list-style-type: none"> • Create - Wait for the creation of one or more files. • Delete - Wait for the deletion of one or more files. • Change - Monitor for a change in one or more files. • Exists - Check to see if one or more files already exist. • Missing - Check to see if one or more files do not exist. <div style="border: 1px solid black; padding: 5px; margin-top: 10px;"> <p>Note</p> <p>For UNIX and Windows, Agent File Monitor polls the directory listing every 5 seconds to compare the listings and decide whether there were any file system changes that match the monitor criteria.</p> </div>
<p>Trigger on Existence</p>	<p>If Monitor Type = Create; Task is triggered if the file being monitored for creation already exists.</p> <div style="border: 1px solid black; padding: 5px; margin-top: 10px;"> <p>Note</p> <p>This field is valid only for Linux/Unix and Windows Agents.</p> </div>
<p>Trigger on Create</p>	<p>If Monitor Type = Change; Task is triggered if the file being monitored is being created.</p> <div style="border: 1px solid black; padding: 5px; margin-top: 10px;"> <p>Note</p> <p>This field is valid only for z/OS Agents.</p> </div>

<p>Monitor File(s)</p>	<p>Location and name of a specific file or file pattern (for example, ACT001*) being monitored. Variables supported. Wildcards supported.</p> <div style="border: 1px solid orange; padding: 5px; margin-top: 10px;"> <p>Note</p> <p>z/OS files must be valid names based on the Data Set Naming Rules. No extra quoting is necessary.</p> </div> <div style="border: 1px solid orange; padding: 5px; margin-top: 10px;"> <p>Note</p> <p>Agent File Monitors with Monitor Type = Exists or Missing do not work with GDG datasets. Whether the generation is coded explicitly (for example: DATA.SET.NAME.G0001V00) or relatively (for example: DATA.SET.NAME(0)), the Agent File Monitor will always end with 'Dataset Not Found'.</p> </div>
<p>Use Regular Expression</p>	<p>Enables the use of a regular expression in the Monitor File(s) field.</p>
<p>Recursive</p>	<p>If enabled, the monitor searches the specified directory and all subdirectories.</p>
<p>Maximum Files</p>	<p>If Monitor Type = Create, Delete, or Change; For searches that use wildcards, limits the number of files to be searched.</p>
<p>File Owner</p>	<p>If Monitor Type = Create, Delete, Change, or Exists; User name / group name of the owner of the file on the operating system; that is, the user name / group name returned by the operating system in the file ownership information. LDAP groups are supported. Specifying a file owner limits the search to files with that owner.</p>
<p>Stable (seconds)</p>	<p>If Monitor Type = Change or Create; Period of time, in seconds, that a file's timestamp and size may not change to be considered as stable. Not applicable for z/OS.</p>
<p>By Percentage (+/-)</p>	<p>If Monitor Type = Change; Number that specifies the growth of a file as a percentage. A negative number specifies a reduction in size as a percentage. Not applicable for z/OS.</p>
<p>By Size (+/-)</p>	<p>If Monitor Type = Change; Used in conjunction with the By Scale field, specifies an actual change in file size. For example, to monitor for a change in file size of 10 MB, enter 10 in this field and select MB in the By Scale field. Enter a negative number to specify a reduction in size. Not applicable for z/OS.</p>
<p>By Scale</p>	<p>If Monitor Type = Change; Used in conjunction with the By Size field, specifies Bytes, KB (kilobytes), or MB (megabytes). Not applicable for z/OS.</p>
<p>To Size</p>	<p>If Monitor Type = Change; Used in conjunction with the To Scale field, specifies an actual file size that you want to monitor for. For example, to monitor for a file size of 5KB, enter 5 in this field and select KB in the To scale field. Not applicable for z/OS.</p>
<p>To Scale</p>	<p>If Monitor Type = Change; Used in conjunction with the To Size field, specifies an actual file size that you want to monitor for. Not applicable for z/OS.</p>
<p>Minimum File Size</p>	<p>If Monitor Type = Create; Minimum file size required for the file being created. Not applicable for z/OS.</p>
<p>Minimum File Scale</p>	<p>If Monitor Type = Create; Scale for the Minimum File Size. Not applicable for z/OS.</p> <p>Options:</p> <ul style="list-style-type: none"> • Bytes • KB • MB

<p>Scan Text</p>	<p>If Monitor Type = Change or Exists, or if Monitor Type = Create and a value for Stable (seconds) is specified; Specifying a string means that only files containing the string constitute a match. The string will be processed as a regular expression. Not applicable for z/OS.</p>
<p>Scan Forward</p>	<p>If Monitor Type = Change; Specifies that once the File Monitor has been satisfied, it should continue from where it left off.</p> <ul style="list-style-type: none"> • If it is scanning within a file, it should resume from the point in the file that it last scanned. • If it is monitoring for files, it should resume monitoring for the next file. • If you are scanning a file that is being overwritten each time and you want to start from the beginning each time, you should disable Scan Forward. <p>Not applicable for z/OS.</p>
<p>Wait / Delay Options</p>	<p>This section contains specifications for waiting to start and/or delaying on start the task.</p>
<p>Wait To Start</p>	<p>Amount of time to wait before starting a task from the time that it was launched.</p> <p>Options are:</p> <ul style="list-style-type: none"> • – None – • Time • Relative Time • Duration • Seconds
<p>Wait Time</p>	<p>If Wait To Start = Time or Relative Time; Number of hours and minutes to wait before starting the task.</p>
<p>Wait Day Constraint</p>	<p>If Wait Time = Time or Relative Time; Specification for whether or not to advance the wait time to another day.</p> <p>Valid values:</p> <ul style="list-style-type: none"> • -- None -- <ul style="list-style-type: none"> • If Wait To Start = Time; Advance to the next day if the specified wait time is before the time that the task instance is eligible to start; that is, all dependencies have been met. For example: it is not being held, and it is not waiting on any predecessors. • If Wait To Start = Relative Time; Advance to the next day if the specified wait time is before the task instance Trigger Time or, if there is no Trigger Time, before the task instance Launch Time. In the latter case, when a task instance is within a workflow, it will inherit the Launch Time of the top-level parent workflow task instance. • Same Day Do not advance day. • Next Day Advance to the next day. • Next Business Day Advance to the next business day. • Sunday If today is not Sunday, advance to next Sunday. • Monday If today is not Monday, advance to next Monday. • Tuesday If today is not Tuesday, advance to next Tuesday. • Wednesday If today is not Wednesday, advance to next Wednesday. • Thursday If today is not Thursday, advance to next Thursday. • Friday If today is not Friday, advance to next Friday. • Saturday If today is not Saturday, advance to next Saturday. <p>Default is – None –.</p>

Wait Duration	If Wait To Start = Duration; Number of days, hours, minutes, and seconds to wait before starting the task.
Wait Duration In Seconds	If Wait To Start = Seconds; Number of seconds to wait before starting the task.
Delay On Start	Amount of time to delay the start of a task, after it has been launched, from the time that it is eligible to start; that is, all dependencies have been met. For example: it is not being held, it is not waiting on any predecessors, or there is no wait time specified. Options are: <ul style="list-style-type: none"> • – None – • Duration • Seconds
Delay Duration	If Delay On Start = Duration; Number of days, hours, minutes, and seconds to delay after starting the task.
Delay Duration In Seconds	If Delay On Start = Seconds; Number of seconds to delay after starting the task.
Workflow Only	Specification for whether or not to apply the Wait To Start and Delay On Start specifications only if the task is in a Workflow. Options are: <ul style="list-style-type: none"> • -- System Default -- Apply the Wait To Start and Delay On Start specifications as defined by the System Default Wait/Delay Workflow Only system property. (Default is yes.) • Yes Apply the Wait To Start and Delay On Start specifications only if the task is in a Workflow. • No Apply the Wait To Start and Delay On Start specifications whether or not the task is in a Workflow.
Time Options	This section contains time-related statistics for task instances of the task.
Late Start	If enabled, and if the task instance starts after the time or period specified, the task instance is flagged as late. You can specify a time or duration to determine a late start (see Late Start Type). To determine whether a task instance started late, open the task instance and locate the Started Late field; the field is checked if the instance started after the specified time. The Started Late field displays in the task instance Details only if the user specified a Late Start in the task Details.
Late Start Type	Required if Late Start is enabled. Options: <ul style="list-style-type: none"> • Time - Flag the task if it starts after the specified time. • Duration - Flag the task if it starts a certain amount of time after the programmed start time. The task must have a specific start time.
Late Start Time	If Late Start Type = Time; Time after which the task start time is considered late. Use HH:MM, 24-hour time.

<p>Late Start Day Constraint</p>	<p>If Late Start Type = Time; Specification for whether or not to advance the late start time to another day.</p> <p>Valid values:</p> <ul style="list-style-type: none"> • -- None -- Advance to the next day if the specified late start time is before the Created time of the task instance. • Same Day Do not advance day. • Next Day Advance to the next day. • Next Business Day Advance to the next business day. • Sunday If today is not Sunday, advance to next Sunday. • Monday If today is not Monday, advance to next Monday. • Tuesday If today is not Tuesday, advance to next Tuesday. • Wednesday If today is not Wednesday, advance to next Wednesday. • Thursday If today is not Thursday, advance to next Thursday. • Friday If today is not Friday, advance to next Friday. • Saturday If today is not Saturday, advance to next Saturday. • Nth Day Advance to a specific number of days in the future. <p>Default is -- None --.</p>
<p>Late Start Nth Amount</p>	<p>If Late Start Day Constraint = Nth Day; Number of days to advance.</p>
<p>Late Start Duration</p>	<p>If Late Start Type = Duration; Duration (amount of relative time) after which the task is considered to have started late.</p> <p>For a task within a workflow, the duration is the period between the time the workflow starts and the time the task itself starts. For example, a task might have a Late Start Duration of 60 minutes. If the workflow starts at 9:00 a.m. but the task itself does not start until 10:30, the task has started late.</p> <p>For a task that is not within a workflow, Late Start Duration has meaning only if the task has been held upon starting. For example, if a task has a Late Start Duration of 60 minutes and the Hold on Start field is enabled, if the task is not released from hold within the amount of time specified in the Late Start Duration field, the task has started late.</p>
<p>Late Finish</p>	<p>If enabled, and if the task instance finishes after the time or period specified, the task instance is flagged as late. You can specify a time or duration to determine a late finish (see Late Finish Type). To determine whether a task instance finished late, open the task instance and locate the Finished Late field; the field is checked if the instance finished after the specified time or lasted longer than expected. This field only appears on the task instance if the user specified a Late Finish in the task definition.</p>
<p>Late Finish Type</p>	<p>Required if Late Finish is enabled.</p> <p>Options:</p> <ul style="list-style-type: none"> • Time - Flag the task if it finishes after the specified time (see Late Finish Time). • Duration - Flag the task if it finishes a certain amount of time after the programmed finish time (see Late Finish Duration). The task must have a specific finish time. • Average Duration - Flag the task if it finishes before the average duration (see Average Instance Time) for the task, less an offset (see Late Finish Offset Type), if specified.
<p>Late Finish Offset Type</p>	<p>If Late Finish Type = Average Duration;</p> <p>Options:</p> <ul style="list-style-type: none"> • Percentage • Duration

Late Finish Percentage Offset (+)	Required if Late Finish Offset Type = <i>Percentage</i> ; Percentage of Average Duration to use as an offset. The late finish time is calculated by adding the offset to the Average Duration .
Late Finish Duration Offset (+)	Required if Late Finish Offset Type = <i>Duration</i> ; Duration to use as an offset. The late finish time is calculated by adding the offset to the Average Duration .
Late Finish Duration Offset Unit	If Late Finish Offset Type = <i>Duration</i> ; Options: <ul style="list-style-type: none"> • Seconds • Minutes • Hours
Late Finish Time	If Late Finish Type = <i>Time</i> ; Time after which the task finish time is considered late. Use HH:MM, 24-hour time.
Late Finish Day Constraint	If Late Finish Type = <i>Time</i> ; Specification for whether or not to advance the late finish time to another day. Valid values: <ul style="list-style-type: none"> • -- None -- Advance to the next day if the specified late finish time is before the Created time of the task instance. • Same Day Do not advance day. • Next Day Advance to the next day. • Next Business Day Advance to the next business day. • Sunday If today is not Sunday, advance to next Sunday. • Monday If today is not Monday, advance to next Monday. • Tuesday If today is not Tuesday, advance to next Tuesday. • Wednesday If today is not Wednesday, advance to next Wednesday. • Thursday If today is not Thursday, advance to next Thursday. • Friday If today is not Friday, advance to next Friday. • Saturday If today is not Saturday, advance to next Saturday. • Nth Day Advance to a specific number of days in the future. Default is -- None --.
Late Finish Nth Amount	If Late Finish Day Constraint = <i>Nth Day</i> ; Number of days to advance.
Late Finish Duration	If Late Finish Type = <i>Duration</i> ; Longest amount of time this task instance should take to run.
Early Finish	If enabled, and if the task instance finishes before the time or period specified, the task instance is flagged as early. You can specify a time or duration to determine an early finish (see Early Finish Type). To determine whether a task instance finished early, open the task instance and locate the Finished Early field; the field is checked if the instance finished before the specified time or did not last as long as expected. This field only appears on the task instance if the user added Early Finish specifications to the task definition.
Early Finish Type	Required if Early Finish is enabled. Options: <ul style="list-style-type: none"> • Time - Flag the task if it finishes before the specified time (see Early Finish Time). • Duration - Flag the task if it finishes a certain amount of time before the programmed finish time (see Early Finish Duration). The task must have a specific finish time. • Average Duration - Flag the task if it finishes before the average duration (see Average Instance Time) for the task, less an offset (see Early Finish Offset Type), if specified.

Early Finish Offset Type	<p>If Early Finish Type = Average Duration;</p> <p>Options:</p> <ul style="list-style-type: none"> • Percentage • Duration
Early Finish Percentage Offset (-)	<p>Required if Early Finish Offset Type = <i>Percentage</i>; Percentage of Average Duration to use as an offset. The early finish time is calculated by subtracting the offset from the Average Duration.</p>
Early Finish Duration Offset (-)	<p>Required if Early Finish Offset Type = <i>Duration</i>; Duration to use as an offset. The early finish time is calculated by subtracting the offset from the Average Duration.</p>
Early Finish Duration Offset Unit	<p>If Early Finish Offset Type = Duration;</p> <p>Options:</p> <ul style="list-style-type: none"> • Seconds • Minutes • Hours
Early Finish Time	<p>If Early Finish Type = Time; Time before which the task finish time is considered early. That is, enter a time at which the task should still be running. Use HH:MM, 24-hour time.</p>
Early Finish Day Constraint	<p>If Early Finish Type = Time; Specification for whether or not to advance the early finish time to another day.</p> <p>Valid values:</p> <ul style="list-style-type: none"> • -- None -- Advance to the next day if the specified early finish time is before the Created time of the task instance. • Same Day Do not advance day. • Next Day Advance to the next day. • Next Business Day Advance to the next business day. • Sunday If today is not Sunday, advance to next Sunday. • Monday If today is not Monday, advance to next Monday. • Tuesday If today is not Tuesday, advance to next Tuesday. • Wednesday If today is not Wednesday, advance to next Wednesday. • Thursday If today is not Thursday, advance to next Thursday. • Friday If today is not Friday, advance to next Friday. • Saturday If today is not Saturday, advance to next Saturday. • Nth Day Advance to a specific number of days in the future. <p>Default is -- None --.</p>
Early Finish Nth Amount	<p>If Early Finish Day Constraint = Nth Day; Number of days to advance.</p>
Early Finish Duration	<p>If Early Finish Type = Duration; Shortest amount of time this task instance should take to run.</p>
User Estimated Duration	<p>Required if Early Finish Type or Late Finish Type = Average Duration; Estimated amount of time it should normally take to run this task. The Controller uses this information to calculate the User Estimated End Time on a task instance record.</p> <p>User Estimated Duration is used when the Average Duration is not available; for example, on the first launch of a task.</p>
Critical Path Options	<p>This section contains Critical Path-related specifications for the task.</p>

CP Duration	Optional; Allows you to override the estimated Critical Path Duration of the task when running in a Workflow; used in conjunction with the CP Duration Unit field. In most cases, this field should be left blank, which implies that the Controller will estimate the Critical Path Duration based on historical executions. Valid values are any integer equal to or greater than 0. Variables and Functions are supported.
CP Duration (Resolved)	Displays the current resolved value of the CP Duration field, which may contain variables or functions that will be displayed as unresolved until the task instance starts. The CP Duration (Resolved) field can continue to change value until the task instance starts, at which time CP Duration will display as resolved and CP Duration (Resolved) will no longer be visible unless there was an issue resolving the variables and/or functions contained within CP Duration . If the Controller is unable to resolve CP Duration or it resolves to an invalid value, CP Duration will be ignored and the Controller will estimate the Critical Path Duration based on historical executions.
CP Duration Unit	Type of CP Duration; used in conjunction with the CP Duration field. For example, for a CP Duration of two minutes, specify 2 in the CP Duration field and select Minutes in this field. Options: <ul style="list-style-type: none"> • Seconds • Minutes • Hours Default is Minutes.
Workflow Execution Options	This section contains Execution Restriction specifications for the task if it is within a Workflow.
Execution Restriction	Specification for whether or not there is a restriction for this task to be run, skipped, or held. Options are: <ul style="list-style-type: none"> • -- None -- No restriction for this task. • Run Restriction for when this task will be run. • Skip Restriction for when this task will be skipped. • Hold Restriction for when this task will be held. If Execution Restriction on a task is Run or Skip, then when it is part of a Workflow that is being launched, the Restriction Period is evaluated. The task instance will be skipped if Execution Restriction is Skip and the date is within the Restriction Period or Execution Restriction is Run and the date is not within the Restriction Period . Execution Restriction can be set to Skip with a Restriction Period of - None -, meaning the restriction is always active and the task will be skipped when it is part of a Workflow.
Restriction Period	If Execution Restriction = Run, Skip, or Hold; Period of time when the task is restricted. Options are: <ul style="list-style-type: none"> • - None - No period of restriction for this task. • Before Restriction is valid if the date is before the Before Date value. • After Restriction is valid if the date is after the After Date value. • Span Restriction is valid if the date is before the Before Date value and after After Date value. • On Restriction is valid if the date is one of the Date List values.
Before Date	If Restriction Period = Before or Span; Date before which the restriction is valid.
Before Time	If Restriction Period = Before or Span; Time on the selected date before which the restriction is valid.
After Date	If Restriction Period = After or Span; Date after which the restriction is valid.
After Time	If Restriction Period = After or Span; Time on the selected date after which the restriction is valid.

Date List	If Restriction Period = On; Date(s) on which the restriction is valid.
Self-Service Options	This section contains Self-Service specifications for the task.
Enforce Variables	Specifies whether or not to enforce Launch with Variables... when launching a task using the User Interface.
Lock Variables	Specifies whether or not to prevent editing variables when using Launch with Variables... from the User Interface.
Statistics	This section contains time-related statistics for task instances of the task.
First Execution	System-supplied; End Time of the first instance of this task to complete.
Last Execution	System-supplied; End Time of the last instance of this task to complete.
Last Instance Duration	System-supplied; Amount of time the task took to run the last time it ran.
Lowest Instance Time	System-supplied; Lowest amount of time this task has taken to run.
Average Instance Time	System-supplied; Average amount of time this task takes to run.
Highest Instance Time	System-supplied; Highest amount of time this task has taken to run.
Number of Instances	System-supplied; Number of instances in the database for this task.
Metadata	This section contains Metadata information about this record.
UUID	Universally Unique Identifier of this record.
Updated By	Name of the user that last updated this record.
Updated	Date and time that this record was last updated.
Created By	Name of the user that created this record.
Created	Date and time that this record was created.
Buttons	This section identifies the buttons displayed above and below the Task Details that let you perform various actions.
Save	Saves a new task record in the Controller database.
Save & New	Saves a new record in the Controller database and redisplay empty Details so that you can create another new record.
Save & View	Saves a new record in the Controller database and continues to display that record.
New	Displays empty (except for default values) Details for creating a new task.
Update	Saves updates to the record.
Launch	Manually launches the task.
View Parents	Displays a list of any parent Workflow tasks for this task.
Copy	Creates a copy of this task, which you are prompted to rename.

<p>Delete</p>	<p>Deletes the current record.</p> <div style="border: 1px solid orange; padding: 10px; margin-top: 10px;"> <p>Note</p> <p>You cannot delete a task if it is either:</p> <ul style="list-style-type: none"> • Specified in an enabled Trigger. • The only task specified in a disabled Trigger. </div>										
<p>Refresh</p>	<p>Refreshes any dynamic data displayed in the Details.</p>										
<p>Close</p>	<p>For pop-up view only; closes the pop-up view of this task.</p>										
<p>Tabs</p>	<p>This section identifies the tabs across the top of the Task Details that provide access to additional information about the task.</p>										
<p>Variables</p>	<p>Lists all user-defined variables associated with this record; that is, variables that have been defined for this specific record.</p>										
<p>Actions</p>	<p>Allows you to specify actions that the Controller will take automatically based on events that occur during the execution of this task.</p> <p>Events are:</p> <ul style="list-style-type: none"> • Task instance status • Exit codes • Late start • Late finish • Early finish <p>Actions are:</p> <table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 30%;">Abort Action</td> <td>Abort the task if certain events occur. For details, see Abort Actions.</td> </tr> <tr> <td>Email Notification</td> <td>Send an email if certain events occur. For details, see Email Notification Actions.</td> </tr> <tr> <td>Set Variable</td> <td>Used in tasks and workflows to set a variable based on the occurrence of certain events. For details, see Creating a Set Variable Action within a Task or Workflow.</td> </tr> <tr> <td>SNMP Notification</td> <td>Send an email if certain events occur. For details, see SNMP Notification Actions.</td> </tr> <tr> <td>System Operation</td> <td>Run an Universal Controller system operation based on specified conditions. For details, see System Operation Actions.</td> </tr> </table>	Abort Action	Abort the task if certain events occur. For details, see Abort Actions .	Email Notification	Send an email if certain events occur. For details, see Email Notification Actions .	Set Variable	Used in tasks and workflows to set a variable based on the occurrence of certain events. For details, see Creating a Set Variable Action within a Task or Workflow .	SNMP Notification	Send an email if certain events occur. For details, see SNMP Notification Actions .	System Operation	Run an Universal Controller system operation based on specified conditions. For details, see System Operation Actions .
Abort Action	Abort the task if certain events occur. For details, see Abort Actions .										
Email Notification	Send an email if certain events occur. For details, see Email Notification Actions .										
Set Variable	Used in tasks and workflows to set a variable based on the occurrence of certain events. For details, see Creating a Set Variable Action within a Task or Workflow .										
SNMP Notification	Send an email if certain events occur. For details, see SNMP Notification Actions .										
System Operation	Run an Universal Controller system operation based on specified conditions. For details, see System Operation Actions .										
<p>Virtual Resources</p>	<p>Lists all Virtual Resources to which this task is assigned.</p> <p>If you want to create a Task Virtual Resource for this task, you can select an existing Virtual Resource (or, optionally, first create a new Virtual Resource and then select it as the Task Virtual Resource) or enter a Virtual Resource variable. The variable must be a supported type as described in Variables and Functions.</p>										
<p>Mutually Exclusive</p>	<p>Lists all tasks that have been set to be mutually exclusive of this task.</p>										

Instances	Lists all instances of the task.
Agent File Monitor Triggers	Lists all Agent File Monitor triggers that reference this task in the Agent File Monitor field of the trigger Details; that is, a list of all Agent File Monitor triggers that execute this task. For instructions on creating triggers, see Triggers .
Triggers	List of all triggers that reference this task in the Task(s) field of the trigger Details; that is, a list of all triggers that have been defined to launch this task. Also allows you to add new triggers. If you add a new trigger from this location, the Controller automatically constructs a default trigger name as follows: <current task name>#TRIGGER#. You can change the default name if desired. For instructions on creating triggers, see Triggers .
Notes	Lists all notes associated with this record.
Versions	Stores copies of all previous versions of the current record. See Record Versioning .

5.5 Viewing an Agent File Monitor Task Instance

When an Agent File Monitor task is launched, the Controller creates a task instance record of that task.

A task instance contains detailed information about a single execution of that task.

You can access a task instance from:

- **Instances tab** on the [Agent File Monitor Task Details](#) for that task
- [Activity Monitor](#)
- [Task Instances list](#)

5.5.1 Agent File Monitor Task Instance Details

The following Agent File Monitor Task Instance Details contains information on the execution of the task shown in the [Agent File Monitor Task Details](#).

Dashboards x Agent File Monitors x Agent File Monitor Details: stonebranch-filemonitor-01 x Agent File Monitor Instance Details: stonebranch-filemon

Re-run

Agent File Monitor Instance Actions Virtual Resources Exclusive Requests Notes

General

Instance Name	stonebranch-filemonitor-01	Instance Number	2
Description	Demo File Monitor		
Member of Business Services			
Task	stonebranch-filemonitor-01	Source Version	6
Launch Source	Launch Task / User Interface		
Invoked By	Manually Launched	Execution User	Admin
Calendar	System Default	Time Zone Preference	-- System Default --
Virtual Resource Priority	10	Hold Resources on Failure	<input type="checkbox"/>
Mutually Exclusive With Self	<input type="checkbox"/>	Simulate	<input type="checkbox"/>
Previous Instance Wait Resolved	-- None --		

Status

Status	Finished	Exit Code	0
Status Description	Agent is not Active -> State was forced from UNDELIVERABLE to FINISHED		
Operational Memo			
Trigger Time		Launch Time	2023-09-19 14:42:07 -0400
Wait Until Time			
Start Time		End Time	2023-09-19 14:42:52 -0400
Duration			
Last Trigger File			

Agent Details

Cluster	<input type="checkbox"/>	Agent Variable	<input type="checkbox"/>
Agent *	qa-agentsim1 - simagent1	Credentials Variable	<input type="checkbox"/>
Credentials			

Agent File Monitor Details

Monitor Type	Create	Trigger on Existence	<input type="checkbox"/>
Monitor File(s) *	file 1.txt		
Use Regular Expression	<input type="checkbox"/>		
Recursive	<input type="checkbox"/>	Maximum Files	
File Owner			
Stable (seconds)	5		
Minimum File Size		Minimum File Scale	KB
Scan Text			

5.5.2 Agent File Monitor Task Instance Details Field Descriptions

The following table describes the fields, buttons, and tabs that display in Agent File Monitor Task Instance Details.

Field Name	Description
General	This section contains general information about the task instance.
Instance Name	Name of this task instance.
Instance Number	System-supplied; Sequentially assigned number, maintained per task, representing the creation order of the instance.
Description	Description of this record. (Maximum = 255 characters.)
Member of Business Services	<p>User-defined; Allows you to select one or more Business Services that this record belongs to. (You also can Check All or Uncheck All Business Services for this record.)</p> <p>You can select up to 62 Business Services for any record type, and enter a maximum of 2048 characters for each Business Service.</p> <p>If the Business Service Visibility Restricted Universal Controller system property is set to true, depending on your assigned (or inherited) Permissions or Roles, Business Services available for selection may be restricted.</p>
Task	Name of the task that was run to create this task instance. Click the icon to display Task Details for the task.
Source Version	Version of the task that was run to create this task instance.

<p>Launch Source</p>	<p>System-supplied; Source from which this task was launched.</p> <p>Options:</p> <ul style="list-style-type: none"> • Scheduled Trigger If the instance was directly launched by a scheduled trigger, the Trigger (trigger_id) column is assigned the UUID of the scheduled trigger. • Trigger Monitor If the instance is a monitor associated with monitor trigger, the Trigger (trigger_id) column is assigned the UUID of the monitor trigger. • Trigger Now / User Interface If the instance was directly launched by a Trigger Now command, the Trigger (trigger_id) column is assigned the UUID of the trigger. • Trigger Now / System Operation If the instance was directly launched by a Trigger Now command, the Trigger (trigger_id) column is assigned the UUID of the trigger and the Source Instance (source_instance) column will be assigned the UUID of the instance invoking the System Operation. • Trigger Now / Web Service If the instance was directly launched by a Trigger Now command, the Trigger (trigger_id) column is assigned the UUID of the trigger. • Trigger Now / Command Line If the instance was directly launched by a Trigger Now command, the Trigger (trigger_id) column is assigned the UUID of the trigger. • Workflow If the instance was launched by a workflow, the Workflow (workflow_id) column is assigned the UUID of the workflow instance. Likewise, the Source Instance (source_instance) column will also be assigned the UUID of the workflow instance. • Launch Task / User Interface If the instance was directly launched by the Launch Task command, the Source Instance (source_instance) column will be null. • Launch Task / System Operation If the instance was directly launched by the Launch Task command, the Source Instance (source_instance) column will be assigned the UUID of the instance invoking the System Operation. • Launch Task / Web Service If the instance was directly launched by the Launch Task command, the Source Instance (source_instance) column will be null. • Launch Task / Command Line If the instance was directly launched by the Launch Task command, the Source Instance (source_instance) column will be null. • Recurring If the instance was directly launched by a Recurring Task Instance, the Source Instance (source_instance) column will be assigned the UUID of the Recurring Task Instance.
<p>Source Instance</p>	<p>System-supplied; UUID of the source instance.</p> <ul style="list-style-type: none"> • If the instance was directly launched by a Trigger Now command; the UUID of the instance invoking the System Operation. • If the instance was launched by a workflow; the UUID of the workflow instance. • If the instance was directly launched by the Launch Task command; the UUID of the instance invoking the System Operation. • If the instance was directly launched by a Recurring Task Instance; the UUID of the Recurring Task Instance.
<p>Invoked by</p>	<p>System-supplied; how the task instance was launched.</p> <p>Options:</p> <ul style="list-style-type: none"> • Trigger: (Trigger Name) Instance was launched by the named trigger. • Workflow: (Workflow Name) Instance was launched by the named workflow. • Manually Launched Instance was launched by a user. To identify the user, check the Execution User column for that task instance on the Task Instances screen or, on most task instance screens, the Execution User field.

Execution User	System-supplied; If the task was launched manually; ID of the user who launched it.
Calendar	Calendar associated with the task instance.
Time Zone Preference	<p>User-defined; Allows you to specify the time zone that will be applied to the task.</p> <p>Options:</p> <ul style="list-style-type: none"> • – System Default – Time zone is based on the value of the Task Time Zone Preference Universal Controller system property: Server or Inherited. • Server (xxx) Where (xxx) is the time zone ID of the server; time zone is evaluated in the time zone of the server. • Inherited Time zone is evaluated in the time zone of the Parent Workflow or Trigger / Launch specification in the case there is no Parent Workflow.
Virtual Resource Priority	<p>Priority for acquiring a resource when two or more tasks are waiting for the resource. This priority applies to all resources required by the task.</p> <p>Options: 1 (high) - 100 (low).</p> <p>Default is 10.</p>
Hold Resources on Failure	If enabled, the task instance will continue to hold Renewable resources if the task instance fails. Renewable resources will be returned only if the task instance status is either Complete, Finished, or Skipped.
Mutually Exclusive With Self	If enabled, the task will not be allowed to run concurrently with itself. Task will not start until the instance that is running finishes. An instance will transition to Exclusive Wait status if it cannot start due to another instance already running.
Simulate	Specifies if the instance should execute under simulation mode .
Previous Instance Wait Resolved	<p>System-supplied; If the Override Previous Instance Wait field for the task is set to No, the Previous Instance Wait Resolved field will be set to the value of the Previous Instance Wait field of the parent workflow. Otherwise, it will be set to the value specified by the Override Previous Instance Wait.</p> <p>Options:</p> <ul style="list-style-type: none"> • -- None -- • Wait for Last Every task instance directly within the workflow instance will remain in Instance Wait until the most recent prior instance of the same task has completed. • Wait for Last / Same Workflow Every task instance directly within the workflow instance will remain in Instance Wait until the most recent prior instance of the same task, within an instance of the same workflow, have completed. • Wait for All Every task instance directly within the workflow instance will remain in Instance Wait until all prior instances of the same task has completed. • Wait for All / Same Workflow Every task instance directly within the workflow instance will remain in Instance Wait until all prior instances of the same task, within an instance of the same workflow, have completed.
Status	This section contains information about the current status of the task instance.
Status	System-supplied; see Task Instance Statuses .
Exit Code	System-supplied; the exit code captured by the Agent when executing the task (for example, a command or script).
Status Description	System-supplied; additional information, if any, about the status of the task instance.
Operational Memo	User-defined operational memo.

Evaluation Time	If time zone of user is different than time zone of task instance; Time at which Execution Restrictions and Run Criteria were evaluated based upon the requested time zone. (Time zone of task instance displays in parentheses.)
Critical	Indicates that this task is in the Critical Path of a workflow.
Critical Endpoint	Indicates that this task was defined as a Critical Endpoint of a Critical Path in a workflow.
Wait Until Time	Amount of time calculated to wait before the task was started, based on Wait To Start and Delay On Start times.
Queued Time	System-supplied; Date and time the task was queued for processing.
Trigger Time	System-supplied; Date and time the task instance was triggered.
Launch Time	System-supplied; Date and time the task instance was launched.
Start Time	System-supplied; Date and time the task instance started.
End Time	System-supplied; Date and time the task instance completed.
Duration	System-supplied; amount of time the task instance took to run.
Agent Details	This section contains assorted detailed information about the Agent / Agent Cluster selected for this task.
Cluster	Indication that selecting an Agent Cluster is required and selecting Broadcast , which lets you select a Cluster Broadcast , is optional. If Cluster is selected, selecting an Agent is not required unless Agent Variable is selected.
Agent	Name of the Agent resource that identifies the machine where the operation will run. If you do not specify an Agent, you must specify an Agent Cluster or Cluster Broadcast .
Agent Variable	<p>Indication of whether the Agent field is a reference field for selecting a specific Agent (unchecked) or a text field for specifying the Agent as a variable (checked). Use the format: \${variable name}. The variable must be a supported type as described in Variables and Functions.</p> <div style="border: 1px solid orange; padding: 10px; margin-top: 10px;"> <p>Note</p> <p>When updating multiple Tasks, to change from using an Agent reference to using an Agent variable, you must change the Agent Variable field to Yes and specify the Agent variable in the Agent Unresolved field. Conversely, to change from using an Agent variable to using an Agent reference, you must change the Agent Variable field to No and specify the Agent reference in the Agent field.</p> </div>
Agent Cluster	If Cluster is selected and Broadcast is not selected; Group of Agents, one of which the Controller will choose to run this task (compare with Cluster Broadcast). You can specify an agent cluster in addition to or in place of a specific Agent. If you specify an Agent and an agent cluster, the Controller first tries to run the task on the specific agent. If the Agent is not available, the Controller reverts to the agent cluster. See Agent Clusters for more information.

<p>Agent Cluster Variable</p>	<p>Indication of whether the Agent Cluster field is a reference field for selecting a specific Agent Cluster (unchecked) or a text field for specifying the Agent Cluster as a variable (checked). Use the format: <code>\${variable name}</code>.</p> <p>The variable must be a supported type as described in Variables and Functions.</p> <div style="border: 1px solid black; padding: 5px; margin-top: 10px;"> <p>Note</p> <p>When updating multiple Tasks, to change from using an Agent Cluster reference to using an Agent Cluster variable, you must change the Agent Cluster Variable field to Yes and specify the Agent Cluster variable in the Agent Cluster Unresolved field. Conversely, to change from using an Agent Cluster variable to using an Agent Cluster reference, you must change the Agent Cluster Variable field to No and specify the Agent Cluster reference in the Agent Cluster field.</p> </div>
<p>Credentials</p>	<p>Credentials under which an Agent runs this task. These Credentials override any Credentials provided in the Agent Details for any Agent running this task.</p> <p>If the user does not have a login shell, add a - character in front of the runtime credentials name. The Controller will provide a shell for that user and strip the - character from the name.</p> <p>Required if the Agent Credentials Required Universal Controller system property is true. When required, if the Credential is specified as a variable, and the variable resolves to blank, a Start Failure will occur.</p>
<p>Credentials Variable</p>	<p>Indication of whether the Credentials field is a reference field for selecting a specific Credential (unchecked) or a text field for specifying the Credential as a variable (checked). Use the format: <code>\${variable name}</code>.</p> <p>The variable must be a supported type as described in Variables and Functions.</p> <div style="border: 1px solid black; padding: 5px; margin-top: 10px;"> <p>Note</p> <p>When updating multiple Tasks, to change from using a Credentials reference to using a Credentials variable, you must change the Credentials Variable field to Yes and specify the Credentials variable in the Credentials Unresolved field. Conversely, to change from using a Credentials variable to using a Credentials reference, you must change the Credentials Variable field to No and specify the Credentials reference in the Credentials field.</p> </div>
<p>Agent File Monitor Details</p>	<p>This section contains assorted detailed information about the task instance.</p>
<p>Monitor Type</p>	<p>Type of file event being monitored for.</p> <p>Options:</p> <ul style="list-style-type: none"> • Create - Wait for the creation of one or more files. • Delete - Wait for the deletion of one or more files. • Change - Monitor for a change in one or more files. • Exists - Check to see if one or more files already exist. • Missing - Check to see if one or more files do not exist. <div style="border: 1px solid black; padding: 5px; margin-top: 10px;"> <p>Note</p> <p>For UNIX and Windows, Agent File Monitor polls the directory listing every 5 seconds to compare the listings and decide whether there were any file system changes that match the monitor criteria.</p> </div>

Trigger on Existence	<p>If Monitor Type = Create; Task is triggered if the file being monitored for creation already exists.</p> <div style="border: 1px solid black; padding: 5px; margin-top: 10px;"> <p>Note This field is valid only for Linux/Unix and Windows Agents.</p> </div>
Trigger on Create	<p>If Monitor Type = Change; Task is triggered if the file being monitored is being created.</p> <div style="border: 1px solid black; padding: 5px; margin-top: 10px;"> <p>Note This field is valid only for z/OS Agents.</p> </div>
Monitor File(s)	<p>Location and name of a specific file or file pattern (for example, ACT001*) being monitored. Variables supported. Wildcards supported.</p> <div style="border: 1px solid black; padding: 5px; margin-top: 10px;"> <p>Note z/OS files must be valid names based on the Data Set Naming Rules. No extra quoting is necessary.</p> </div> <div style="border: 1px solid black; padding: 5px; margin-top: 10px;"> <p>Note Agent File Monitors with Monitor Type = Exists or Missing do not work with GDG datasets. Whether the generation is coded explicitly (for example: DATA.SET.NAME.G0001V00) or relatively (for example: DATA.SET.NAME(0)), the Agent File Monitor will always end with 'Dataset Not Found'.</p> </div>
Use Regular Expression	<p>Enables the use of a regular expression in the Monitor File(s) field.</p>
Recursive	<p>If enabled, the monitor searches the specified directory and all subdirectories.</p>
Maximum Files	<p>If Monitor Type = Create, Delete, or Change; For searches that use wildcards, limits the number of files to be searched.</p>
File Owner	<p>If Monitor Type = Create, Delete, Change, or Exists; User name / group name of the owner of the file on the operating system; that is, the user name / group name returned by the operating system in the file ownership information. LDAP groups are supported. Specifying a file owner limits the search to files with that owner.</p>
Stable (seconds)	<p>If Monitor Type = Change or Create; Period of time, in seconds, that a file's timestamp and size may not change to be considered as stable. Not applicable for z/OS.</p>
By Percentage (+/-)	<p>If Monitor Type = Change; Number that specifies the growth of a file as a percentage. A negative number specifies a reduction in size as a percentage. Not applicable for z/OS.</p>
By Size (+/-)	<p>If Monitor Type = Change; Used in conjunction with the By Scale field, specifies an actual change in file size. For example, to monitor for a change in file size of 10 MB, enter 10 in this field and select MB in the By Scale field. Enter a negative number to specify a reduction in size. Not applicable for z/OS.</p>

By Scale	If Monitor Type = Change; Used in conjunction with the By Size field, specifies Bytes, KB (kilobytes), or MB (megabytes). Not applicable for z/OS.
To Size	If Monitor Type = Change; Used in conjunction with the To Scale field, specifies an actual file size that you want to monitor for. For example, to monitor for a file size of 5KB, enter 5 in this field and select KB in the To scale field. Not applicable for z/OS.
To Scale	If Monitor Type = Change; Used in conjunction with the To Size field, specifies an actual file size that you want to monitor for. Not applicable for z/OS.
Minimum File Size	If Monitor Type = Create; Minimum file size required for the file being created. Not applicable for z/OS.
Minimum File Scale	If Monitor Type = Create; Scale for the Minimum File Size . Not applicable for z/OS. Options: <ul style="list-style-type: none"> • Bytes • KB • MB
Scan Text	Unable to render include or excerpt-include. Could not retrieve page.
Scan Forward	If Monitor Type = Change; Specifies that once the File Monitor has been satisfied, it should continue from where it left off. <ul style="list-style-type: none"> • If it is scanning within a file, it should resume from the point in the file that it last scanned. • If it is monitoring for files, it should resume monitoring for the next file. • If you are scanning a file that is being overwritten each time and you want to start from the beginning each time, you should disable Scan Forward. Not applicable for z/OS.
Wait / Delay Options	This section contains specifications for waiting to start and/or delaying on start the task.
Wait To Start	Amount of time to wait before starting a task from the time that it was launched. Options are: <ul style="list-style-type: none"> • – None – • Time • Relative Time • Duration • Seconds
Wait Time	If Wait To Start = Time or Relative Time; Number of hours and minutes to wait before starting the task.

<p>Wait Day Constraint</p>	<p>If Wait Time = Time or Relative Time; Specification for whether or not to advance the wait time to another day.</p> <p>Valid values:</p> <ul style="list-style-type: none"> • -- None -- <ul style="list-style-type: none"> • If Wait To Start = Time; Advance to the next day if the specified wait time is before the time that the task instance is eligible to start; that is, all dependencies have been met. For example: it is not being held, and it is not waiting on any predecessors. • If Wait To Start = Relative Time; Advance to the next day if the specified wait time is before the task instance Trigger Time or, if there is no Trigger Time, before the task instance Launch Time. In the latter case, when a task instance is within a workflow, it will inherit the Launch Time of the top-level parent workflow task instance. • Same Day Do not advance day. • Next Day Advance to the next day. • Next Business Day Advance to the next business day. • Sunday If today is not Sunday, advance to next Sunday. • Monday If today is not Monday, advance to next Monday. • Tuesday If today is not Tuesday, advance to next Tuesday. • Wednesday If today is not Wednesday, advance to next Wednesday. • Thursday If today is not Thursday, advance to next Thursday. • Friday If today is not Friday, advance to next Friday. • Saturday If today is not Saturday, advance to next Saturday. <p>Default is -- None --.</p>
<p>Wait Duration</p>	<p>If Wait To Start = Duration; Number of days, hours, minutes, and seconds to wait before starting the task.</p>
<p>Wait Duration In Seconds</p>	<p>If Wait To Start = Seconds; Number of seconds to wait before starting the task.</p>
<p>Delay On Start</p>	<p>Amount of time to delay the start of a task, after it has been launched, from the time that it is eligible to start; that is, all dependencies have been met. For example: it is not being held, it is not waiting on any predecessors, or there is no wait time specified.</p> <p>Options are:</p> <ul style="list-style-type: none"> • -- None -- • Duration • Seconds
<p>Delay Duration</p>	<p>If Delay On Start = Duration; Number of days, hours, minutes, and seconds to delay after starting the task.</p>
<p>Delay Duration In Seconds</p>	<p>If Delay On Start = Seconds; Number of seconds to delay after starting the task.</p>
<p>Time Options</p>	<p>This section contains time-related specifications for the task instance.</p>
<p>Late Start</p>	<p>If enabled, and if the task instance starts after the time or period specified, the task instance is flagged as late. You can specify a time or duration to determine a late start (see Late Start Type). To determine whether a task instance started late, open the task instance and locate the Started Late field; the field is checked if the instance started after the specified time. The Started Late field displays in the task instance Details only if the user specified a Late Start in the task Details.</p>

Started Late	System-supplied; this field is flagged if the task started later than the time specified in the Late Start fields.
Late Start Type	Required if Late Start is enabled. Options: <ul style="list-style-type: none"> • Time - Flag the task if it starts after the specified time. • Duration - Flag the task if it starts a certain amount of time after the programmed start time. The task must have a specific start time.
Late Start Time	If Late Start Type = Time; Time after which the task start time is considered late. Use HH:MM, 24-hour time.
Late Start Day Constraint	If Late Start Type = Time; Specification for whether or not to advance the late start time to another day. Valid values: <ul style="list-style-type: none"> • -- None -- Advance to the next day if the specified late start time is before the Created time of the task instance. • Same Day Do not advance day. • Next Day Advance to the next day. • Next Business Day Advance to the next business day. • Sunday If today is not Sunday, advance to next Sunday. • Monday If today is not Monday, advance to next Monday. • Tuesday If today is not Tuesday, advance to next Tuesday. • Wednesday If today is not Wednesday, advance to next Wednesday. • Thursday If today is not Thursday, advance to next Thursday. • Friday If today is not Friday, advance to next Friday. • Saturday If today is not Saturday, advance to next Saturday. • Nth Day Advance to a specific number of days in the future. Default is -- None --.
Late Start Nth Amount	If Late Start Day Constraint = Nth Day; Number of days to advance.
Late Start Duration	If Late Start Type = Duration; Duration (amount of relative time) after which the task is considered to have started late. For a task within a workflow, the duration is the period between the time the workflow starts and the time the task itself starts. For example, a task might have a Late Start Duration of 60 minutes. If the workflow starts at 9:00 a.m. but the task itself does not start until 10:30, the task has started late. For a task that is not within a workflow, Late Start Duration has meaning only if the task has been held upon starting. For example, if a task has a Late Start Duration of 60 minutes and the Hold on Start field is enabled, if the task is not released from hold within the amount of time specified in the Late Start Duration field, the task has started late.
Computed Late Start Time	If Late Start is enabled, the computed Date/Time for when the task instance will be Late Started.
Late Finish	If enabled, and if the task instance finishes after the time or period specified, the task instance is flagged as late. You can specify a time or duration to determine a late finish (see Late Finish Type). To determine whether a task instance finished late, open the task instance and locate the Finished Late field; the field is checked if the instance finished after the specified time or lasted longer than expected. This field only appears on the task instance if the user specified a Late Finish in the task definition.

Finished Late	System-supplied; this field is flagged if the task finished later than the time or duration specified in the Late Finish fields.
Late Finish Type	Required if Late Finish is enabled. Options: <ul style="list-style-type: none"> • Time - Flag the task if it finishes after the specified time (see Late Finish Time). • Duration - Flag the task if it finishes a certain amount of time after the programmed finish time (see Late Finish Duration). The task must have a specific finish time. • Average Duration - Flag the task if it finishes before the average duration (see Average Instance Time) for the task, less an offset (see Late Finish Offset Type), if specified.
Late Finish Offset Type	If Late Finish Type = Average Duration; Options: <ul style="list-style-type: none"> • Percentage • Duration
Late Finish Percentage Offset (+)	Required if Late Finish Offset Type = <i>Percentage</i> ; Percentage of Average Duration to use as an offset. The late finish time is calculated by adding the offset to the Average Duration .
Late Finish Duration Offset (+)	Required if Late Finish Offset Type = <i>Duration</i> ; Duration to use as an offset. The late finish time is calculated by adding the offset to the Average Duration .
Late Finish Duration Offset Unit	If Late Finish Offset Type = Duration; Options: <ul style="list-style-type: none"> • Seconds • Minutes • Hours
Late Finish Time	If Late Finish Type = Time; Time after which the task finish time is considered late. Use HH:MM, 24-hour time.
Late Finish Day Constraint	If Late Finish Type = Time; Specification for whether or not to advance the late finish time to another day. Valid values: <ul style="list-style-type: none"> • -- None -- Advance to the next day if the specified late finish time is before the Created time of the task instance. • Same Day Do not advance day. • Next Day Advance to the next day. • Next Business Day Advance to the next business day. • Sunday If today is not Sunday, advance to next Sunday. • Monday If today is not Monday, advance to next Monday. • Tuesday If today is not Tuesday, advance to next Tuesday. • Wednesday If today is not Wednesday, advance to next Wednesday. • Thursday If today is not Thursday, advance to next Thursday. • Friday If today is not Friday, advance to next Friday. • Saturday If today is not Saturday, advance to next Saturday. • Nth Day Advance to a specific number of days in the future. Default is -- None --.
Late Finish Nth Amount	If Late Finish Day Constraint = Nth Day; Number of days to advance.

Late Finish Duration	If Late Finish Type = Duration; Longest amount of time this task instance should take to run.
Computed Late Finish Time	If Late Finish is enabled, the computed Date/Time for when the task instance will be Late Finished.
Early Finish	If enabled, and if the task instance finishes before the time or period specified, the task instance is flagged as early. You can specify a time or duration to determine an early finish (see Early Finish Type). To determine whether a task instance finished early, open the task instance and locate the Finished Early field; the field is checked if the instance finished before the specified time or did not last as long as expected. This field only appears on the task instance if the user added Early Finish specifications to the task definition.
Finished Early	System-supplied; this field is flagged if the task finished earlier than the time specified in the Early Finish fields.
Early Finish Type	Required if Early Finish is enabled. Options: <ul style="list-style-type: none"> • Time - Flag the task if it finishes before the specified time (see Early Finish Time). • Duration - Flag the task if it finishes a certain amount of time before the programmed finish time (see Early Finish Duration). The task must have a specific finish time. • Average Duration - Flag the task if it finishes before the average duration (see Average Instance Time) for the task, less an offset (see Early Finish Offset Type), if specified.
Early Finish Offset Type	If Early Finish Type = Average Duration; Options: <ul style="list-style-type: none"> • Percentage • Duration
Early Finish Percentage Offset (-)	Required if Early Finish Offset Type = <i>Percentage</i> ; Percentage of Average Duration to use as an offset. The early finish time is calculated by subtracting the offset from the Average Duration .
Early Finish Duration Offset (-)	Required if Early Finish Offset Type = <i>Duration</i> ; Duration to use as an offset. The early finish time is calculated by subtracting the offset from the Average Duration .
Early Finish Duration Offset Unit	If Early Finish Offset Type = Duration; Options: <ul style="list-style-type: none"> • Seconds • Minutes • Hours
Early Finish Time	If Early Finish Type = Time; Time before which the task finish time is considered early. That is, enter a time at which the task should still be running. Use HH:MM, 24-hour time.

<p>Early Finish Day Constraint</p>	<p>If Early Finish Type = Time; Specification for whether or not to advance the early finish time to another day.</p> <p>Valid values:</p> <ul style="list-style-type: none"> • -- None -- Advance to the next day if the specified early finish time is before the Created time of the task instance. • Same Day Do not advance day. • Next Day Advance to the next day. • Next Business Day Advance to the next business day. • Sunday If today is not Sunday, advance to next Sunday. • Monday If today is not Monday, advance to next Monday. • Tuesday If today is not Tuesday, advance to next Tuesday. • Wednesday If today is not Wednesday, advance to next Wednesday. • Thursday If today is not Thursday, advance to next Thursday. • Friday If today is not Friday, advance to next Friday. • Saturday If today is not Saturday, advance to next Saturday. • Nth Day Advance to a specific number of days in the future. <p>Default is -- None --.</p>
<p>Early Finish Nth Amount</p>	<p>If Early Finish Day Constraint = Nth Day; Number of days to advance.</p>
<p>Early Finish Duration</p>	<p>If Early Finish Type = Duration; Shortest amount of time this task instance should take to run.</p>
<p>Projected Late</p>	<p>System-provided if Late Start Time, Late Start Duration, or Late Finish Time is specified; This field is flagged if the task instance is projected to be late based on critical path projected end times (see Critical Path Projected Late Action Maximum and Critical Path Projected Late Threshold In Minutes Universal Controller system properties).</p> <p>.</p>
<p>Critical Path Options</p>	<p>This section contains Critical Path-related specifications for the task.</p>
<p>CP Duration</p>	<p>Optional; Allows you to override the estimated Critical Path Duration of the task when running in a Workflow; used in conjunction with the CP Duration Unit field. In most cases, this field should be left blank, which implies that the Controller will estimate the Critical Path Duration based on historical executions. Valid values are any integer equal to or greater than 0. Variables and Functions are supported.</p>
<p>CP Duration (Resolved)</p>	<p>Displays the current resolved value of the CP Duration field, which may contain variables or functions that will be displayed as unresolved until the task instance starts. The CP Duration (Resolved) field can continue to change value until the task instance starts, at which time CP Duration will display as resolved and CP Duration (Resolved) will no longer be visible unless there was an issue resolving the variables and/or functions contained within CP Duration. If the Controller is unable to resolve CP Duration or it resolves to an invalid value, CP Duration will be ignored and the Controller will estimate the Critical Path Duration based on historical executions.</p>

CP Duration Unit	<p>Type of CP Duration; used in conjunction with the CP Duration field. For example, for a CP Duration of two minutes, specify 2 in the CP Duration field and select Minutes in this field.</p> <p>Options:</p> <ul style="list-style-type: none"> • Seconds • Minutes • Hours <p>Default is Minutes.</p>
Workflow Execution Options	This section contains Execution Restriction specifications for the task if it is within a Workflow.
Execution Restriction	<p>Specification for whether or not there is a restriction for this task to be run, skipped, or held.</p> <p>Options are:</p> <ul style="list-style-type: none"> • -- None -- No restriction for this task. • Run Restriction for when this task will be run. • Skip Restriction for when this task will be skipped. • Hold Restriction for when this task will be held. <p>If Execution Restriction on a task is Run or Skip, then when it is part of a Workflow that is being launched, the Restriction Period is evaluated. The task instance will be skipped if Execution Restriction is Skip and the date is within the Restriction Period or Execution Restriction is Run and the date is not within the Restriction Period. Execution Restriction can be set to Skip with a Restriction Period of - None -, meaning the restriction is always active and the task will be skipped when it is part of a Workflow.</p>
Restriction Period	<p>If Execution Restriction = Run, Skip, or Hold; Period of time when the task is restricted.</p> <p>Options are:</p> <ul style="list-style-type: none"> • -- None -- No period of restriction for this task. • Before Restriction is valid if the date is before the Before Date value. • After Restriction is valid if the date is after the After Date value. • Span Restriction is valid if the date is before the Before Date value and after After Date value. • On Restriction is valid if the date is one of the Date List values.
Before Date	If Restriction Period = Before or Span; Date before which the restriction is valid.
Before Time	If Restriction Period = Before or Span; Time on the selected date before which the restriction is valid.
After Date	If Restriction Period = After or Span; Date after which the restriction is valid.
After Time	If Restriction Period = After or Span; Time on the selected date after which the restriction is valid.
Date List	If Restriction Period = On; Date(s) on which the restriction is valid.
Statistics	This section contains time-related statistics for the task instance.
User Estimated End Time	System-supplied; If the user entered information into the User Estimated Duration field in the task Details, the Controller uses this information to calculate an end time for the task instance, based on the date/time the task instance started.
Lowest Estimated End Time	System-supplied; Lowest estimated end time of the task instance, calculated by the Controller based on the date/time the task instance started.
Average Estimated End Time	System-supplied; Average estimated end time of the task instance, calculated by the Controller based on the date/time the task instance started.

Highest Estimated End Time	System-supplied; Highest estimated end time of the task instance, calculated by the Controller based on the date/time the task instance started.
Projected Start Time	System-supplied; projected start time of the task instance, calculated by the Controller based on Projected End Time minus Projected Duration.
Projected End Time	System-supplied; projected end time of the task instance, calculated by the Controller based on the projected end time of its predecessor (or the maximum projected end time of all its predecessors, if more than one path exists to that task instance) plus its estimated critical path duration .
Metadata	This section contains Metadata information about this record.
UUID	Universally Unique Identifier of this record.
Updated By	Name of the user that last updated this record.
Updated	Date and time that this record was last updated.
Created By	Name of the user that created this record.
Created	Date and time that this record was created.
Status History	History of all statuses that the task instance has gone through.
Buttons	This section identifies the buttons displayed above and below the Task Instance Details that let you perform various actions.
Update	Saves updates to the record.
Force Finish	See Force Finishing a Task .
Hold	Places the task instance on Hold (see Putting a Task on Hold).
Skip	For tasks loaded into the schedule that have not yet run; allows you to tell the Controller to skip this task. See Skipping a Task .
Re-run	<p>See Re-running a Task Instance.</p> <div style="border: 1px solid orange; padding: 10px; margin: 10px 0;"> <p>Note</p> <p>If the Re-run (Suppress Intermediate Failures) Permitted Universal Controller system property is set to true, the Re-run button is a drop-down list containing the following options:</p> <ul style="list-style-type: none"> • Re-run • Re-run (Suppress Intermediate Failures) </div> <p>The Re-run button does not display if the task instance does not qualify for Re-run. If the task instance qualifies for Re-run, but already has Retry Options enabled, Re-run (Suppress Intermediate Failures) displays as disabled in the drop-down list.</p>
View Parent	Displays the task instance Details for the parent Workflow of this task instance.
Retrieve Output	See Retrieving Output .

Delete	Deletes the current record.										
Refresh	Refreshes any dynamic data displayed in the Details.										
Close	For pop-up view only; closes the pop-up view of this task instance.										
Tabs	This section identifies the tabs across the top of the Task Instance Details that provide access to additional information about the task instance.										
Actions	<p>Actions that the Controller took automatically based on events that occurred during the execution of this task.</p> <p>Events are:</p> <ul style="list-style-type: none"> • Task instance status • Exit codes • Late start • Late finish • Early finish <p>Actions are:</p> <table border="1"> <tr> <td>Abort Action</td> <td>Abort the task if certain events occur. For details, see Abort Actions.</td> </tr> <tr> <td>Email Notification</td> <td>Send an email if certain events occur. For details, see Email Notification Actions.</td> </tr> <tr> <td>Set Variable</td> <td>Used in tasks and workflows to set a variable based on the occurrence of certain events. For details, see Creating a Set Variable Action within a Task or Workflow.</td> </tr> <tr> <td>SNMP Notification</td> <td>Send an email if certain events occur. For details, see SNMP Notification Actions.</td> </tr> <tr> <td>System Operation</td> <td>Run an Universal Controller system operation based on specified conditions. For details, see System Operation Actions.</td> </tr> </table>	Abort Action	Abort the task if certain events occur. For details, see Abort Actions .	Email Notification	Send an email if certain events occur. For details, see Email Notification Actions .	Set Variable	Used in tasks and workflows to set a variable based on the occurrence of certain events. For details, see Creating a Set Variable Action within a Task or Workflow .	SNMP Notification	Send an email if certain events occur. For details, see SNMP Notification Actions .	System Operation	Run an Universal Controller system operation based on specified conditions. For details, see System Operation Actions .
Abort Action	Abort the task if certain events occur. For details, see Abort Actions .										
Email Notification	Send an email if certain events occur. For details, see Email Notification Actions .										
Set Variable	Used in tasks and workflows to set a variable based on the occurrence of certain events. For details, see Creating a Set Variable Action within a Task or Workflow .										
SNMP Notification	Send an email if certain events occur. For details, see SNMP Notification Actions .										
System Operation	Run an Universal Controller system operation based on specified conditions. For details, see System Operation Actions .										
Virtual Resources	<p>Lists all Virtual Resources to which this task is assigned.</p> <p>If you want to create a Task Virtual Resource for this task, you can select an existing Virtual Resource (or, optionally, first create a new Virtual Resource and then select it as the Task Virtual Resource) or enter a Virtual Resource variable. The variable must be a supported type as described in Variables and Functions.</p>										
Exclusive Requests	Lists all records in the Exclusive Requests table (<code>ops_exclusive_order</code>) for this task instance.										
Notes	Lists all notes associated with this record.										

5.6 Monitoring Task Execution

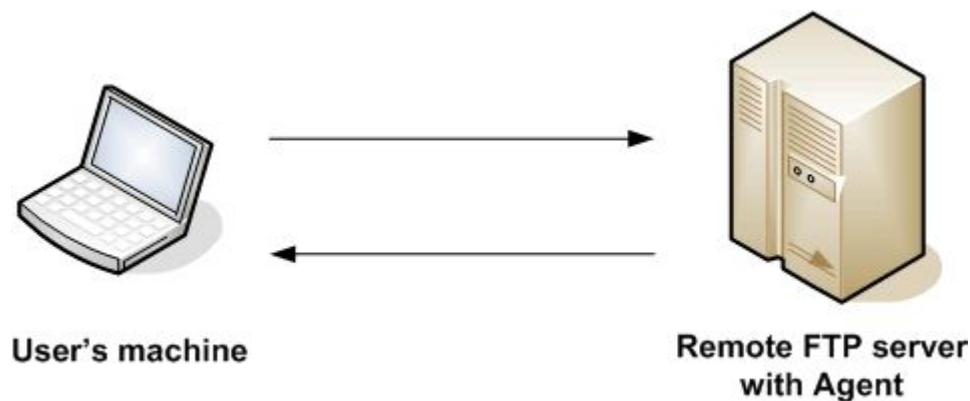
You can monitor all system activity from the [Activity Monitor](#) and can view activity history from the [History list](#).

6 Remote File Monitor Task

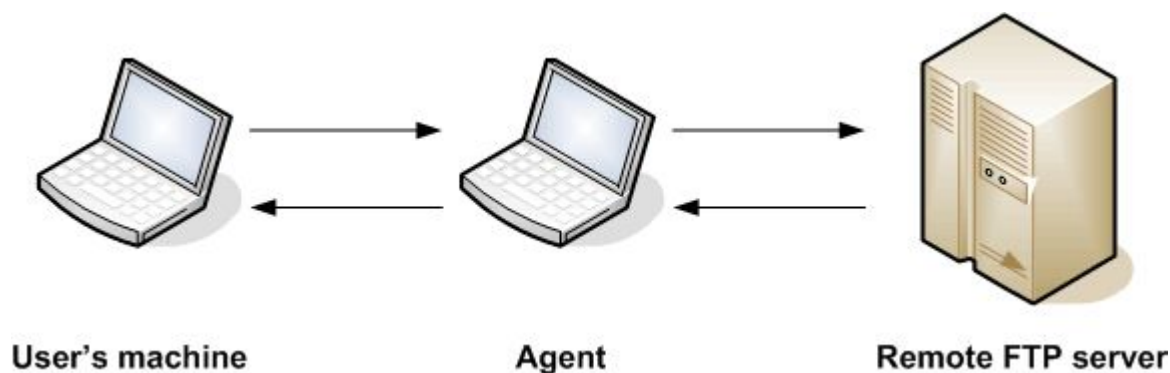
6.1 Overview

The Remote File Monitor task allows you to monitor for a file on a remote machine where an FTP server is running. The Remote File Monitor connects to the FTP server rather than the machine's file system to monitor for files. The Remote File Monitor can be used only within a workflow; you cannot run a Remote File Monitor task based on a trigger. To run a Remote File Monitor task, you need Universal Agent to communicate with the FTP server. The Agent can, but does not have to be, running on the same machine as the FTP server.

In the following example, the user wants to monitor for a file on a remote FTP Server that has an Agent running on it. In this case, the login credentials for the Agent machine and the FTP server machine are the same.



In the following example, the user wants to monitor for a file on a remote FTP Server that does not have an Agent running on it. In this case, the Remote File Monitor task definition provides an address and login credentials for the machine where the Agent is running as well as address and login credentials for the FTP server.



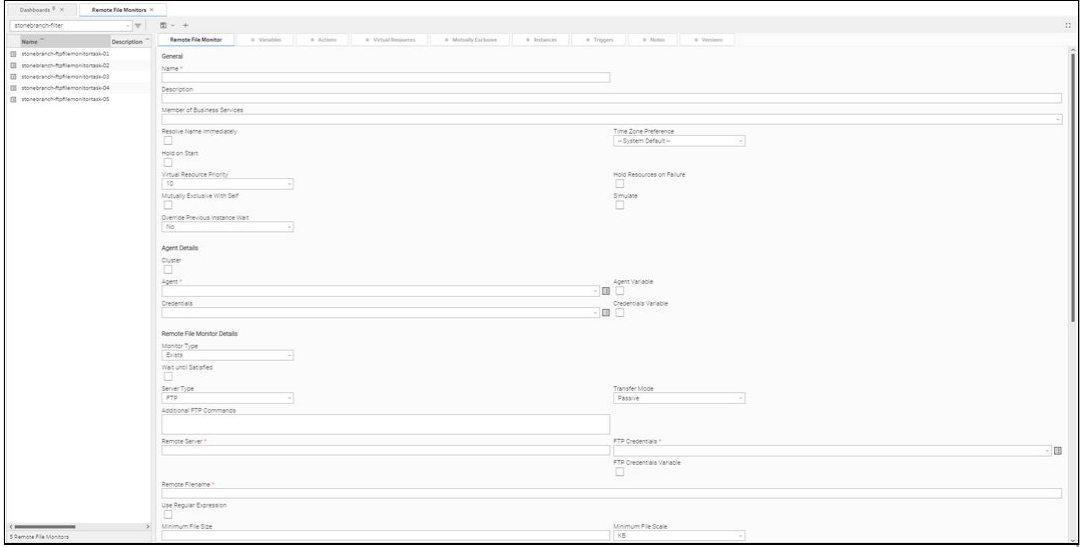


6.2 Built-In Variables

The following [built-in variables](#) can be used in a Remote File Monitor task to pass data where appropriate:

- [Task Instance variables](#)
- [Agent-Based Task Instance variables](#)

- [Remote File Monitor Task variables](#)

6.3 Creating a Remote File Monitor Task

<p>Step 1</p>	<p>From the Automation Center navigation pane, select Tasks > Remote File Monitor Tasks. The Remote File Monitor Tasks list displays a list of all currently defined Remote File Monitor tasks.</p> <p>To the right of the list, Remote File Monitor Task Details for a new Remote File Monitor task displays.</p> 
<p>Step 2</p>	<p>Enter/select Details for a new Remote File Monitor task, using the field descriptions below as a guide.</p> <ul style="list-style-type: none"> • Required fields display an asterisk (*) after the field name. • Default values for fields, if available, display automatically. <p>To display more of the Details fields on the screen, you can either:</p> <ul style="list-style-type: none"> • Use the scroll bar. • Temporarily hide the list above the Details. • Click the  button above the list to display a pop-up version of the Details.
<p>Step 3</p>	<p>Click the  button. The task is added to the database, and all buttons and tabs in the Task Details are enabled.</p>

Note

To [open](#) an existing record on the list, either:

- Click a record in the list to display its record Details below the list. (To clear record Details below the list, click the **New** button that displays above and below the Details.)
- Clicking the [Details icon](#) next to a record name in the list, or right-click a record in the list and then click **Open** in the [Action menu](#) that displays, to display a pop-up version of the record Details.
- Right-click a record in the a list, or open a record and right-click in the record Details, and then click **Open In Tab** in the [Action menu](#) that displays, to display the record Details under a new tab on the record list page (see [Record Details as Tabs](#)).

6.3.1 Remote File Monitor Task Details

The following Remote File Monitor Task Details is for an existing Remote File Monitor task.

Depending on the values that you enter / select for these fields, and whether or not the Remote File Monitor task has ever been launched, more (or less) fields may display. See the [field descriptions](#), below, for a description of all fields that may display in the Remote File Monitor Task Details.

Dashboards ▾ ×
Remote File Monitors ×
Remote File Monitor Details: stonebranch-ftpfilemonitortask-01 ×

Launch
 View Parents

Remote File Monitor
Variables
Actions
Virtual Resources
Mutually Exclusive
Instances
Triggers
Notes
Versions

General

Name * Version

Description

Member of Business Services

Resolve Name Immediately

Time Zone Preference

Hold on Start

Virtual Resource Priority

Hold Resources on Failure

Mutually Exclusive With Self

Simulate

Override Previous Instance Wait

Agent Details

Cluster

Agent * Agent Variable

Credentials Credentials Variable

Remote File Monitor Details

Monitor Type

Wait until Satisfied

Server Type Transfer Mode

Additional FTP Commands

Remote Server * FTP Credentials *

FTP Credentials Variable

Remote Filename *

Use Regular Expression

Minimum File Size Minimum File Scale

Job Card (z/OS only)

Result Processing Details

Automatic Output Retrieval

Wait/Delay Options

Wait To Start

Delay On Start

Workflow Only

Time Options

Late Start

Late Finish

Early Finish

User Estimated Duration

Day	Hour	Min	Sec
-	-	-	-

6.3.2 Remote File Monitor Task Details Field Descriptions

The following table describes the fields, buttons, and tabs that display in the Remote File Monitor Task Details.

Field Name	Description
General	This section contains general information about the task.
Name	User-defined name of this task (Maximum = 255 alphanumeric characters); variables supported. It is the responsibility of the user to develop a workable naming scheme for tasks.
Version	System-supplied; version number of the current record, which is incremented by the Controller every time a user updates a record. Click the Versions tab to view previous versions. For details, see Record Versioning .
Description	Description of this record. (Maximum = 255 characters.)
Member of Business Services	User-defined; Allows you to select one or more Business Services that this record belongs to. (You also can Check All or Uncheck All Business Services for this record.) You can select up to 62 Business Services for any record type, and enter a maximum of 2048 characters for each Business Service. If the Business Service Visibility Restricted Universal Controller system property is set to true, depending on your assigned (or inherited) Permissions or Roles , Business Services available for selection may be restricted.
Resolve Name Immediately	If enabled, the Instance Name of the task instance will be resolved immediately at trigger/launch time.
Time Zone Preference	User-defined; Allows you to specify the time zone that will be applied to the task. Options: <ul style="list-style-type: none"> • – System Default – Time zone is based on the value of the Task Time Zone Preference Universal Controller system property: Server or Inherited. • Server (xxx) Where (xxx) is the time zone ID of the server; time zone is evaluated in the time zone of the server. • Inherited Time zone is evaluated in the time zone of the Parent Workflow or Trigger / Launch specification in the case there is no Parent Workflow.
Hold on Start	If enabled, when the task is launched it appears in the Activity Monitor with a status of Held . The task runs when the user releases it.
Hold Reason	Information about why the task will be put on hold when it starts.
Virtual Resource Priority	Priority for acquiring a resource when two or more tasks are waiting for the resource. This priority applies to all resources required by the task. Options: 1 (high) - 100 (low). Default is 10.
Hold Resources on Failure	If enabled, the task instance will continue to hold Renewable resources if the task instance fails. Renewable resources will be returned only if the task instance status is either Complete, Finished, or Skipped.
Mutually Exclusive With Self	If enabled, the task will not be allowed to run concurrently with itself. Task will not start until the instance that is running finishes. An instance will transition to Exclusive Wait status if it cannot start due to another instance already running.
Simulate	Specifies if the instance should execute under simulation mode .

<p>Override Previous Instance Wait</p>	<p>Specifies whether or not to override the parent workflow's Previous Instance Wait configuration. This option only applies for an instance running within a workflow.</p> <p>Options:</p> <ul style="list-style-type: none"> • No Behavior determined by the parent workflow configuration. • Yes / -- None -- Regardless of the parent workflow configuration, the task instance will never wait for a previous instance to complete. • Yes / Wait for Last Regardless of the parent workflow configuration, the task instance will remain in Instance Wait until the most recent prior instance of the same task has completed. • Yes / Wait for Last / Same Workflow Regardless of the parent workflow configuration, the task instance will remain in Instance Wait until the most recent prior instance of the same task, within an instance of the same workflow, have completed. • Yes / Wait for All Regardless of the parent workflow configuration, the task instance will remain in Instance Wait until all prior instances of the same task has completed. • Yes / Wait for All / Same Workflow Regardless of the parent workflow configuration, the task instance will remain in Instance Wait until all prior instances of the same task, within an instance of the same workflow, have completed.
<p>Agent Details</p>	<p>This section contains assorted detailed information about the Agent / Agent Cluster selected for this task.</p>
<p>Cluster</p>	<p>Indication that selecting an Agent Cluster is required and selecting Broadcast, which lets you select a Cluster Broadcast, is optional. If Cluster is selected, selecting an Agent is not required unless Agent Variable is selected.</p>
<p>Agent</p>	<p>Name of the Agent resource that identifies the machine where the operation will run. If you do not specify an Agent, you must specify an Agent Cluster or Cluster Broadcast.</p>
<p>Agent Variable</p>	<p>Indication of whether the Agent field is a reference field for selecting a specific Agent (unchecked) or a text field for specifying the Agent as a variable (checked). Use the format: <code>\${variable name}</code>. The variable must be a supported type as described in Variables and Functions.</p> <div style="border: 1px solid orange; padding: 10px; margin-top: 10px;"> <p>Note</p> <p>When updating multiple Tasks, to change from using an Agent reference to using an Agent variable, you must change the Agent Variable field to Yes and specify the Agent variable in the Agent Unresolved field. Conversely, to change from using an Agent variable to using an Agent reference, you must change the Agent Variable field to No and specify the Agent reference in the Agent field.</p> </div>
<p>Agent Cluster</p>	<p>If Cluster is selected and Broadcast is not selected; Group of Agents, one of which the Controller will choose to run this task (compare with Cluster Broadcast). You can specify an agent cluster in addition to or in place of a specific Agent. If you specify an Agent and an agent cluster, the Controller first tries to run the task on the specific agent. If the Agent is not available, the Controller reverts to the agent cluster. See Agent Clusters for more information.</p>

<p>Agent Cluster Variable</p>	<p>Indication of whether the Agent Cluster field is a reference field for selecting a specific Agent Cluster (unchecked) or a text field for specifying the Agent Cluster as a variable (checked). Use the format: <code>\${variable name}</code>.</p> <p>The variable must be a supported type as described in Variables and Functions.</p> <div style="border: 1px solid black; padding: 5px; margin-top: 10px;"> <p>Note</p> <p>When updating multiple Tasks, to change from using an Agent Cluster reference to using an Agent Cluster variable, you must change the Agent Cluster Variable field to Yes and specify the Agent Cluster variable in the Agent Cluster Unresolved field. Conversely, to change from using an Agent Cluster variable to using an Agent Cluster reference, you must change the Agent Cluster Variable field to No and specify the Agent Cluster reference in the Agent Cluster field.</p> </div>
<p>Broadcast</p>	<p>Displays only if Cluster is selected; Indication that selecting a Cluster Broadcast is required. Selecting Broadcast hides the Agent and Agent Cluster fields; you cannot select values for them.</p>
<p>Cluster Broadcast</p>	<p>Group of Agents, all of which will run this task (compare with Agent Cluster). If Broadcast is selected for a task, you must select a Cluster Broadcast instead of a specific Agent and/or agent cluster. Each instance of the task running on its own Agent becomes a separate task instance record in the database and displays separately on the Activity Monitor.</p>
<p>Cluster Broadcast Variable</p>	<p>Indication of whether the Cluster Broadcast field is a reference field for selecting a specific Cluster Broadcast (unchecked) or a text field for specifying the Cluster Broadcast as a variable (checked). Use the format: <code>\${variable name}</code>.</p> <p>The variable must be a supported type as described in Variables and Functions.</p> <div style="border: 1px solid black; padding: 5px; margin-top: 10px;"> <p>Note</p> <p>When updating multiple Tasks, to change from using a Cluster Broadcast reference to using a Cluster Broadcast variable, you must change the Cluster Broadcast Variable field to Yes and specify the Cluster Broadcast variable in the Cluster Broadcast Unresolved field. Conversely, to change from using a Cluster Broadcast variable to using a Cluster Broadcast reference, you must change the Cluster Broadcast Variable field to No and specify the Cluster Broadcast reference in the Cluster Broadcast field.</p> </div>
<p>Credentials</p>	<p>Credentials under which an Agent runs this task. These Credentials override any Credentials provided in the Agent Details for any Agent running this task.</p> <p>If the user does not have a login shell, add a - character in front of the runtime credentials name. The Controller will provide a shell for that user and strip the - character from the name.</p> <p>Required if the Agent Credentials Required Universal Controller system property is true. When required, if the Credential is specified as a variable, and the variable resolves to blank, a Start Failure will occur.</p>

<p>Credentials Variable</p>	<p>Indication of whether the Credentials field is a reference field for selecting a specific Credential (unchecked) or a text field for specifying the Credential as a variable (checked). Use the format: <code>\${variable name}</code>.</p> <p>The variable must be a supported type as described in Variables and Functions.</p> <div style="border: 1px solid orange; padding: 10px; margin-top: 10px;"> <p>Note</p> <p>When updating multiple Tasks, to change from using a Credentials reference to using a Credentials variable, you must change the Credentials Variable field to Yes and specify the Credentials variable in the Credentials Unresolved field. Conversely, to change from using a Credentials variable to using a Credentials reference, you must change the Credentials Variable field to No and specify the Credentials reference in the Credentials field.</p> </div>
<p>Remote File Monitor Details</p>	<p>This section contains assorted detailed information about the task.</p>
<p>Monitor Type</p>	<p>Type of file event being monitored for.</p> <p>Options:</p> <ul style="list-style-type: none"> • Exists - Checks to see if the file exists. • Missing - Checks to see if the file does not exist.
<p>Wait until Satisfied</p>	<p>If enabled, the task instance starts and continues to run until one of the following events occurs:</p> <ul style="list-style-type: none"> • If Monitor Type = Exists and the specified file exists or appears, the task instance completes with a status of SUCCESS. • If Monitor Type = Missing and the specified file does not exist (or any part of the path is missing), or exists then disappears, the task instance completes with a status of SUCCESS. <p>If not enabled, the task instance:</p> <ol style="list-style-type: none"> 1. Starts. 2. Checks for the existence of the file. 3. Takes one of the following actions: <ul style="list-style-type: none"> • If Monitor Type = Exists and the file exists, the task instance completes with a status of SUCCESS. • If Monitor Type = Exists and the file does not exist (or any part of the path is missing), the task instance completes with a status of FAILURE. • If Monitor Type = Missing and the file exists, the task instance completes with a status of FAILURE. • If Monitor Type = Missing and the file does not exist (or any part of the path is missing), the task instance completes with a status of SUCCESS.
<p>Poll Interval (Seconds)</p>	<p>If Wait until Satisfied is enabled: Frequency, in seconds, in which the Remote File Monitor will check to see if the file exists or is missing.</p>
<p>Maximum Polls</p>	<p>If Wait until Satisfied is enabled: Maximum number of times that the Remote File Monitor will check to see if the file exists or is missing.</p>

<p>Stable (Seconds)</p>	<p>If Wait until Satisfied is enabled: Period of time, in seconds, during which the file has not changed.</p> <p>For a Remote File Monitor task, a file's stability depends on its size. If the file size displayed in the FTP/SFTP output does not change during the specified number of seconds, the file is considered stable. In order for the task to reliably monitor the file's stability, the task must display a file's size in a well-known location. This means that the file list returned in the output must be in Unix long-listing format, as follows:</p> <div style="border: 1px solid black; padding: 10px; margin: 10px 0;"> <pre>-rwxr-xr-x 1 owner group 12345 Jan 1 2016 somefile.txt</pre> </div> <p>The task will only find the size if it is in the 5th column (for example, <code>12345</code> in the example above).</p> <p>The default file list format varies across different FTP client/server implementations, but most support additional commands that can force the output to the required format. The Additional FTP Commands field is provided to insert those statements into the FTP script that the file monitor task executes.</p>
<p>Server Type</p>	<p>Type of FTP server.</p> <p>Options:</p> <ul style="list-style-type: none"> • FTP • SFTP • FTPS • FTPES <div style="border: 2px solid orange; padding: 10px; margin: 10px 0;"> <p>Note</p> <p>The Remote File Monitor Task Exclude Protocols Universal Controller system property permits the exclusion of one or more, but not all, protocols (server types) from being selected.)</p> </div>

Additional FTP Commands

If [Server Type](#) is FTP, FTPS, or FTPES: Set of extra commands to be sent to the FTP server, such as optional statements that control the FTP output format.

The Agent depends on the file list being in Unix "long" format (that is, what you would see if you entered "ls -l" from the command shell) in order to correctly and reliably parse out file name and size (when a Stable period is specified). If the FTP Server is configured to return a different format, the Server may support commands that alter the format.

For example, the following statements may be used for a Remote File Monitor task executing against an IBM iSeries (AS/400) FTP Server to ensure a correctly formatted file list:

```
site listfmt 1
site namefmt 1
```

If the Remote File Monitor task is executing against a Microsoft FTP Server and that Server is configured to return a file list in DOS format, the following statement will toggle the format to a Unix-style listing.

```
site dirstyle
```

Not all FTP client/server implementations provide statements that can alter the format of the **ls** command, which the Remote File Monitor task issues to generate the file listing. However, those implementations may support the **dir** command, which can return the file list in the correct format. If the **dir** command is specified in the Additional FTP Commands field, the Remote File Monitor task will use the results from that command to obtain the file sizes. In such cases, the FTP script will contain the **dir** and **ls** commands, but since statements in the Additional FTP Commands field are inserted into the script prior the **ls** command, the results from the **dir** command are parsed first.

If the **dir** command is necessary to obtain the correct file list format, simply specify that command along with the same value specified in the [Remote Filename](#) field. For example, if [Remote Filename](#) is `/uagtests/data/somefile*.txt`, enter the following in this field:

```
dir /uagtests/data/somefile*.txt
```

This statement also can be used with other commands to get the correct output. For example, if a Windows FTP Server is configured to return file lists in Windows format, use **site** and **dir** commands together in this field:

```
site dirstyle
dir /uagtests/data/somefile*.txt
```

Invalid statements or valid statements that do not control the file list format are ignored.

Transfer Mode	<p>Transfer mode.</p> <p>Options:</p> <ul style="list-style-type: none"> • Active • Passive • Extended Passive
Verify Host Name	<p>If Server Type = FTPS or FTPES; Indication of whether to verify the DNS name or IP address of the FTP server's certificate against the host system.</p>
Authenticate Peer	<p>If Server Type = FTPES; Indication of whether to use a CA certificate configured in the agent to authenticate the FTP server's certificate.</p>
Remote Server	<p>Name or IP address of the remote server. This machine may or may not be the same as the Universal Agent machine.</p> <p>You also can specify a non-standard FTP, SFTP, FTPS, or FTPES port: port number separated from the host name with a colon: "some.server.com:2222".</p>
FTP Credentials	<p>Login credentials that the Agent will use to access the FTP or SFTP server machine. If the Remote File Monitor server and Agent are running on the same machine, enter the same credentials as those you entered in the Credentials field.</p>
FTP Credentials Variable	<p>Indication of whether the FTP Credentials field is a reference field for selecting a specific Credential (unchecked) or a text field for specifying the FTP Credentials as a variable (checked). Use the format:</p> <p><code>\${variable name}</code>.</p> <p>The variable must be a supported type as described in Variables and Functions.</p> <div style="border: 1px solid black; padding: 10px; margin-top: 10px;"> <p>Note</p> <p>When updating multiple Tasks, to change from using an FTP Credentials reference to using an FTP Credentials variable, you must change the FTP Credentials Variable field to Yes and specify the FTP Credentials variable in the FTP Credentials Unresolved field. Conversely, to change from using an FTP Credentials variable to using an FTP Credentials reference, you must change the FTP Credentials Variable field to No and specify the FTP Credentials reference in the FTP Credentials field.</p> </div>
Remote Filename	<p>Path and file name on the remote server.</p> <div style="border: 1px solid black; padding: 10px; margin-top: 10px;"> <p>Note</p> <p>If the task instance unexpectedly ends in Start Failure, review the Remote Filename for any leading or trailing whitespace (such as CRLF and CR), or any other unintended characters (such as extra slashes).</p> </div>
Use Regular Expression	<p>Enables the use of a regular expression in the Remote Filename field.</p>
Minimum File Size	<p>If Monitor Type = Exists; Minimum file size required to check if the file exists.</p>
Minimum File Scale	<p>If Monitor Type = Exists; Scale for the Minimum File Size.</p> <p>Options:</p> <ul style="list-style-type: none"> • Bytes • KB • MB

<p>Job Card (z/OS only)</p>	<p>For z/OS, the job card information for the JCL statement. Example:</p> <pre style="border: 1px solid black; padding: 10px;">//File TransferJOB01 JOB (File Transfer,001),FANNY,MSGCLASS=X,MSGLEVEL=(1,1),NOTIFY= &SYSUID,CLASS=A</pre>
<p>Result Processing Details</p>	
<p>Automatic Output Retrieval</p>	<p>Specifies whether you want the Controller to automatically retrieve any output from the job and attach it to the task instance record.</p> <ul style="list-style-type: none"> • None Do not attach any output to the task instance record. • Standard Output Attach all standard output. • Standard Error Attach standard error output. • Standard Output/Error Attach all standard output and standard error output.
<p>Wait for Output</p>	<p>If Automatic Output Retrieval = Standard Output, Standard Error, or Standard Output/Error, and Failure Only is not enabled (checked); Specification that the task should wait for the requested output before completing.</p>
<p>Failure Only</p>	<p>If Automatic Output Retrieval = Standard Output, Standard Error, or Standard Output/Error, and Wait For Output is not enabled (checked); Indication for whether output should be retrieved on task failure only.</p>
<p>Start Line</p>	<p>If Automatic Output Retrieval = Standard Output, Standard Error, or Standard Output/Error; Instructs the Controller to retrieve data beginning at the line indicated.</p> <ul style="list-style-type: none"> • If a Start Line value is not specified, the default is 1. • If the Start Line value is -1, data will be retrieved starting at the end of the file.
<p>Number of Lines</p>	<p>If Automatic Output Retrieval = Standard Output, Standard Error, or Standard Output/Error; Allows you to limit the retrieved data to the number of lines specified. If a Number of Lines value is not specified, the default is the value of the Retrieve Output Default Number Of Lines Universal Controller system property.</p>
<p>Scan Text</p>	<p>If Automatic Output Retrieval = Standard Output, Standard Error, or Standard Output/Error; Regex pattern that the Controller will search for a match for in STDOUT/STDERR. The Controller will include the Number of Lines above and below the first line matched.</p> <p>if the Regex pattern is not found, the following message is returned: OPSWISE WARNING - Scan text string not found.</p>
<p>Wait / Delay Options</p>	
<p>Wait To Start</p>	<p>Amount of time to wait before starting a task from the time that it was launched.</p> <p>Options are:</p> <ul style="list-style-type: none"> • – None – • Time • Relative Time • Duration • Seconds
<p>Wait Time</p>	<p>If Wait To Start = Time or Relative Time; Number of hours and minutes to wait before starting the task.</p>

<p>Wait Day Constraint</p>	<p>If Wait Time = Time or Relative Time; Specification for whether or not to advance the wait time to another day.</p> <p>Valid values:</p> <ul style="list-style-type: none"> • -- None -- <ul style="list-style-type: none"> • If Wait To Start = Time; Advance to the next day if the specified wait time is before the time that the task instance is eligible to start; that is, all dependencies have been met. For example: it is not being held, and it is not waiting on any predecessors. • If Wait To Start = Relative Time; Advance to the next day if the specified wait time is before the task instance Trigger Time or, if there is no Trigger Time, before the task instance Launch Time. In the latter case, when a task instance is within a workflow, it will inherit the Launch Time of the top-level parent workflow task instance. • Same Day Do not advance day. • Next Day Advance to the next day. • Next Business Day Advance to the next business day. • Sunday If today is not Sunday, advance to next Sunday. • Monday If today is not Monday, advance to next Monday. • Tuesday If today is not Tuesday, advance to next Tuesday. • Wednesday If today is not Wednesday, advance to next Wednesday. • Thursday If today is not Thursday, advance to next Thursday. • Friday If today is not Friday, advance to next Friday. • Saturday If today is not Saturday, advance to next Saturday. <p>Default is -- None --.</p>
<p>Wait Duration</p>	<p>If Wait To Start = Duration; Number of days, hours, minutes, and seconds to wait before starting the task.</p>
<p>Wait Duration In Seconds</p>	<p>If Wait To Start = Seconds; Number of seconds to wait before starting the task.</p>
<p>Delay On Start</p>	<p>Amount of time to delay the start of a task, after it has been launched, from the time that it is eligible to start; that is, all dependencies have been met. For example: it is not being held, it is not waiting on any predecessors, or there is no wait time specified.</p> <p>Options are:</p> <ul style="list-style-type: none"> • -- None -- • Duration • Seconds
<p>Delay Duration</p>	<p>If Delay On Start = Duration; Number of days, hours, minutes, and seconds to delay after starting the task.</p>
<p>Delay Duration In Seconds</p>	<p>If Delay On Start = Seconds; Number of seconds to delay after starting the task.</p>

Workflow Only	<p>Specification for whether or not to apply the Wait To Start and Delay On Start specifications only if the task is in a Workflow.</p> <p>Options are:</p> <ul style="list-style-type: none"> • -- System Default -- Apply the Wait To Start and Delay On Start specifications as defined by the System Default Wait/Delay Workflow Only system property. (Default is yes.) • Yes Apply the Wait To Start and Delay On Start specifications only if the task is in a Workflow. • No Apply the Wait To Start and Delay On Start specifications whether or not the task is in a Workflow.
Time Options	This section contains time-related specifications for the task.
Late Start	<p>If enabled, and if the task instance starts after the time or period specified, the task instance is flagged as late. You can specify a time or duration to determine a late start (see Late Start Type). To determine whether a task instance started late, open the task instance and locate the Started Late field; the field is checked if the instance started after the specified time. The Started Late field displays in the task instance Details only if the user specified a Late Start in the task Details.</p>
Late Start Type	<p>Required if Late Start is enabled.</p> <p>Options:</p> <ul style="list-style-type: none"> • Time - Flag the task if it starts after the specified time. • Duration - Flag the task if it starts a certain amount of time after the programmed start time. The task must have a specific start time.
Late Start Time	<p>If Late Start Type = Time; Time after which the task start time is considered late. Use HH:MM, 24-hour time.</p>
Late Start Day Constraint	<p>If Late Start Type = Time; Specification for whether or not to advance the late start time to another day.</p> <p>Valid values:</p> <ul style="list-style-type: none"> • -- None -- Advance to the next day if the specified late start time is before the Created time of the task instance. • Same Day Do not advance day. • Next Day Advance to the next day. • Next Business Day Advance to the next business day. • Sunday If today is not Sunday, advance to next Sunday. • Monday If today is not Monday, advance to next Monday. • Tuesday If today is not Tuesday, advance to next Tuesday. • Wednesday If today is not Wednesday, advance to next Wednesday. • Thursday If today is not Thursday, advance to next Thursday. • Friday If today is not Friday, advance to next Friday. • Saturday If today is not Saturday, advance to next Saturday. • Nth Day Advance to a specific number of days in the future. <p>Default is -- None --.</p>
Late Start Nth Amount	<p>If Late Start Day Constraint = Nth Day; Number of days to advance.</p>

Late Start Duration	<p>If Late Start Type = Duration; Duration (amount of relative time) after which the task is considered to have started late.</p> <p>For a task within a workflow, the duration is the period between the time the workflow starts and the time the task itself starts. For example, a task might have a Late Start Duration of 60 minutes. If the workflow starts at 9:00 a.m. but the task itself does not start until 10:30, the task has started late.</p> <p>For a task that is not within a workflow, Late Start Duration has meaning only if the task has been held upon starting. For example, if a task has a Late Start Duration of 60 minutes and the Hold on Start field is enabled, if the task is not released from hold within the amount of time specified in the Late Start Duration field, the task has started late.</p>
Late Finish	<p>If enabled, and if the task instance finishes after the time or period specified, the task instance is flagged as late. You can specify a time or duration to determine a late finish (see Late Finish Type). To determine whether a task instance finished late, open the task instance and locate the Finished Late field; the field is checked if the instance finished after the specified time or lasted longer than expected. This field only appears on the task instance if the user specified a Late Finish in the task definition.</p>
Late Finish Type	<p>Required if Late Finish is enabled.</p> <p>Options:</p> <ul style="list-style-type: none"> • Time - Flag the task if it finishes after the specified time (see Late Finish Time). • Duration - Flag the task if it finishes a certain amount of time after the programmed finish time (see Late Finish Duration). The task must have a specific finish time. • Average Duration - Flag the task if it finishes before the average duration (see Average Instance Time) for the task, less an offset (see Late Finish Offset Type), if specified.
Late Finish Offset Type	<p>If Late Finish Type = Average Duration;</p> <p>Options:</p> <ul style="list-style-type: none"> • Percentage • Duration
Late Finish Percentage Offset (+)	<p>Required if Late Finish Offset Type = <i>Percentage</i>; Percentage of Average Duration to use as an offset. The late finish time is calculated by adding the offset to the Average Duration.</p>
Late Finish Duration Offset (+)	<p>Required if Late Finish Offset Type = <i>Duration</i>; Duration to use as an offset. The late finish time is calculated by adding the offset to the Average Duration.</p>
Late Finish Duration Offset Unit	<p>If Late Finish Offset Type = Duration;</p> <p>Options:</p> <ul style="list-style-type: none"> • Seconds • Minutes • Hours
Late Finish Time	<p>If Late Finish Type = Time; Time after which the task finish time is considered late. Use HH:MM, 24-hour time.</p>

<p>Late Finish Day Constraint</p>	<p>If Late Finish Type = Time; Specification for whether or not to advance the late finish time to another day.</p> <p>Valid values:</p> <ul style="list-style-type: none"> • -- None -- Advance to the next day if the specified late finish time is before the Created time of the task instance. • Same Day Do not advance day. • Next Day Advance to the next day. • Next Business Day Advance to the next business day. • Sunday If today is not Sunday, advance to next Sunday. • Monday If today is not Monday, advance to next Monday. • Tuesday If today is not Tuesday, advance to next Tuesday. • Wednesday If today is not Wednesday, advance to next Wednesday. • Thursday If today is not Thursday, advance to next Thursday. • Friday If today is not Friday, advance to next Friday. • Saturday If today is not Saturday, advance to next Saturday. • Nth Day Advance to a specific number of days in the future. <p>Default is -- None --.</p>
<p>Late Finish Nth Amount</p>	<p>If Late Finish Day Constraint = Nth Day; Number of days to advance.</p>
<p>Late Finish Duration</p>	<p>If Late Finish Type = Duration; Longest amount of time this task instance should take to run.</p>
<p>Early Finish</p>	<p>If enabled, and if the task instance finishes before the time or period specified, the task instance is flagged as early. You can specify a time or duration to determine an early finish (see Early Finish Type). To determine whether a task instance finished early, open the task instance and locate the Finished Early field; the field is checked if the instance finished before the specified time or did not last as long as expected. This field only appears on the task instance if the user added Early Finish specifications to the task definition.</p>
<p>Early Finish Type</p>	<p>Required if Early Finish is enabled.</p> <p>Options:</p> <ul style="list-style-type: none"> • Time - Flag the task if it finishes before the specified time (see Early Finish Time). • Duration - Flag the task if it finishes a certain amount of time before the programmed finish time (see Early Finish Duration). The task must have a specific finish time. • Average Duration - Flag the task if it finishes before the average duration (see Average Instance Time) for the task, less an offset (see Early Finish Offset Type), if specified.
<p>Early Finish Offset Type</p>	<p>If Early Finish Type = Average Duration;</p> <p>Options:</p> <ul style="list-style-type: none"> • Percentage • Duration
<p>Early Finish Percentage Offset (-)</p>	<p>Required if Early Finish Offset Type = <i>Percentage</i>; Percentage of Average Duration to use as an offset. The early finish time is calculated by subtracting the offset from the Average Duration.</p>
<p>Early Finish Duration Offset (-)</p>	<p>Required if Early Finish Offset Type = <i>Duration</i>; Duration to use as an offset. The early finish time is calculated by subtracting the offset from the Average Duration.</p>

<p>Early Finish Duration Offset Unit</p>	<p>If Early Finish Offset Type = Duration; Options:</p> <ul style="list-style-type: none"> • Seconds • Minutes • Hours
<p>Early Finish Time</p>	<p>If Early Finish Type = Time; Time before which the task finish time is considered early. That is, enter a time at which the task should still be running. Use HH:MM, 24-hour time.</p>
<p>Early Finish Day Constraint</p>	<p>If Early Finish Type = Time; Specification for whether or not to advance the early finish time to another day.</p> <p>Valid values:</p> <ul style="list-style-type: none"> • -- None -- Advance to the next day if the specified early finish time is before the Created time of the task instance. • Same Day Do not advance day. • Next Day Advance to the next day. • Next Business Day Advance to the next business day. • Sunday If today is not Sunday, advance to next Sunday. • Monday If today is not Monday, advance to next Monday. • Tuesday If today is not Tuesday, advance to next Tuesday. • Wednesday If today is not Wednesday, advance to next Wednesday. • Thursday If today is not Thursday, advance to next Thursday. • Friday If today is not Friday, advance to next Friday. • Saturday If today is not Saturday, advance to next Saturday. • Nth Day Advance to a specific number of days in the future. <p>Default is -- None --.</p>
<p>Early Finish Nth Amount</p>	<p>If Early Finish Day Constraint = Nth Day; Number of days to advance.</p>
<p>Early Finish Duration</p>	<p>If Early Finish Type = Duration; Shortest amount of time this task instance should take to run.</p>
<p>User Estimated Duration</p>	<p>Required if Early Finish Type or Late Finish Type = Average Duration; Estimated amount of time it should normally take to run this task. The Controller uses this information to calculate the User Estimated End Time on a task instance record.</p> <p>User Estimated Duration is used when the Average Duration is not available; for example, on the first launch of a task.</p>
<p>Critical Path Options</p>	<p>This section contains Critical Path-related specifications for the task.</p>
<p>CP Duration</p>	<p>Optional; Allows you to override the estimated Critical Path Duration of the task when running in a Workflow; used in conjunction with the CP Duration Unit field. In most cases, this field should be left blank, which implies that the Controller will estimate the Critical Path Duration based on historical executions. Valid values are any integer equal to or greater than 0. Variables and Functions are supported.</p>
<p>CP Duration (Resolved)</p>	<p>Displays the current resolved value of the CP Duration field, which may contain variables or functions that will be displayed as unresolved until the task instance starts. The CP Duration (Resolved) field can continue to change value until the task instance starts, at which time CP Duration will display as resolved and CP Duration (Resolved) will no longer be visible unless there was an issue resolving the variables and/or functions contained within CP Duration. If the Controller is unable to resolve CP Duration or it resolves to an invalid value, CP Duration will be ignored and the Controller will estimate the Critical Path Duration based on historical executions.</p>

CP Duration Unit	<p>Type of CP Duration; used in conjunction with the CP Duration field. For example, for a CP Duration of two minutes, specify 2 in the CP Duration field and select Minutes in this field.</p> <p>Options:</p> <ul style="list-style-type: none"> • Seconds • Minutes • Hours <p>Default is Minutes.</p>
Workflow Execution Options	This section contains Execution Restriction specifications for the task if it is within a Workflow.
Execution Restriction	<p>Specification for whether or not there is a restriction for this task to be run, skipped, or held.</p> <p>Options are:</p> <ul style="list-style-type: none"> • -- None -- No restriction for this task. • Run Restriction for when this task will be run. • Skip Restriction for when this task will be skipped. • Hold Restriction for when this task will be held. <p>If Execution Restriction on a task is Run or Skip, then when it is part of a Workflow that is being launched, the Restriction Period is evaluated. The task instance will be skipped if Execution Restriction is Skip and the date is within the Restriction Period or Execution Restriction is Run and the date is not within the Restriction Period. Execution Restriction can be set to Skip with a Restriction Period of - None -, meaning the restriction is always active and the task will be skipped when it is part of a Workflow.</p>
Restriction Period	<p>If Execution Restriction = Run, Skip, or Hold; Period of time when the task is restricted.</p> <p>Options are:</p> <ul style="list-style-type: none"> • -- None -- No period of restriction for this task. • Before Restriction is valid if the date is before the Before Date value. • After Restriction is valid if the date is after the After Date value. • Span Restriction is valid if the date is before the Before Date value and after After Date value. • On Restriction is valid if the date is one of the Date List values.
Before Date	If Restriction Period = Before or Span; Date before which the restriction is valid.
Before Time	If Restriction Period = Before or Span; Time on the selected date before which the restriction is valid.
After Date	If Restriction Period = After or Span; Date after which the restriction is valid.
After Time	If Restriction Period = After or Span; Time on the selected date after which the restriction is valid.
Date List	If Restriction Period = On; Date(s) on which the restriction is valid.
Self-Service Options	This section contains Self-Service specifications for the task.
Enforce Variables	Specifies whether or not to enforce Launch with Variables... when launching a task using the User Interface.
Lock Variables	Specifies whether or not to prevent editing variables when using Launch with Variables... from the User Interface.
Statistics	This section contains time-related statistics for task instances of the task.
First Execution	System-supplied; End Time of the first instance of this task to complete.

Last Execution	System-supplied; End Time of the last instance of this task to complete.
Last Instance Duration	System-supplied; Amount of time the task took to run the last time it ran.
Lowest Instance Time	System-supplied; Lowest amount of time this task has taken to run.
Average Instance Time	System-supplied; Average amount of time this task takes to run.
Highest Instance Time	System-supplied; Highest amount of time this task has taken to run.
Number of Instances	System-supplied; Number of instances in the database for this task.
Metadata	This section contains Metadata information about this record.
UUID	Universally Unique Identifier of this record.
Updated By	Name of the user that last updated this record.
Updated	Date and time that this record was last updated.
Created By	Name of the user that created this record.
Created	Date and time that this record was created.
Buttons	This section identifies the buttons displayed above and below the Task Details that let you perform various actions.
Save	Saves a new task record in the Controller database.
Save & New	Saves a new record in the Controller database and redisplay empty Details so that you can create another new record.
Save & View	Saves a new record in the Controller database and continues to display that record.
New	Displays empty (except for default values) Details for creating a new task.
Update	Saves updates to the record.
Launch	Manually launches the task.
View Parents	Displays a list of any parent Workflow tasks for this task.
Copy	Creates a copy of this task, which you are prompted to rename.
Delete	Deletes the current record. <div style="border: 2px solid yellow; padding: 10px;"> <p>Note</p> <p>You cannot delete a task if it is either:</p> <ul style="list-style-type: none"> • Specified in an enabled Trigger. • The only task specified in a disabled Trigger. </div>
Refresh	Refreshes any dynamic data displayed in the Details.
Close	For pop-up view only; closes the pop-up view of this task.

Tabs	This section identifies the tabs across the top of the Task Details that provide access to additional information about the task.										
Variables	Lists all user-defined variables associated with this record; that is, variables that have been defined for this specific record.										
Actions	<p>Allows you to specify actions that the Controller will take automatically based on events that occur during the execution of this task.</p> <p>Events are:</p> <ul style="list-style-type: none"> • Task instance status • Exit codes • Late start • Late finish • Early finish <p>Actions are:</p> <table border="1" data-bbox="619 719 1541 1200"> <tr> <td data-bbox="619 719 971 804">Abort Action</td> <td data-bbox="971 719 1541 804">Abort the task if certain events occur. For details, see Abort Actions.</td> </tr> <tr> <td data-bbox="619 804 971 889">Email Notification</td> <td data-bbox="971 804 1541 889">Send an email if certain events occur. For details, see Email Notification Actions.</td> </tr> <tr> <td data-bbox="619 889 971 1003">Set Variable</td> <td data-bbox="971 889 1541 1003">Used in tasks and workflows to set a variable based on the occurrence of certain events. For details, see Creating a Set Variable Action within a Task or Workflow.</td> </tr> <tr> <td data-bbox="619 1003 971 1088">SNMP Notification</td> <td data-bbox="971 1003 1541 1088">Send an email if certain events occur. For details, see SNMP Notification Actions.</td> </tr> <tr> <td data-bbox="619 1088 971 1200">System Operation</td> <td data-bbox="971 1088 1541 1200">Run an Universal Controller system operation based on specified conditions. For details, see System Operation Actions.</td> </tr> </table>	Abort Action	Abort the task if certain events occur. For details, see Abort Actions .	Email Notification	Send an email if certain events occur. For details, see Email Notification Actions .	Set Variable	Used in tasks and workflows to set a variable based on the occurrence of certain events. For details, see Creating a Set Variable Action within a Task or Workflow .	SNMP Notification	Send an email if certain events occur. For details, see SNMP Notification Actions .	System Operation	Run an Universal Controller system operation based on specified conditions. For details, see System Operation Actions .
Abort Action	Abort the task if certain events occur. For details, see Abort Actions .										
Email Notification	Send an email if certain events occur. For details, see Email Notification Actions .										
Set Variable	Used in tasks and workflows to set a variable based on the occurrence of certain events. For details, see Creating a Set Variable Action within a Task or Workflow .										
SNMP Notification	Send an email if certain events occur. For details, see SNMP Notification Actions .										
System Operation	Run an Universal Controller system operation based on specified conditions. For details, see System Operation Actions .										
Virtual Resources	<p>Lists all Virtual Resources to which this task is assigned.</p> <p>If you want to create a Task Virtual Resource for this task, you can select an existing Virtual Resource (or, optionally, first create a new Virtual Resource and then select it as the Task Virtual Resource) or enter a Virtual Resource variable. The variable must be a supported type as described in Variables and Functions.</p>										
Mutually Exclusive	Lists all tasks that have been set to be mutually exclusive of this task.										
Instances	Lists all instances of the task.										
Triggers	List of all triggers that reference this task in the Task(s) field of the trigger Details; that is, a list of all triggers that have been defined to launch this task. Also allows you to add new triggers. If you add a new trigger from this location, the Controller automatically constructs a default trigger name as follows: <current task name>#TRIGGER#. You can change the default name if desired. For instructions on creating triggers, see Triggers .										
Notes	Lists all notes associated with this record.										
Versions	Stores copies of all previous versions of the current record. See Record Versioning .										

6.4 Viewing a Remote File Monitor Task Instance

When a Remote File Monitor task is launched, the Controller creates a task instance record of that task.

A task instance contains detailed information about a single execution of that task.

You can access a task instance from:

- **Instances tab** on the [Remote File Monitor Task Details](#) for that task
- [Activity Monitor](#)
- [Task Instances list](#)

6.4.1 Remote File Monitor Task Instance Details

The following Remote File Monitor Task Instance Details contains information on the execution of the task shown in the [Remote File Monitor Task Details](#).

Dashboards
Remote File Monitors
Remote File Monitor Details: stonebranch-ftpfilemonitortask-01
Remote File Monitor Instance Details: stonebranch-ftpfilemonitortask-01

Re-run Retrieve Output...

Remote File Monitor Instance
Actions
Virtual Resources
Exclusive Requests
Output
Notes

General

Instance Name stonebranch-ftpfilemonitortask-01	Instance Number 1
Description <input style="width: 90%;" type="text"/>	
Member of Business Services <input style="width: 90%;" type="text"/>	
Task stonebranch-ftpfilemonitortask-01	Source Version 3
Launch Source Launch Task / User Interface	
Invoked By Manually Launched	Execution User Admin
Calendar System Default	Time Zone Preference -- System Default --
Virtual Resource Priority 10	Hold Resources on Failure <input type="checkbox"/>
Mutually Exclusive With Self <input type="checkbox"/>	Simulate <input type="checkbox"/>
Previous Instance Wait Resolved -- None --	

Status

Status Finished	Exit Code 0
Status Description Job Card: Field is required -> State was forced from START FAILURE to FINISHED	
Operational Memo <input style="width: 90%;" type="text"/>	
Trigger Time <input style="width: 90%;" type="text"/>	Launch Time 2023-09-19 14:46:47 -0400
Wait Until Time <input style="width: 90%;" type="text"/>	
Start Time <input style="width: 90%;" type="text"/>	End Time 2023-09-19 14:46:59 -0400
Duration <input style="width: 90%;" type="text"/>	

Agent Details

Cluster <input type="checkbox"/>	
Agent * QAZOS205 - QAZOS205-V750	Agent Variable <input type="checkbox"/>
Credentials <input style="width: 90%;" type="text"/>	Credentials Variable <input type="checkbox"/>

Remote File Monitor Details

Monitor Type Exists	
Wait until Satisfied <input type="checkbox"/>	
Server Type FTP	Transfer Mode Passive
Additional FTP Commands <input style="width: 90%;" type="text"/>	
Remote Server server 1	FTP Credentials * 1
	FTP Credentials Variable <input type="checkbox"/>
Remote Filename file 1	
Use Regular Expression <input type="checkbox"/>	
Minimum File Size <input style="width: 90%;" type="text"/>	Minimum File Scale KB
Job Card (z/OS only) <input style="width: 90%;" type="text"/>	z/OS ID (z/OS only) <input style="width: 90%;" type="text"/>

Result Processing Details

Automatic Output Retrieval -- None --
--

6.4.2 Remote File Monitor Task Instance Details Field Descriptions

The following table describes the fields, buttons, and tabs that display in Remote File Monitor Task Instance Details.

Field Name	Description
General	This section contains general information about the task instance.
Instance Name	Name of this task instance.
Instance Number	System-supplied; Sequentially assigned number, maintained per task, representing the creation order of the instance.
Description	Description of this record. (Maximum = 255 characters.)
Member of Business Services	<p>User-defined; Allows you to select one or more Business Services that this record belongs to. (You also can Check All or Uncheck All Business Services for this record.)</p> <p>You can select up to 62 Business Services for any record type, and enter a maximum of 2048 characters for each Business Service.</p> <p>If the Business Service Visibility Restricted Universal Controller system property is set to true, depending on your assigned (or inherited) Permissions or Roles, Business Services available for selection may be restricted.</p>
Task	Name of the task that was run to create this task instance. Click the icon to display Task Details for the task.
Source Version	Version of the task that was run to create this task instance.

<p>Launch Source</p>	<p>System-supplied; Source from which this task was launched.</p> <p>Options:</p> <ul style="list-style-type: none"> • Scheduled Trigger If the instance was directly launched by a scheduled trigger, the Trigger (trigger_id) column is assigned the UUID of the scheduled trigger. • Trigger Monitor If the instance is a monitor associated with monitor trigger, the Trigger (trigger_id) column is assigned the UUID of the monitor trigger. • Trigger Now / User Interface If the instance was directly launched by a Trigger Now command, the Trigger (trigger_id) column is assigned the UUID of the trigger. • Trigger Now / System Operation If the instance was directly launched by a Trigger Now command, the Trigger (trigger_id) column is assigned the UUID of the trigger and the Source Instance (source_instance) column will be assigned the UUID of the instance invoking the System Operation. • Trigger Now / Web Service If the instance was directly launched by a Trigger Now command, the Trigger (trigger_id) column is assigned the UUID of the trigger. • Trigger Now / Command Line If the instance was directly launched by a Trigger Now command, the Trigger (trigger_id) column is assigned the UUID of the trigger. • Workflow If the instance was launched by a workflow, the Workflow (workflow_id) column is assigned the UUID of the workflow instance. Likewise, the Source Instance (source_instance) column will also be assigned the UUID of the workflow instance. • Launch Task / User Interface If the instance was directly launched by the Launch Task command, the Source Instance (source_instance) column will be null. • Launch Task / System Operation If the instance was directly launched by the Launch Task command, the Source Instance (source_instance) column will be assigned the UUID of the instance invoking the System Operation. • Launch Task / Web Service If the instance was directly launched by the Launch Task command, the Source Instance (source_instance) column will be null. • Launch Task / Command Line If the instance was directly launched by the Launch Task command, the Source Instance (source_instance) column will be null. • Recurring If the instance was directly launched by a Recurring Task Instance, the Source Instance (source_instance) column will be assigned the UUID of the Recurring Task Instance.
<p>Source Instance</p>	<p>System-supplied; UUID of the source instance.</p> <ul style="list-style-type: none"> • If the instance was directly launched by a Trigger Now command; the UUID of the instance invoking the System Operation. • If the instance was launched by a workflow; the UUID of the workflow instance. • If the instance was directly launched by the Launch Task command; the UUID of the instance invoking the System Operation. • If the instance was directly launched by a Recurring Task Instance; the UUID of the Recurring Task Instance.
<p>Invoked by</p>	<p>System-supplied; how the task instance was launched.</p> <p>Options:</p> <ul style="list-style-type: none"> • Trigger: (Trigger Name) Instance was launched by the named trigger. • Workflow: (Workflow Name) Instance was launched by the named workflow. • Manually Launched Instance was launched by a user. To identify the user, check the Execution User column for that task instance on the Task Instances screen or, on most task instance screens, the Execution User field.

Execution User	System-supplied; If the task was launched manually; ID of the user who launched it.
Calendar	Calendar associated with the task instance.
Time Zone Preference	<p>User-defined; Allows you to specify the time zone that will be applied to the task.</p> <p>Options:</p> <ul style="list-style-type: none"> • – System Default – Time zone is based on the value of the Task Time Zone Preference Universal Controller system property: Server or Inherited. • Server (xxx) Where (xxx) is the time zone ID of the server; time zone is evaluated in the time zone of the server. • Inherited Time zone is evaluated in the time zone of the Parent Workflow or Trigger / Launch specification in the case there is no Parent Workflow.
Virtual Resource Priority	<p>Priority for acquiring a resource when two or more tasks are waiting for the resource. This priority applies to all resources required by the task.</p> <p>Options: 1 (high) - 100 (low).</p> <p>Default is 10.</p>
Hold Resources on Failure	If enabled, the task instance will continue to hold Renewable resources if the task instance fails. Renewable resources will be returned only if the task instance status is either Complete, Finished, or Skipped.
Mutually Exclusive With Self	If enabled, the task will not be allowed to run concurrently with itself. Task will not start until the instance that is running finishes. An instance will transition to Exclusive Wait status if it cannot start due to another instance already running.
Simulate	Specifies if the instance should execute under simulation mode .
Previous Instance Wait Resolved	<p>System-supplied; If the Override Previous Instance Wait field for the task is set to No, the Previous Instance Wait Resolved field will be set to the value of the Previous Instance Wait field of the parent workflow. Otherwise, it will be set to the value specified by the Override Previous Instance Wait.</p> <p>Options:</p> <ul style="list-style-type: none"> • -- None -- • Wait for Last Every task instance directly within the workflow instance will remain in Instance Wait until the most recent prior instance of the same task has completed. • Wait for Last / Same Workflow Every task instance directly within the workflow instance will remain in Instance Wait until the most recent prior instance of the same task, within an instance of the same workflow, have completed. • Wait for All Every task instance directly within the workflow instance will remain in Instance Wait until all prior instances of the same task has completed. • Wait for All / Same Workflow Every task instance directly within the workflow instance will remain in Instance Wait until all prior instances of the same task, within an instance of the same workflow, have completed.
Status	This section contains information about the current status of the task instance.
Status	System-supplied; see Task Instance Statuses .
Exit Code	System-supplied; the exit code captured by the Agent when executing the task (for example, a command or script).
Status Description	System-supplied; additional information, if any, about the status of the task instance.
Operational Memo	User-defined operational memo.

Evaluation Time	If time zone of user is different than time zone of task instance; Time at which Execution Restrictions and Run Criteria were evaluated based upon the requested time zone. (Time zone of task instance displays in parentheses.)
Critical	Indicates that this task is in the Critical Path of a workflow.
Critical Endpoint	Indicates that this task was defined as a Critical Endpoint of a Critical Path in a workflow.
Wait Until Time	Amount of time calculated to wait before the task was started, based on Wait To Start and Delay On Start times.
Queued Time	System-supplied; Date and time the task was queued for processing.
Trigger Time	System-supplied; Date and time the task instance was triggered.
Launch Time	System-supplied; Date and time the task instance was launched.
Start Time	System-supplied; Date and time the task instance started.
End Time	System-supplied; Date and time the task instance completed.
Duration	System-supplied; amount of time the task instance took to run.
Agent Details	This section contains assorted detailed information about the Agent / Agent Cluster selected for this task.
Cluster	Indication that selecting an Agent Cluster is required and selecting Broadcast , which lets you select a Cluster Broadcast , is optional. If Cluster is selected, selecting an Agent is not required unless Agent Variable is selected.
Agent	Name of the Agent resource that identifies the machine where the operation will run. If you do not specify an Agent, you must specify an Agent Cluster or Cluster Broadcast .
Agent Variable	<p>Indication of whether the Agent field is a reference field for selecting a specific Agent (unchecked) or a text field for specifying the Agent as a variable (checked). Use the format: \${variable name}. The variable must be a supported type as described in Variables and Functions.</p> <div style="border: 2px solid orange; padding: 10px; margin-top: 10px;"> <p>Note</p> <p>When updating multiple Tasks, to change from using an Agent reference to using an Agent variable, you must change the Agent Variable field to Yes and specify the Agent variable in the Agent Unresolved field. Conversely, to change from using an Agent variable to using an Agent reference, you must change the Agent Variable field to No and specify the Agent reference in the Agent field.</p> </div>
Agent Cluster	If Cluster is selected and Broadcast is not selected; Group of Agents, one of which the Controller will choose to run this task (compare with Cluster Broadcast). You can specify an agent cluster in addition to or in place of a specific Agent. If you specify an Agent and an agent cluster, the Controller first tries to run the task on the specific agent. If the Agent is not available, the Controller reverts to the agent cluster. See Agent Clusters for more information.

<p>Agent Cluster Variable</p>	<p>Indication of whether the Agent Cluster field is a reference field for selecting a specific Agent Cluster (unchecked) or a text field for specifying the Agent Cluster as a variable (checked). Use the format: <code>\${variable name}</code>.</p> <p>The variable must be a supported type as described in Variables and Functions.</p> <div style="border: 1px solid orange; padding: 5px; margin-top: 10px;"> <p>Note</p> <p>When updating multiple Tasks, to change from using an Agent Cluster reference to using an Agent Cluster variable, you must change the Agent Cluster Variable field to Yes and specify the Agent Cluster variable in the Agent Cluster Unresolved field. Conversely, to change from using an Agent Cluster variable to using an Agent Cluster reference, you must change the Agent Cluster Variable field to No and specify the Agent Cluster reference in the Agent Cluster field.</p> </div>
<p>Credentials</p>	<p>Credentials under which an Agent runs this task. These Credentials override any Credentials provided in the Agent Details for any Agent running this task.</p> <p>If the user does not have a login shell, add a - character in front of the runtime credentials name. The Controller will provide a shell for that user and strip the - character from the name.</p> <p>Required if the Agent Credentials Required Universal Controller system property is true. When required, if the Credential is specified as a variable, and the variable resolves to blank, a Start Failure will occur.</p>
<p>Credentials Variable</p>	<p>Indication of whether the Credentials field is a reference field for selecting a specific Credential (unchecked) or a text field for specifying the Credential as a variable (checked). Use the format: <code>\${variable name}</code>.</p> <p>The variable must be a supported type as described in Variables and Functions.</p> <div style="border: 1px solid orange; padding: 5px; margin-top: 10px;"> <p>Note</p> <p>When updating multiple Tasks, to change from using a Credentials reference to using a Credentials variable, you must change the Credentials Variable field to Yes and specify the Credentials variable in the Credentials Unresolved field. Conversely, to change from using a Credentials variable to using a Credentials reference, you must change the Credentials Variable field to No and specify the Credentials reference in the Credentials field.</p> </div>
<p>Remote File Monitor Details</p>	<p>This section contains assorted detailed information about the task instance.</p>
<p>Monitor Type</p>	<p>Type of file event being monitored for.</p> <p>Options:</p> <ul style="list-style-type: none"> • Exists - Checks to see if the file exists. • Missing - Checks to see if the file does not exist.

<p>Wait until Satisfied</p>	<p>If enabled, the task instance starts and continues to run until one of the following events occurs:</p> <ul style="list-style-type: none"> • If Monitor Type = Exists and the specified file exists or appears, the task instance completes with a status of SUCCESS. • If Monitor Type = Missing and the specified file does not exist (or any part of the path is missing), or exists then disappears, the task instance completes with a status of SUCCESS. <p>If not enabled, the task instance:</p> <ol style="list-style-type: none"> 1. Starts. 2. Checks for the existence of the file. 3. Takes one of the following actions: <ul style="list-style-type: none"> • If Monitor Type = Exists and the file exists, the task instance completes with a status of SUCCESS. • If Monitor Type = Exists and the file does not exist (or any part of the path is missing), the task instance completes with a status of FAILURE. • If Monitor Type = Missing and the file exists, the task instance completes with a status of FAILURE. • If Monitor Type = Missing and the file does not exist (or any part of the path is missing), the task instance completes with a status of SUCCESS.
<p>Poll Interval (Seconds)</p>	<p>If Wait until Satisfied is enabled: Frequency, in seconds, in which the Remote File Monitor will check to see if the file exists or is missing.</p>
<p>Maximum Polls</p>	<p>If Wait until Satisfied is enabled: Maximum number of times that the Remote File Monitor will check to see if the file exists or is missing.</p>
<p>Stable (Seconds)</p>	<p>If Wait until Satisfied is enabled: Period of time, in seconds, during which the file has not changed.</p> <p>For a Remote File Monitor task, a file's stability depends on its size. If the file size displayed in the FTP/SFTP output does not change during the specified number of seconds, the file is considered stable. In order for the task to reliably monitor the file's stability, the task must display a file's size in a well-known location. This means that the file list returned in the output must be in Unix long-listing format, as follows:</p> <div data-bbox="619 1223 1541 1339" style="border: 1px solid #ccc; padding: 10px; margin: 10px 0;"> <pre>-rwxr-xr-x 1 owner group 12345 Jan 1 2016 somefile.txt</pre> </div> <p>The task will only find the size if it is in the 5th column (for example, <code>12345</code> in the example above).</p> <p>The default file list format varies across different FTP client/server implementations, but most support additional commands that can force the output to the required format. The Additional FTP Commands field is provided to insert those statements into the FTP script that the file monitor task executes.</p>
<p>Server Type</p>	<p>Type of FTP server.</p> <p>Options:</p> <ul style="list-style-type: none"> • FTP • SFTP • FTPS • FTPES <div data-bbox="619 1805 1541 2011" style="border: 2px solid orange; padding: 10px; margin: 10px 0;"> <p>Note</p> <p>The Remote File Monitor Task Exclude Protocols Universal Controller system property permits the exclusion of one or more, but not all, protocols (server types) from being selected.)</p> </div>

Additional FTP Commands

If [Server Type](#) is FTP, FTPS, or FTPES: Set of extra commands to be sent to the FTP server, such as optional statements that control the FTP output format.

The Agent depends on the file list being in Unix "long" format (that is, what you would see if you entered "ls -l" from the command shell) in order to correctly and reliably parse out file name and size (when a Stable period is specified). If the FTP Server is configured to return a different format, the Server may support commands that alter the format.

For example, the following statements may be used for a Remote File Monitor task executing against an IBM iSeries (AS/400) FTP Server to ensure a correctly formatted file list:

```
site listfmt 1
site namefmt 1
```

If the Remote File Monitor task is executing against a Microsoft FTP Server and that Server is configured to return a file list in DOS format, the following statement will toggle the format to a Unix-style listing.

```
site dirstyle
```

Not all FTP client/server implementations provide statements that can alter the format of the **ls** command, which the Remote File Monitor task issues to generate the file listing. However, those implementations may support the **dir** command, which can return the file list in the correct format. If the **dir** command is specified in the Additional FTP Commands field, the Remote File Monitor task will use the results from that command to obtain the file sizes. In such cases, the FTP script will contain the **dir** and **ls** commands, but since statements in the Additional FTP Commands field are inserted into the script prior the **ls** command, the results from the **dir** command are parsed first.

If the **dir** command is necessary to obtain the correct file list format, simply specify that command along with the same value specified in the [Remote Filename](#) field. For example, if [Remote Filename](#) is `/uagtests/data/somefile*.txt`, enter the following in this field:

```
dir /uagtests/data/somefile*.txt
```

This statement also can be used with other commands to get the correct output. For example, if a Windows FTP Server is configured to return file lists in Windows format, use **site** and **dir** commands together in this field:

```
site dirstyle
dir /uagtests/data/somefile*.txt
```

Invalid statements or valid statements that do not control the file list format are ignored.

Transfer Mode	Transfer mode. Options: <ul style="list-style-type: none"> • Active • Passive • Extended Passive
Verify Host Name	If Server Type = FTPS or FTPES; Indication of whether to verify the DNS name or IP address of the FTP server's certificate against the host system.
Transfer Mode	Transfer mode. Options: <ul style="list-style-type: none"> • Active • Passive • Extended Passive
Remote Server	Name or IP address of the remote server. This machine may or may not be the same as the Universal Agent machine. You also can specify a non-standard FTP, SFTP, FTPS, or FTPES port: port number separated from the host name with a colon: "some.server.com:2222".
FTP Credentials	Login credentials that the Agent will use to access the FTP or SFTP server machine. If the Remote File Monitor server and Agent are running on the same machine, enter the same credentials as those you entered in the Credentials field.
FTP Credentials Variable	Indication of whether the FTP Credentials field is a reference field for selecting a specific Credential (unchecked) or a text field for specifying the FTP Credentials as a variable (checked). Use the format: \${variable name}. The variable must be a supported type as described in Variables and Functions . <div style="border: 1px solid orange; padding: 10px; margin-top: 10px;"> <p>Note</p> <p>When updating multiple Tasks, to change from using an FTP Credentials reference to using an FTP Credentials variable, you must change the FTP Credentials Variable field to Yes and specify the FTP Credentials variable in the FTP Credentials Unresolved field. Conversely, to change from using an FTP Credentials variable to using an FTP Credentials reference, you must change the FTP Credentials Variable field to No and specify the FTP Credentials reference in the FTP Credentials field.</p> </div>
Remote Filename	Path and file name on the remote server. <div style="border: 1px solid orange; padding: 10px; margin-top: 10px;"> <p>Note</p> <p>If the task instance unexpectedly ends in Start Failure, review the Remote Filename for any leading or trailing whitespace (such as CRLF and CR), or any other unintended characters (such as extra slashes).</p> </div>
Use Regular Expression	Enables the use of a regular expression in the Remote Filename field.
Minimum File Size	If Monitor Type = Exists; Minimum file size required to check if the file exists.

Minimum File Scale	If Monitor Type = Exists; Scale for the Minimum File Size . Options: <ul style="list-style-type: none"> • Bytes • KB • MB
Job Card (z/OS only)	For z/OS, the job card information for the JCL statement. Example: <div style="border: 1px solid black; padding: 10px; margin-top: 10px;"> <pre>//File TransferJOB01 JOB (File Transfer,001),FANNY,MSGCLASS=X,MSGLEVEL=(1,1),NOTIFY= &SYSUID,CLASS=A</pre> </div>
Result Processing Details	
Automatic Output Retrieval	Specifies whether you want the Controller to automatically retrieve any output from the job and attach it to the task instance record. <ul style="list-style-type: none"> • None Do not attach any output to the task instance record. • Standard Output Attach all standard output. • Standard Error Attach standard error output. • Standard Output/Error Attach all standard output and standard error output.
Wait for Output	If Automatic Output Retrieval = Standard Output, Standard Error, or Standard Output/Error, and Failure Only is not enabled (checked); Specification that the task should wait for the requested output before completing.
Failure Only	If Automatic Output Retrieval = Standard Output, Standard Error, or Standard Output/Error, and Wait For Output is not enabled (checked); Indication for whether output should be retrieved on task failure only.
Start Line	If Automatic Output Retrieval = Standard Output, Standard Error, or Standard Output/Error; Instructs the Controller to retrieve data beginning at the line indicated. <ul style="list-style-type: none"> • If a Start Line value is not specified, the default is 1. • If the Start Line value is -1, data will be retrieved starting at the end of the file.
Number of Lines	If Automatic Output Retrieval = Standard Output, Standard Error, or Standard Output/Error; Allows you to limit the retrieved data to the number of lines specified. If a Number of Lines value is not specified, the default is the value of the Retrieve Output Default Number Of Lines Universal Controller system property.
Scan Text	If Automatic Output Retrieval = Standard Output, Standard Error, or Standard Output/Error; Regex pattern that the Controller will search for a match for in STDOUT/STDERR. The Controller will include the Number of Lines above and below the first line matched. if the Regex pattern is not found, the following message is returned: OPSWISE WARNING - Scan text string not found.
Wait / Delay Options	
Wait To Start	Amount of time to wait before starting a task from the time that it was launched. Options are: <ul style="list-style-type: none"> • – None – • Time • Relative Time • Duration • Seconds

Wait Time	If Wait To Start = Time or Relative Time; Number of hours and minutes to wait before starting the task.
Wait Day Constraint	<p>If Wait Time = Time or Relative Time; Specification for whether or not to advance the wait time to another day.</p> <p>Valid values:</p> <ul style="list-style-type: none"> • -- None -- <ul style="list-style-type: none"> • If Wait To Start = Time; Advance to the next day if the specified wait time is before the time that the task instance is eligible to start; that is, all dependencies have been met. For example: it is not being held, and it is not waiting on any predecessors. • If Wait To Start = Relative Time; Advance to the next day if the specified wait time is before the task instance Trigger Time or, if there is no Trigger Time, before the task instance Launch Time. In the latter case, when a task instance is within a workflow, it will inherit the Launch Time of the top-level parent workflow task instance. • Same Day Do not advance day. • Next Day Advance to the next day. • Next Business Day Advance to the next business day. • Sunday If today is not Sunday, advance to next Sunday. • Monday If today is not Monday, advance to next Monday. • Tuesday If today is not Tuesday, advance to next Tuesday. • Wednesday If today is not Wednesday, advance to next Wednesday. • Thursday If today is not Thursday, advance to next Thursday. • Friday If today is not Friday, advance to next Friday. • Saturday If today is not Saturday, advance to next Saturday. <p>Default is -- None --.</p>
Wait Duration	If Wait To Start = Duration; Number of days, hours, minutes, and seconds to wait before starting the task.
Wait Duration In Seconds	If Wait To Start = Seconds; Number of seconds to wait before starting the task.
Delay On Start	<p>Amount of time to delay the start of a task, after it has been launched, from the time that it is eligible to start; that is, all dependencies have been met. For example: it is not being held, it is not waiting on any predecessors, or there is no wait time specified.</p> <p>Options are:</p> <ul style="list-style-type: none"> • -- None -- • Duration • Seconds
Delay Duration	If Delay On Start = Duration; Number of days, hours, minutes, and seconds to delay after starting the task.
Delay Duration In Seconds	If Delay On Start = Seconds; Number of seconds to delay after starting the task.
Wait / Delay Options	This section contains specifications for waiting to start and/or delaying on start the task.

<p>Wait To Start</p>	<p>Amount of time to wait before starting a task from the time that it was launched.</p> <p>Options are:</p> <ul style="list-style-type: none"> • – None – • Time • Relative Time • Duration • Seconds
<p>Wait Time</p>	<p>If Wait To Start = Time or Relative Time; Number of hours and minutes to wait before starting the task.</p>
<p>Wait Day Constraint</p>	<p>If Wait Time = Time or Relative Time; Specification for whether or not to advance the wait time to another day.</p> <p>Valid values:</p> <ul style="list-style-type: none"> • -- None -- <ul style="list-style-type: none"> • If Wait To Start = Time; Advance to the next day if the specified wait time is before the time that the task instance is eligible to start; that is, all dependencies have been met. For example: it is not being held, and it is not waiting on any predecessors. • If Wait To Start = Relative Time; Advance to the next day if the specified wait time is before the task instance Trigger Time or, if there is no Trigger Time, before the task instance Launch Time. In the latter case, when a task instance is within a workflow, it will inherit the Launch Time of the top-level parent workflow task instance. • Same Day Do not advance day. • Next Day Advance to the next day. • Next Business Day Advance to the next business day. • Sunday If today is not Sunday, advance to next Sunday. • Monday If today is not Monday, advance to next Monday. • Tuesday If today is not Tuesday, advance to next Tuesday. • Wednesday If today is not Wednesday, advance to next Wednesday. • Thursday If today is not Thursday, advance to next Thursday. • Friday If today is not Friday, advance to next Friday. • Saturday If today is not Saturday, advance to next Saturday. <p>Default is – None –.</p>
<p>Wait Duration</p>	<p>If Wait To Start = Duration; Number of days, hours, minutes, and seconds to wait before starting the task.</p>
<p>Wait Duration In Seconds</p>	<p>If Wait To Start = Seconds; Number of seconds to wait before starting the task.</p>
<p>Delay On Start</p>	<p>Amount of time to delay the start of a task, after it has been launched, from the time that it is eligible to start; that is, all dependencies have been met. For example: it is not being held, it is not waiting on any predecessors, or there is no wait time specified.</p> <p>Options are:</p> <ul style="list-style-type: none"> • – None – • Duration • Seconds

Delay Duration	If Delay On Start = Duration; Number of days, hours, minutes, and seconds to delay after starting the task.
Delay Duration In Seconds	If Delay On Start = Seconds; Number of seconds to delay after starting the task.
Time Options	This section contains time-related specifications for the task instance.
Late Start	If enabled, and if the task instance starts after the time or period specified, the task instance is flagged as late. You can specify a time or duration to determine a late start (see Late Start Type). To determine whether a task instance started late, open the task instance and locate the Started Late field; the field is checked if the instance started after the specified time. The Started Late field displays in the task instance Details only if the user specified a Late Start in the task Details.
Started Late	System-supplied; this field is flagged if the task started later than the time specified in the Late Start fields.
Late Start Type	Required if Late Start is enabled. Options: <ul style="list-style-type: none"> • Time - Flag the task if it starts after the specified time. • Duration - Flag the task if it starts a certain amount of time after the programmed start time. The task must have a specific start time.
Late Start Time	If Late Start Type = Time; Time after which the task start time is considered late. Use HH:MM, 24-hour time.
Late Start Day Constraint	If Late Start Type = Time; Specification for whether or not to advance the late start time to another day. Valid values: <ul style="list-style-type: none"> • -- None -- Advance to the next day if the specified late start time is before the Created time of the task instance. • Same Day Do not advance day. • Next Day Advance to the next day. • Next Business Day Advance to the next business day. • Sunday If today is not Sunday, advance to next Sunday. • Monday If today is not Monday, advance to next Monday. • Tuesday If today is not Tuesday, advance to next Tuesday. • Wednesday If today is not Wednesday, advance to next Wednesday. • Thursday If today is not Thursday, advance to next Thursday. • Friday If today is not Friday, advance to next Friday. • Saturday If today is not Saturday, advance to next Saturday. • Nth Day Advance to a specific number of days in the future. Default is -- None --.
Late Start Nth Amount	If Late Start Day Constraint = Nth Day; Number of days to advance.

Late Start Duration	<p>If Late Start Type = Duration; Duration (amount of relative time) after which the task is considered to have started late.</p> <p>For a task within a workflow, the duration is the period between the time the workflow starts and the time the task itself starts. For example, a task might have a Late Start Duration of 60 minutes. If the workflow starts at 9:00 a.m. but the task itself does not start until 10:30, the task has started late.</p> <p>For a task that is not within a workflow, Late Start Duration has meaning only if the task has been held upon starting. For example, if a task has a Late Start Duration of 60 minutes and the Hold on Start field is enabled, if the task is not released from hold within the amount of time specified in the Late Start Duration field, the task has started late.</p>
Computed Late Start Time	If Late Start is enabled, the computed Date/Time for when the task instance will be Late Started.
Late Finish	<p>If enabled, and if the task instance finishes after the time or period specified, the task instance is flagged as late. You can specify a time or duration to determine a late finish (see Late Finish Type). To determine whether a task instance finished late, open the task instance and locate the Finished Late field; the field is checked if the instance finished after the specified time or lasted longer than expected. This field only appears on the task instance if the user specified a Late Finish in the task definition.</p>
Finished Late	System-supplied; this field is flagged if the task finished later than the time or duration specified in the Late Finish fields.
Late Finish Type	<p>Required if Late Finish is enabled.</p> <p>Options:</p> <ul style="list-style-type: none"> • Time - Flag the task if it finishes after the specified time (see Late Finish Time). • Duration - Flag the task if it finishes a certain amount of time after the programmed finish time (see Late Finish Duration). The task must have a specific finish time. • Average Duration - Flag the task if it finishes before the average duration (see Average Instance Time) for the task, less an offset (see Late Finish Offset Type), if specified.
Late Finish Offset Type	<p>If Late Finish Type = Average Duration;</p> <p>Options:</p> <ul style="list-style-type: none"> • Percentage • Duration
Late Finish Percentage Offset (+)	Required if Late Finish Offset Type = <i>Percentage</i> ; Percentage of Average Duration to use as an offset. The late finish time is calculated by adding the offset to the Average Duration .
Late Finish Duration Offset (+)	Required if Late Finish Offset Type = <i>Duration</i> ; Duration to use as an offset. The late finish time is calculated by adding the offset to the Average Duration .
Late Finish Duration Offset Unit	<p>If Late Finish Offset Type = Duration;</p> <p>Options:</p> <ul style="list-style-type: none"> • Seconds • Minutes • Hours
Late Finish Time	If Late Finish Type = Time; Time after which the task finish time is considered late. Use HH:MM, 24-hour time.

<p>Late Finish Day Constraint</p>	<p>If Late Finish Type = Time; Specification for whether or not to advance the late finish time to another day.</p> <p>Valid values:</p> <ul style="list-style-type: none"> • -- None -- Advance to the next day if the specified late finish time is before the Created time of the task instance. • Same Day Do not advance day. • Next Day Advance to the next day. • Next Business Day Advance to the next business day. • Sunday If today is not Sunday, advance to next Sunday. • Monday If today is not Monday, advance to next Monday. • Tuesday If today is not Tuesday, advance to next Tuesday. • Wednesday If today is not Wednesday, advance to next Wednesday. • Thursday If today is not Thursday, advance to next Thursday. • Friday If today is not Friday, advance to next Friday. • Saturday If today is not Saturday, advance to next Saturday. • Nth Day Advance to a specific number of days in the future. <p>Default is -- None --.</p>
<p>Late Finish Nth Amount</p>	<p>If Late Finish Day Constraint = Nth Day; Number of days to advance.</p>
<p>Late Finish Duration</p>	<p>If Late Finish Type = Duration; Longest amount of time this task instance should take to run.</p>
<p>Computed Late Finish Time</p>	<p>If Late Finish is enabled, the computed Date/Time for when the task instance will be Late Finished.</p>
<p>Early Finish</p>	<p>If enabled, and if the task instance finishes before the time or period specified, the task instance is flagged as early. You can specify a time or duration to determine an early finish (see Early Finish Type). To determine whether a task instance finished early, open the task instance and locate the Finished Early field; the field is checked if the instance finished before the specified time or did not last as long as expected. This field only appears on the task instance if the user added Early Finish specifications to the task definition.</p>
<p>Finished Early</p>	<p>System-supplied; this field is flagged if the task finished earlier than the time specified in the Early Finish fields.</p>
<p>Early Finish Type</p>	<p>Required if Early Finish is enabled.</p> <p>Options:</p> <ul style="list-style-type: none"> • Time - Flag the task if it finishes before the specified time (see Early Finish Time). • Duration - Flag the task if it finishes a certain amount of time before the programmed finish time (see Early Finish Duration). The task must have a specific finish time. • Average Duration - Flag the task if it finishes before the average duration (see Average Instance Time) for the task, less an offset (see Early Finish Offset Type), if specified.
<p>Early Finish Offset Type</p>	<p>If Early Finish Type = Average Duration;</p> <p>Options:</p> <ul style="list-style-type: none"> • Percentage • Duration
<p>Early Finish Percentage Offset (-)</p>	<p>Required if Early Finish Offset Type = Percentage; Percentage of Average Duration to use as an offset. The early finish time is calculated by subtracting the offset from the Average Duration.</p>

Early Finish Duration Offset (-)	Required if Early Finish Offset Type = Duration ; Duration to use as an offset. The early finish time is calculated by subtracting the offset from the Average Duration .
Early Finish Duration Offset Unit	If Early Finish Offset Type = Duration ; Options: <ul style="list-style-type: none"> • Seconds • Minutes • Hours
Early Finish Time	If Early Finish Type = Time ; Time before which the task finish time is considered early. That is, enter a time at which the task should still be running. Use HH:MM, 24-hour time.
Early Finish Day Constraint	If Early Finish Type = Time ; Specification for whether or not to advance the early finish time to another day. Valid values: <ul style="list-style-type: none"> • -- None -- Advance to the next day if the specified early finish time is before the Created time of the task instance. • Same Day Do not advance day. • Next Day Advance to the next day. • Next Business Day Advance to the next business day. • Sunday If today is not Sunday, advance to next Sunday. • Monday If today is not Monday, advance to next Monday. • Tuesday If today is not Tuesday, advance to next Tuesday. • Wednesday If today is not Wednesday, advance to next Wednesday. • Thursday If today is not Thursday, advance to next Thursday. • Friday If today is not Friday, advance to next Friday. • Saturday If today is not Saturday, advance to next Saturday. • Nth Day Advance to a specific number of days in the future. Default is -- None --.
Early Finish Nth Amount	If Early Finish Day Constraint = Nth Day ; Number of days to advance.
Early Finish Duration	If Early Finish Type = Duration ; Shortest amount of time this task instance should take to run.
Projected Late	System-provided if Late Start Time , Late Start Duration , or Late Finish Time is specified; This field is flagged if the task instance is projected to be late based on critical path projected end times (see Critical Path Projected Late Action Maximum and Critical Path Projected Late Threshold In Minutes Universal Controller system properties). .
Critical Path Options	This section contains Critical Path-related specifications for the task.
CP Duration	Optional; Allows you to override the estimated Critical Path Duration of the task when running in a Workflow; used in conjunction with the CP Duration Unit field. In most cases, this field should be left blank, which implies that the Controller will estimate the Critical Path Duration based on historical executions. Valid values are any integer equal to or greater than 0. Variables and Functions are supported.

CP Duration (Resolved)	Displays the current resolved value of the CP Duration field, which may contain variables or functions that will be displayed as unresolved until the task instance starts. The CP Duration (Resolved) field can continue to change value until the task instance starts, at which time CP Duration will display as resolved and CP Duration (Resolved) will no longer be visible unless there was an issue resolving the variables and/or functions contained within CP Duration . If the Controller is unable to resolve CP Duration or it resolves to an invalid value, CP Duration will be ignored and the Controller will estimate the Critical Path Duration based on historical executions.
CP Duration Unit	Type of CP Duration; used in conjunction with the CP Duration field. For example, for a CP Duration of two minutes, specify 2 in the CP Duration field and select Minutes in this field. Options: <ul style="list-style-type: none"> • Seconds • Minutes • Hours Default is Minutes.
Workflow Execution Options	This section contains Execution Restriction specifications for the task if it is within a Workflow.
Execution Restriction	Specification for whether or not there is a restriction for this task to be run, skipped, or held. Options are: <ul style="list-style-type: none"> • -- None -- No restriction for this task. • Run Restriction for when this task will be run. • Skip Restriction for when this task will be skipped. • Hold Restriction for when this task will be held. If Execution Restriction on a task is Run or Skip, then when it is part of a Workflow that is being launched, the Restriction Period is evaluated. The task instance will be skipped if Execution Restriction is Skip and the date is within the Restriction Period or Execution Restriction is Run and the date is not within the Restriction Period . Execution Restriction can be set to Skip with a Restriction Period of - None -, meaning the restriction is always active and the task will be skipped when it is part of a Workflow.
Restriction Period	If Execution Restriction = Run, Skip, or Hold; Period of time when the task is restricted. Options are: <ul style="list-style-type: none"> • - None - No period of restriction for this task. • Before Restriction is valid if the date is before the Before Date value. • After Restriction is valid if the date is after the After Date value. • Span Restriction is valid if the date is before the Before Date value and after After Date value. • On Restriction is valid if the date is one of the Date List values.
Before Date	If Restriction Period = Before or Span; Date before which the restriction is valid.
Before Time	If Restriction Period = Before or Span; Time on the selected date before which the restriction is valid.
After Date	If Restriction Period = After or Span; Date after which the restriction is valid.
After Time	If Restriction Period = After or Span; Time on the selected date after which the restriction is valid.
Date List	If Restriction Period = On; Date(s) on which the restriction is valid.
Statistics	This section contains time-related statistics for the task instance.

User Estimated End Time	System-supplied; If the user entered information into the User Estimated Duration field in the task Details, the Controller uses this information to calculate an end time for the task instance, based on the date/time the task instance started.
Lowest Estimated End Time	System-supplied; Lowest estimated end time of the task instance, calculated by the Controller based on the date/time the task instance started.
Average Estimated End Time	System-supplied; Average estimated end time of the task instance, calculated by the Controller based on the date/time the task instance started.
Highest Estimated End Time	System-supplied; Highest estimated end time of the task instance, calculated by the Controller based on the date/time the task instance started.
Projected Start Time	System-supplied; projected start time of the task instance, calculated by the Controller based on Projected End Time minus Projected Duration.
Projected End Time	System-supplied; projected end time of the task instance, calculated by the Controller based on the projected end time of its predecessor (or the maximum projected end time of all its predecessors, if more than one path exists to that task instance) plus its estimated critical path duration .
Metadata	This section contains Metadata information about this record.
UUID	Universally Unique Identifier of this record.
Updated By	Name of the user that last updated this record.
Updated	Date and time that this record was last updated.
Created By	Name of the user that created this record.
Created	Date and time that this record was created.
Status History	History of all statuses that the task instance has gone through.
Buttons	This section identifies the buttons displayed above and below the Task Instance Details that let you perform various actions.
Update	Saves updates to the record.
Force Finish	See Force Finishing a Task .
Hold	Places the task instance on Hold (see Putting a Task on Hold).
Skip	For tasks loaded into the schedule that have not yet run; allows you to tell the Controller to skip this task. See Skipping a Task .

<p>Re-run</p>	<p>See Re-running a Task Instance.</p> <div style="border: 2px solid orange; padding: 10px; margin: 10px 0;"> <p>Note</p> <p>If the Re-run (Suppress Intermediate Failures) Permitted Universal Controller system property is set to true, the Re-run button is a drop-down list containing the following options:</p> <ul style="list-style-type: none"> • Re-run • Re-run (Suppress Intermediate Failures) </div> <p>The Re-run button does not display if the task instance does not qualify for Re-run.</p> <p>If the task instance qualifies for Re-run, but already has Retry Options enabled, Re-run (Suppress Intermediate Failures) displays as disabled in the drop-down list.</p>										
<p>View Parent</p>	<p>Displays the task instance Details for the parent Workflow of this task instance.</p>										
<p>Retrieve Output</p>	<p>See Retrieving Output.</p>										
<p>Delete</p>	<p>Deletes the current record.</p>										
<p>Refresh</p>	<p>Refreshes any dynamic data displayed in the Details.</p>										
<p>Close</p>	<p>For pop-up view only; closes the pop-up view of this task instance.</p>										
<p>Tabs</p>	<p>This section identifies the tabs across the top of the Task Instance Details that provide access to additional information about the task instance.</p>										
<p>Actions</p>	<p>Actions that the Controller took automatically based on events that occurred during the execution of this task.</p> <p>Events are:</p> <ul style="list-style-type: none"> • Task instance status • Exit codes • Late start • Late finish • Early finish <p>Actions are:</p> <table border="1" data-bbox="619 1417 1544 1899"> <tr> <td data-bbox="619 1417 970 1503"> <p>Abort Action</p> </td> <td data-bbox="970 1417 1544 1503"> <p>Abort the task if certain events occur. For details, see Abort Actions.</p> </td> </tr> <tr> <td data-bbox="619 1503 970 1590"> <p>Email Notification</p> </td> <td data-bbox="970 1503 1544 1590"> <p>Send an email if certain events occur. For details, see Email Notification Actions.</p> </td> </tr> <tr> <td data-bbox="619 1590 970 1702"> <p>Set Variable</p> </td> <td data-bbox="970 1590 1544 1702"> <p>Used in tasks and workflows to set a variable based on the occurrence of certain events. For details, see Creating a Set Variable Action within a Task or Workflow.</p> </td> </tr> <tr> <td data-bbox="619 1702 970 1789"> <p>SNMP Notification</p> </td> <td data-bbox="970 1702 1544 1789"> <p>Send an email if certain events occur. For details, see SNMP Notification Actions.</p> </td> </tr> <tr> <td data-bbox="619 1789 970 1899"> <p>System Operation</p> </td> <td data-bbox="970 1789 1544 1899"> <p>Run an Universal Controller system operation based on specified conditions. For details, see System Operation Actions.</p> </td> </tr> </table>	<p>Abort Action</p>	<p>Abort the task if certain events occur. For details, see Abort Actions.</p>	<p>Email Notification</p>	<p>Send an email if certain events occur. For details, see Email Notification Actions.</p>	<p>Set Variable</p>	<p>Used in tasks and workflows to set a variable based on the occurrence of certain events. For details, see Creating a Set Variable Action within a Task or Workflow.</p>	<p>SNMP Notification</p>	<p>Send an email if certain events occur. For details, see SNMP Notification Actions.</p>	<p>System Operation</p>	<p>Run an Universal Controller system operation based on specified conditions. For details, see System Operation Actions.</p>
<p>Abort Action</p>	<p>Abort the task if certain events occur. For details, see Abort Actions.</p>										
<p>Email Notification</p>	<p>Send an email if certain events occur. For details, see Email Notification Actions.</p>										
<p>Set Variable</p>	<p>Used in tasks and workflows to set a variable based on the occurrence of certain events. For details, see Creating a Set Variable Action within a Task or Workflow.</p>										
<p>SNMP Notification</p>	<p>Send an email if certain events occur. For details, see SNMP Notification Actions.</p>										
<p>System Operation</p>	<p>Run an Universal Controller system operation based on specified conditions. For details, see System Operation Actions.</p>										

Virtual Resources	<p>Lists all Virtual Resources to which this task is assigned.</p> <p>If you want to create a Task Virtual Resource for this task, you can select an existing Virtual Resource (or, optionally, first create a new Virtual Resource and then select it as the Task Virtual Resource) or enter a Virtual Resource variable. The variable must be a supported type as described in Variables and Functions.</p>
Exclusive Requests	<p>Lists all records in the Exclusive Requests table (<code>ops_exclusive_order</code>) for this task instance.</p>
Output	<p>Displays output generated from the process, if any, based on specifications provided by the user in the Automatic Output Retrieval fields in the task Details.</p> <p>If automatic output retrieval was not available or was not selected, output can be obtained by clicking the Retrieve Output button.</p>
Notes	<p>Lists all notes associated with this record.</p>

6.5 Running a Remote File Monitor Task

You can run a Remote File Monitor task:

- Manually, by clicking the [Launch](#) or [Launch with Variables](#) button in the Remote File Monitor Tasks list or Remote File Monitor Task Details [Action menu](#).
- As part of a [Workflow](#).
- [Specify triggers](#) that run the task automatically based on times or events.

6.6 Monitoring Task Execution

You can monitor all system activity from the [Activity Monitor](#) and can view activity history from the [History list](#).

6.7 Built-In Variables

The built-in variables outlined below can be used in a Remote File Monitor task to pass data where appropriate:

- [Task and Task Instance Variables](#)
- [Remote File Monitor Variables](#).

7 System Monitor Task

7.1 Overview

The System Monitor task allows you to monitor a specific remote machine and check for free disk space. You might use this task to check for sufficient disk space before running a task on it that requires a specific amount. In order for this task to execute, the remote machine must have Universal Agent running on it.

7.2 Built-In Variables

The following [built-in variables](#) can be used in a System Monitor task to pass data where appropriate:

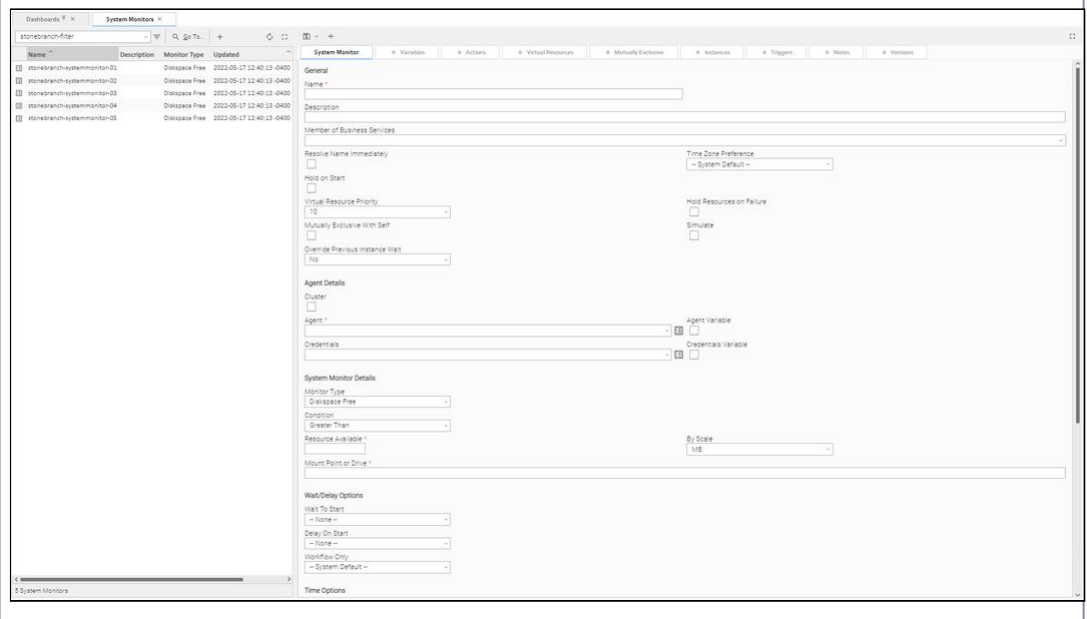
- [Task Instance variables](#)
- [Agent-Based Task Instance variables](#)
- [System Monitor Task variables](#)



7.3 Creating a System Monitor Task

Step 1

From the [Automation Center](#) navigation pane, select **Tasks > System Monitor Tasks**. The System Monitor Tasks list displays a list of all currently defined System Monitor tasks.

Below the list, System Monitor Task Details for a new System Monitor task displays.



Step 2	<p>Enter/select Details for a new System Monitor task, using the field descriptions below as a guide.</p> <ul style="list-style-type: none"> • Required fields display an asterisk (*) after the field name. • Default values for fields, if available, display automatically. <p>To display more of the Details fields on the screen, you can either:</p> <ul style="list-style-type: none"> • Use the scroll bar. • Temporarily hide the list above the Details. • Click the  button above the list to display a pop-up version of the Details.
Step 3	<p>Click the  button. The task is added to the database, and all buttons and tabs in the Task Details are enabled.</p>

Note

To [open](#) an existing record on the list, either:

- Click a record in the list to display its record Details below the list. (To clear record Details below the list, click the **New** button that displays above and below the Details.)
- Clicking the [Details icon](#) next to a record name in the list, or right-click a record in the list and then click **Open** in the [Action menu](#) that displays, to display a pop-up version of the record Details.
- Right-click a record in the a list, or open a record and right-click in the record Details, and then click **Open In Tab** in the [Action menu](#) that displays, to display the record Details under a new tab on the record list page (see [Record Details as Tabs](#)).

7.3.1 System Monitor Task Details

The following System Monitor Task Details is for an existing System Monitor task.

Depending on the values that you enter / select for these fields, and whether or not the System Monitor task has ever been launched, more (or less) fields may display. See the [field descriptions](#), below, for a description of all fields that may display in the System Monitor Task Details.

Dashboards ✕
System Monitors ✕
System Monitor Details: stonebranch-systemmonitor-01 ✕

Launch
 View Parents

System Monitor
Variables
Actions
Virtual Resources
Mutually Exclusive
Instances
Triggers

General

Name * Version

Description

Member of Business Services

Resolve Name Immediately

Hold on Start

Virtual Resource Priority

Mutually Exclusive With Self

Override Previous Instance Wait

Time Zone Preference

Hold Resources on Failure

Simulate

Agent Details

Cluster

Agent * Agent Variable

Credentials Credentials Variable

System Monitor Details

Monitor Type

Condition

Resource Available * By Scale

Mount Point or Drive *

Wait/Delay Options

Wait To Start

Delay On Start

Workflow Only

Wait Duration In Seconds *

Delay Duration In Seconds *

Time Options

Late Start

Late Finish

Early Finish

User Estimated Duration

Day	Hour	Min	Sec
<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>

Critical Path Options

CP Duration CP Duration Unit

Workflow Execution Options

Execution Restriction

Self-Service Options

7.3.2 System Monitor Task Details Field Descriptions

The following table describes the fields, buttons, and tabs that display in the System Monitor Task Details.

Field Name	Description
General	This section contains general information about the task.
Name	User-defined name of this task (Maximum = 255 alphanumeric characters); variables supported. It is the responsibility of the user to develop a workable naming scheme for tasks.
Version	System-supplied; version number of the current record, which is incremented by the Controller every time a user updates a record. Click the Versions tab to view previous versions. For details, see Record Versioning .
Description	Description of this record. (Maximum = 255 characters.)
Member of Business Services	User-defined; Allows you to select one or more Business Services that this record belongs to. (You also can Check All or Uncheck All Business Services for this record.) You can select up to 62 Business Services for any record type, and enter a maximum of 2048 characters for each Business Service. If the Business Service Visibility Restricted Universal Controller system property is set to true, depending on your assigned (or inherited) Permissions or Roles , Business Services available for selection may be restricted.
Resolve Name Immediately	If enabled, the Instance Name of the task instance will be resolved immediately at trigger/launch time.
Time Zone Preference	User-defined; Allows you to specify the time zone that will be applied to the task. Options: <ul style="list-style-type: none"> • – System Default – Time zone is based on the value of the Task Time Zone Preference Universal Controller system property: Server or Inherited. • Server (xxx) Where (xxx) is the time zone ID of the server; time zone is evaluated in the time zone of the server. • Inherited Time zone is evaluated in the time zone of the Parent Workflow or Trigger / Launch specification in the case there is no Parent Workflow.
Hold on Start	If enabled, when the task is launched it appears in the Activity Monitor with a status of Held . The task runs when the user releases it.
Hold Reason	Information about why the task will be put on hold when it starts.
Virtual Resource Priority	Priority for acquiring a resource when two or more tasks are waiting for the resource. This priority applies to all resources required by the task. Options: 1 (high) - 100 (low). Default is 10.
Hold Resources on Failure	If enabled, the task instance will continue to hold Renewable resources if the task instance fails. Renewable resources will be returned only if the task instance status is either Complete, Finished, or Skipped.
Mutually Exclusive With Self	If enabled, the task will not be allowed to run concurrently with itself. Task will not start until the instance that is running finishes. An instance will transition to Exclusive Wait status if it cannot start due to another instance already running.
Simulate	Specifies if the instance should execute under simulation mode .

<p>Override Previous Instance Wait</p>	<p>Specifies whether or not to override the parent workflow's Previous Instance Wait configuration. This option only applies for an instance running within a workflow.</p> <p>Options:</p> <ul style="list-style-type: none"> • No Behavior determined by the parent workflow configuration. • Yes / -- None -- Regardless of the parent workflow configuration, the task instance will never wait for a previous instance to complete. • Yes / Wait for Last Regardless of the parent workflow configuration, the task instance will remain in Instance Wait until the most recent prior instance of the same task has completed. • Yes / Wait for Last / Same Workflow Regardless of the parent workflow configuration, the task instance will remain in Instance Wait until the most recent prior instance of the same task, within an instance of the same workflow, have completed. • Yes / Wait for All Regardless of the parent workflow configuration, the task instance will remain in Instance Wait until all prior instances of the same task has completed. • Yes / Wait for All / Same Workflow Regardless of the parent workflow configuration, the task instance will remain in Instance Wait until all prior instances of the same task, within an instance of the same workflow, have completed.
<p>Agent Details</p>	<p>This section contains assorted detailed information about the Agent / Agent Cluster selected for this task.</p>
<p>Cluster</p>	<p>Indication that selecting an Agent Cluster is required and selecting Broadcast, which lets you select a Cluster Broadcast, is optional. If Cluster is selected, selecting an Agent is not required unless Agent Variable is selected.</p>
<p>Agent</p>	<p>Name of the Agent resource that identifies the machine where the operation will run. If you do not specify an Agent, you must specify an Agent Cluster or Cluster Broadcast.</p>
<p>Agent Variable</p>	<p>Indication of whether the Agent field is a reference field for selecting a specific Agent (unchecked) or a text field for specifying the Agent as a variable (checked). Use the format: <code>\${variable name}</code>. The variable must be a supported type as described in Variables and Functions.</p> <div style="border: 1px solid orange; padding: 10px; margin-top: 10px;"> <p>Note</p> <p>When updating multiple Tasks, to change from using an Agent reference to using an Agent variable, you must change the Agent Variable field to Yes and specify the Agent variable in the Agent Unresolved field. Conversely, to change from using an Agent variable to using an Agent reference, you must change the Agent Variable field to No and specify the Agent reference in the Agent field.</p> </div>
<p>Agent Cluster</p>	<p>If Cluster is selected and Broadcast is not selected; Group of Agents, one of which the Controller will choose to run this task (compare with Cluster Broadcast). You can specify an agent cluster in addition to or in place of a specific Agent. If you specify an Agent and an agent cluster, the Controller first tries to run the task on the specific agent. If the Agent is not available, the Controller reverts to the agent cluster. See Agent Clusters for more information.</p>

<p>Agent Cluster Variable</p>	<p>Indication of whether the Agent Cluster field is a reference field for selecting a specific Agent Cluster (unchecked) or a text field for specifying the Agent Cluster as a variable (checked). Use the format: <code>\${variable name}</code>.</p> <p>The variable must be a supported type as described in Variables and Functions.</p> <div style="border: 1px solid black; padding: 5px; margin-top: 10px;"> <p>Note</p> <p>When updating multiple Tasks, to change from using an Agent Cluster reference to using an Agent Cluster variable, you must change the Agent Cluster Variable field to Yes and specify the Agent Cluster variable in the Agent Cluster Unresolved field. Conversely, to change from using an Agent Cluster variable to using an Agent Cluster reference, you must change the Agent Cluster Variable field to No and specify the Agent Cluster reference in the Agent Cluster field.</p> </div>
<p>Broadcast</p>	<p>Displays only if Cluster is selected; Indication that selecting a Cluster Broadcast is required. Selecting Broadcast hides the Agent and Agent Cluster fields; you cannot select values for them.</p>
<p>Cluster Broadcast</p>	<p>Group of Agents, all of which will run this task (compare with Agent Cluster). If Broadcast is selected for a task, you must select a Cluster Broadcast instead of a specific Agent and/or agent cluster. Each instance of the task running on its own Agent becomes a separate task instance record in the database and displays separately on the Activity Monitor.</p>
<p>Cluster Broadcast Variable</p>	<p>Indication of whether the Cluster Broadcast field is a reference field for selecting a specific Cluster Broadcast (unchecked) or a text field for specifying the Cluster Broadcast as a variable (checked). Use the format: <code>\${variable name}</code>.</p> <p>The variable must be a supported type as described in Variables and Functions.</p> <div style="border: 1px solid black; padding: 5px; margin-top: 10px;"> <p>Note</p> <p>When updating multiple Tasks, to change from using a Cluster Broadcast reference to using a Cluster Broadcast variable, you must change the Cluster Broadcast Variable field to Yes and specify the Cluster Broadcast variable in the Cluster Broadcast Unresolved field. Conversely, to change from using a Cluster Broadcast variable to using a Cluster Broadcast reference, you must change the Cluster Broadcast Variable field to No and specify the Cluster Broadcast reference in the Cluster Broadcast field.</p> </div>
<p>Credentials</p>	<p>Credentials under which an Agent runs this task. These Credentials override any Credentials provided in the Agent Details for any Agent running this task.</p> <p>If the user does not have a login shell, add a - character in front of the runtime credentials name. The Controller will provide a shell for that user and strip the - character from the name.</p> <p>Required if the Agent Credentials Required Universal Controller system property is true. When required, if the Credential is specified as a variable, and the variable resolves to blank, a Start Failure will occur.</p>

<p>Credentials Variable</p>	<p>Indication of whether the Credentials field is a reference field for selecting a specific Credential (unchecked) or a text field for specifying the Credential as a variable (checked). Use the format: <code>\${variable name}</code>.</p> <p>The variable must be a supported type as described in Variables and Functions.</p> <div style="border: 1px solid orange; padding: 5px; margin-top: 10px;"> <p>Note</p> <p>When updating multiple Tasks, to change from using a Credentials reference to using a Credentials variable, you must change the Credentials Variable field to Yes and specify the Credentials variable in the Credentials Unresolved field. Conversely, to change from using a Credentials variable to using a Credentials reference, you must change the Credentials Variable field to No and specify the Credentials reference in the Credentials field.</p> </div>
<p>System Monitor Details</p>	<p>This section contains assorted detailed information about the task.</p>
<p>Monitor Type</p>	<p>Type of system status to monitor for.</p> <p>Options:</p> <ul style="list-style-type: none"> • Diskspace Free <div style="border: 1px solid orange; padding: 5px; margin-top: 10px;"> <p>Note</p> <p>For UNIX and Windows, System File Monitor polls the system every 120 seconds to see if there was a change in system status.</p> </div>
<p>Condition</p>	<p>Specifies whether you want to check for free disk space greater than or less than the amount specified in the Resource Available field.</p>
<p>Resource Available</p>	<p>Used in conjunction with the By Scale field. Enter a number indicating the amount of the resource you are checking for. For example, to check to see if the machine has at least 1GB of free disk space, select Greater Than in the Condition field, enter 1 in the Resource Available field, and select GB in the By Scale field.</p>
<p>By Scale</p>	<p>Scale of the number you entered in the Resource Available field. Options: KB (kilobyte), MB (megabyte), GB (gigabyte).</p>
<p>Mount Point or Drive</p>	<p>Use this field to limit the check to a specific mount point or drive, such as drive C: for Windows.</p>
<p>Wait / Delay Options</p>	<p>This section contains specifications for waiting to start and/or delaying on start the task.</p>
<p>Wait To Start</p>	<p>Amount of time to wait before starting a task from the time that it was launched.</p> <p>Options are:</p> <ul style="list-style-type: none"> • – None – • Time • Relative Time • Duration • Seconds
<p>Wait Time</p>	<p>If Wait To Start = Time or Relative Time; Number of hours and minutes to wait before starting the task.</p>

<p>Wait Day Constraint</p>	<p>If Wait Time = Time or Relative Time; Specification for whether or not to advance the wait time to another day.</p> <p>Valid values:</p> <ul style="list-style-type: none"> • -- None -- <ul style="list-style-type: none"> • If Wait To Start = Time; Advance to the next day if the specified wait time is before the time that the task instance is eligible to start; that is, all dependencies have been met. For example: it is not being held, and it is not waiting on any predecessors. • If Wait To Start = Relative Time; Advance to the next day if the specified wait time is before the task instance Trigger Time or, if there is no Trigger Time, before the task instance Launch Time. In the latter case, when a task instance is within a workflow, it will inherit the Launch Time of the top-level parent workflow task instance. • Same Day Do not advance day. • Next Day Advance to the next day. • Next Business Day Advance to the next business day. • Sunday If today is not Sunday, advance to next Sunday. • Monday If today is not Monday, advance to next Monday. • Tuesday If today is not Tuesday, advance to next Tuesday. • Wednesday If today is not Wednesday, advance to next Wednesday. • Thursday If today is not Thursday, advance to next Thursday. • Friday If today is not Friday, advance to next Friday. • Saturday If today is not Saturday, advance to next Saturday. <p>Default is -- None --.</p>
<p>Wait Duration</p>	<p>If Wait To Start = Duration; Number of days, hours, minutes, and seconds to wait before starting the task.</p>
<p>Wait Duration In Seconds</p>	<p>If Wait To Start = Seconds; Number of seconds to wait before starting the task.</p>
<p>Delay On Start</p>	<p>Amount of time to delay the start of a task, after it has been launched, from the time that it is eligible to start; that is, all dependencies have been met. For example: it is not being held, it is not waiting on any predecessors, or there is no wait time specified.</p> <p>Options are:</p> <ul style="list-style-type: none"> • -- None -- • Duration • Seconds
<p>Delay Duration</p>	<p>If Delay On Start = Duration; Number of days, hours, minutes, and seconds to delay after starting the task.</p>
<p>Delay Duration In Seconds</p>	<p>If Delay On Start = Seconds; Number of seconds to delay after starting the task.</p>

Workflow Only	<p>Specification for whether or not to apply the Wait To Start and Delay On Start specifications only if the task is in a Workflow.</p> <p>Options are:</p> <ul style="list-style-type: none"> • -- System Default -- Apply the Wait To Start and Delay On Start specifications as defined by the System Default Wait/Delay Workflow Only system property. (Default is yes.) • Yes Apply the Wait To Start and Delay On Start specifications only if the task is in a Workflow. • No Apply the Wait To Start and Delay On Start specifications whether or not the task is in a Workflow.
Time Options	This section contains time-related specifications for the task.
Late Start	<p>If enabled, and if the task instance starts after the time or period specified, the task instance is flagged as late. You can specify a time or duration to determine a late start (see Late Start Type). To determine whether a task instance started late, open the task instance and locate the Started Late field; the field is checked if the instance started after the specified time. The Started Late field displays in the task instance Details only if the user specified a Late Start in the task Details.</p>
Late Start Type	<p>Required if Late Start is enabled.</p> <p>Options:</p> <ul style="list-style-type: none"> • Time - Flag the task if it starts after the specified time. • Duration - Flag the task if it starts a certain amount of time after the programmed start time. The task must have a specific start time.
Late Start Time	<p>If Late Start Type = Time; Time after which the task start time is considered late. Use HH:MM, 24-hour time.</p>
Late Start Day Constraint	<p>If Late Start Type = Time; Specification for whether or not to advance the late start time to another day.</p> <p>Valid values:</p> <ul style="list-style-type: none"> • -- None -- Advance to the next day if the specified late start time is before the Created time of the task instance. • Same Day Do not advance day. • Next Day Advance to the next day. • Next Business Day Advance to the next business day. • Sunday If today is not Sunday, advance to next Sunday. • Monday If today is not Monday, advance to next Monday. • Tuesday If today is not Tuesday, advance to next Tuesday. • Wednesday If today is not Wednesday, advance to next Wednesday. • Thursday If today is not Thursday, advance to next Thursday. • Friday If today is not Friday, advance to next Friday. • Saturday If today is not Saturday, advance to next Saturday. • Nth Day Advance to a specific number of days in the future. <p>Default is -- None --.</p>
Late Start Nth Amount	<p>If Late Start Day Constraint = Nth Day; Number of days to advance.</p>

Late Start Duration	<p>If Late Start Type = Duration; Duration (amount of relative time) after which the task is considered to have started late.</p> <p>For a task within a workflow, the duration is the period between the time the workflow starts and the time the task itself starts. For example, a task might have a Late Start Duration of 60 minutes. If the workflow starts at 9:00 a.m. but the task itself does not start until 10:30, the task has started late.</p> <p>For a task that is not within a workflow, Late Start Duration has meaning only if the task has been held upon starting. For example, if a task has a Late Start Duration of 60 minutes and the Hold on Start field is enabled, if the task is not released from hold within the amount of time specified in the Late Start Duration field, the task has started late.</p>
Late Finish	<p>If enabled, and if the task instance finishes after the time or period specified, the task instance is flagged as late. You can specify a time or duration to determine a late finish (see Late Finish Type). To determine whether a task instance finished late, open the task instance and locate the Finished Late field; the field is checked if the instance finished after the specified time or lasted longer than expected. This field only appears on the task instance if the user specified a Late Finish in the task definition.</p>
Late Finish Type	<p>Required if Late Finish is enabled.</p> <p>Options:</p> <ul style="list-style-type: none"> • Time - Flag the task if it finishes after the specified time (see Late Finish Time). • Duration - Flag the task if it finishes a certain amount of time after the programmed finish time (see Late Finish Duration). The task must have a specific finish time. • Average Duration - Flag the task if it finishes before the average duration (see Average Instance Time) for the task, less an offset (see Late Finish Offset Type), if specified.
Late Finish Offset Type	<p>If Late Finish Type = Average Duration;</p> <p>Options:</p> <ul style="list-style-type: none"> • Percentage • Duration
Late Finish Percentage Offset (+)	<p>Required if Late Finish Offset Type = <i>Percentage</i>; Percentage of Average Duration to use as an offset. The late finish time is calculated by adding the offset to the Average Duration.</p>
Late Finish Duration Offset (+)	<p>Required if Late Finish Offset Type = <i>Duration</i>; Duration to use as an offset. The late finish time is calculated by adding the offset to the Average Duration.</p>
Late Finish Duration Offset Unit	<p>If Late Finish Offset Type = Duration;</p> <p>Options:</p> <ul style="list-style-type: none"> • Seconds • Minutes • Hours
Late Finish Time	<p>If Late Finish Type = Time; Time after which the task finish time is considered late. Use HH:MM, 24-hour time.</p>

<p>Late Finish Day Constraint</p>	<p>If Late Finish Type = Time; Specification for whether or not to advance the late finish time to another day.</p> <p>Valid values:</p> <ul style="list-style-type: none"> • -- None -- Advance to the next day if the specified late finish time is before the Created time of the task instance. • Same Day Do not advance day. • Next Day Advance to the next day. • Next Business Day Advance to the next business day. • Sunday If today is not Sunday, advance to next Sunday. • Monday If today is not Monday, advance to next Monday. • Tuesday If today is not Tuesday, advance to next Tuesday. • Wednesday If today is not Wednesday, advance to next Wednesday. • Thursday If today is not Thursday, advance to next Thursday. • Friday If today is not Friday, advance to next Friday. • Saturday If today is not Saturday, advance to next Saturday. • Nth Day Advance to a specific number of days in the future. <p>Default is -- None --.</p>
<p>Late Finish Nth Amount</p>	<p>If Late Finish Day Constraint = Nth Day; Number of days to advance.</p>
<p>Late Finish Duration</p>	<p>If Late Finish Type = Duration; Longest amount of time this task instance should take to run.</p>
<p>Early Finish</p>	<p>If enabled, and if the task instance finishes before the time or period specified, the task instance is flagged as early. You can specify a time or duration to determine an early finish (see Early Finish Type). To determine whether a task instance finished early, open the task instance and locate the Finished Early field; the field is checked if the instance finished before the specified time or did not last as long as expected. This field only appears on the task instance if the user added Early Finish specifications to the task definition.</p>
<p>Early Finish Type</p>	<p>Required if Early Finish is enabled.</p> <p>Options:</p> <ul style="list-style-type: none"> • Time - Flag the task if it finishes before the specified time (see Early Finish Time). • Duration - Flag the task if it finishes a certain amount of time before the programmed finish time (see Early Finish Duration). The task must have a specific finish time. • Average Duration - Flag the task if it finishes before the average duration (see Average Instance Time) for the task, less an offset (see Early Finish Offset Type), if specified.
<p>Early Finish Offset Type</p>	<p>If Early Finish Type = Average Duration;</p> <p>Options:</p> <ul style="list-style-type: none"> • Percentage • Duration
<p>Early Finish Percentage Offset (-)</p>	<p>Required if Early Finish Offset Type = <i>Percentage</i>; Percentage of Average Duration to use as an offset. The early finish time is calculated by subtracting the offset from the Average Duration.</p>
<p>Early Finish Duration Offset (-)</p>	<p>Required if Early Finish Offset Type = <i>Duration</i>; Duration to use as an offset. The early finish time is calculated by subtracting the offset from the Average Duration.</p>

<p>Early Finish Duration Offset Unit</p>	<p>If Early Finish Offset Type = Duration; Options:</p> <ul style="list-style-type: none"> • Seconds • Minutes • Hours
<p>Early Finish Time</p>	<p>If Early Finish Type = Time; Time before which the task finish time is considered early. That is, enter a time at which the task should still be running. Use HH:MM, 24-hour time.</p>
<p>Early Finish Day Constraint</p>	<p>If Early Finish Type = Time; Specification for whether or not to advance the early finish time to another day.</p> <p>Valid values:</p> <ul style="list-style-type: none"> • -- None -- Advance to the next day if the specified early finish time is before the Created time of the task instance. • Same Day Do not advance day. • Next Day Advance to the next day. • Next Business Day Advance to the next business day. • Sunday If today is not Sunday, advance to next Sunday. • Monday If today is not Monday, advance to next Monday. • Tuesday If today is not Tuesday, advance to next Tuesday. • Wednesday If today is not Wednesday, advance to next Wednesday. • Thursday If today is not Thursday, advance to next Thursday. • Friday If today is not Friday, advance to next Friday. • Saturday If today is not Saturday, advance to next Saturday. • Nth Day Advance to a specific number of days in the future. <p>Default is -- None --.</p>
<p>Early Finish Nth Amount</p>	<p>If Early Finish Day Constraint = Nth Day; Number of days to advance.</p>
<p>Early Finish Duration</p>	<p>If Early Finish Type = Duration; Shortest amount of time this task instance should take to run.</p>
<p>User Estimated Duration</p>	<p>Required if Early Finish Type or Late Finish Type = Average Duration; Estimated amount of time it should normally take to run this task. The Controller uses this information to calculate the User Estimated End Time on a task instance record.</p> <p>User Estimated Duration is used when the Average Duration is not available; for example, on the first launch of a task.</p>
<p>Critical Path Options</p>	<p>This section contains Critical Path-related specifications for the task.</p>
<p>CP Duration</p>	<p>Optional; Allows you to override the estimated Critical Path Duration of the task when running in a Workflow; used in conjunction with the CP Duration Unit field. In most cases, this field should be left blank, which implies that the Controller will estimate the Critical Path Duration based on historical executions. Valid values are any integer equal to or greater than 0. Variables and Functions are supported.</p>
<p>CP Duration (Resolved)</p>	<p>Displays the current resolved value of the CP Duration field, which may contain variables or functions that will be displayed as unresolved until the task instance starts. The CP Duration (Resolved) field can continue to change value until the task instance starts, at which time CP Duration will display as resolved and CP Duration (Resolved) will no longer be visible unless there was an issue resolving the variables and/or functions contained within CP Duration. If the Controller is unable to resolve CP Duration or it resolves to an invalid value, CP Duration will be ignored and the Controller will estimate the Critical Path Duration based on historical executions.</p>

CP Duration Unit	Type of CP Duration; used in conjunction with the CP Duration field. For example, for a CP Duration of two minutes, specify 2 in the CP Duration field and select Minutes in this field. Options: <ul style="list-style-type: none"> • Seconds • Minutes • Hours Default is Minutes.
Workflow Execution Options	This section contains Execution Restriction specifications for the task if it is within a Workflow.
Execution Restriction	Specification for whether or not there is a restriction for this task to be run, skipped, or held. Options are: <ul style="list-style-type: none"> • -- None -- No restriction for this task. • Run Restriction for when this task will be run. • Skip Restriction for when this task will be skipped. • Hold Restriction for when this task will be held. If Execution Restriction on a task is Run or Skip, then when it is part of a Workflow that is being launched, the Restriction Period is evaluated. The task instance will be skipped if Execution Restriction is Skip and the date is within the Restriction Period or Execution Restriction is Run and the date is not within the Restriction Period . Execution Restriction can be set to Skip with a Restriction Period of - None -, meaning the restriction is always active and the task will be skipped when it is part of a Workflow.
Restriction Period	If Execution Restriction = Run, Skip, or Hold; Period of time when the task is restricted. Options are: <ul style="list-style-type: none"> • -- None -- No period of restriction for this task. • Before Restriction is valid if the date is before the Before Date value. • After Restriction is valid if the date is after the After Date value. • Span Restriction is valid if the date is before the Before Date value and after After Date value. • On Restriction is valid if the date is one of the Date List values.
Before Date	If Restriction Period = Before or Span; Date before which the restriction is valid.
Before Time	If Restriction Period = Before or Span; Time on the selected date before which the restriction is valid.
After Date	If Restriction Period = After or Span; Date after which the restriction is valid.
After Time	If Restriction Period = After or Span; Time on the selected date after which the restriction is valid.
Date List	If Restriction Period = On; Date(s) on which the restriction is valid.
Self-Service Options	This section contains Self-Service specifications for the task.
Enforce Variables	Specifies whether or not to enforce Launch with Variables... when launching a task using the User Interface.
Lock Variables	Specifies whether or not to prevent editing variables when using Launch with Variables... from the User Interface.
Statistics	This section contains time-related statistics for task instances of the task.
First Execution	System-supplied; End Time of the first instance of this task to complete.

Last Execution	System-supplied; End Time of the last instance of this task to complete.
Last Instance Duration	System-supplied; Amount of time the task took to run the last time it ran.
Lowest Instance Time	System-supplied; Lowest amount of time this task has taken to run.
Average Instance Time	System-supplied; Average amount of time this task takes to run.
Highest Instance Time	System-supplied; Highest amount of time this task has taken to run.
Number of Instances	System-supplied; Number of instances in the database for this task.
Metadata	This section contains Metadata information about this record.
UUID	Universally Unique Identifier of this record.
Updated By	Name of the user that last updated this record.
Updated	Date and time that this record was last updated.
Created By	Name of the user that created this record.
Created	Date and time that this record was created.
Buttons	This section identifies the buttons displayed above and below the Task Details that let you perform various actions.
Save	Saves a new task record in the Controller database.
Save & New	Saves a new record in the Controller database and redisplay empty Details so that you can create another new record.
Save & View	Saves a new record in the Controller database and continues to display that record.
New	Displays empty (except for default values) Details for creating a new task.
Update	Saves updates to the record.
Launch	Manually launches the task.
View Parents	Displays a list of any parent Workflow tasks for this task.
Copy	Creates a copy of this task, which you are prompted to rename.
Delete	<p>Deletes the current record.</p> <div style="border: 2px solid orange; padding: 10px; margin-top: 10px;"> <p>Note</p> <p>You cannot delete a task if it is either:</p> <ul style="list-style-type: none"> • Specified in an enabled Trigger. • The only task specified in a disabled Trigger. </div>
Refresh	Refreshes any dynamic data displayed in the Details.
Close	For pop-up view only; closes the pop-up view of this task.

Tabs	This section identifies the tabs across the top of the Task Details that provide access to additional information about the task.										
Variables	Lists all user-defined variables associated with this record; that is, variables that have been defined for this specific record.										
Actions	<p>Allows you to specify actions that the Controller will take automatically based on events that occur during the execution of this task.</p> <p>Events are:</p> <ul style="list-style-type: none"> • Task instance status • Exit codes • Late start • Late finish • Early finish <p>Actions are:</p> <table border="1" data-bbox="619 719 1541 1200"> <tr> <td data-bbox="619 719 970 804">Abort Action</td> <td data-bbox="970 719 1541 804">Abort the task if certain events occur. For details, see Abort Actions.</td> </tr> <tr> <td data-bbox="619 804 970 889">Email Notification</td> <td data-bbox="970 804 1541 889">Send an email if certain events occur. For details, see Email Notification Actions.</td> </tr> <tr> <td data-bbox="619 889 970 999">Set Variable</td> <td data-bbox="970 889 1541 999">Used in tasks and workflows to set a variable based on the occurrence of certain events. For details, see Creating a Set Variable Action within a Task or Workflow.</td> </tr> <tr> <td data-bbox="619 999 970 1084">SNMP Notification</td> <td data-bbox="970 999 1541 1084">Send an email if certain events occur. For details, see SNMP Notification Actions.</td> </tr> <tr> <td data-bbox="619 1084 970 1200">System Operation</td> <td data-bbox="970 1084 1541 1200">Run an Universal Controller system operation based on specified conditions. For details, see System Operation Actions.</td> </tr> </table>	Abort Action	Abort the task if certain events occur. For details, see Abort Actions .	Email Notification	Send an email if certain events occur. For details, see Email Notification Actions .	Set Variable	Used in tasks and workflows to set a variable based on the occurrence of certain events. For details, see Creating a Set Variable Action within a Task or Workflow .	SNMP Notification	Send an email if certain events occur. For details, see SNMP Notification Actions .	System Operation	Run an Universal Controller system operation based on specified conditions. For details, see System Operation Actions .
Abort Action	Abort the task if certain events occur. For details, see Abort Actions .										
Email Notification	Send an email if certain events occur. For details, see Email Notification Actions .										
Set Variable	Used in tasks and workflows to set a variable based on the occurrence of certain events. For details, see Creating a Set Variable Action within a Task or Workflow .										
SNMP Notification	Send an email if certain events occur. For details, see SNMP Notification Actions .										
System Operation	Run an Universal Controller system operation based on specified conditions. For details, see System Operation Actions .										
Virtual Resources	<p>Lists all Virtual Resources to which this task is assigned.</p> <p>If you want to create a Task Virtual Resource for this task, you can select an existing Virtual Resource (or, optionally, first create a new Virtual Resource and then select it as the Task Virtual Resource) or enter a Virtual Resource variable. The variable must be a supported type as described in Variables and Functions.</p>										
Mutually Exclusive	Lists all tasks that have been set to be mutually exclusive of this task.										
Instances	Lists all instances of the task.										
Triggers	List of all triggers that reference this task in the Task(s) field of the trigger Details; that is, a list of all triggers that have been defined to launch this task. Also allows you to add new triggers. If you add a new trigger from this location, the Controller automatically constructs a default trigger name as follows: <current task name>#TRIGGER#. You can change the default name if desired. For instructions on creating triggers, see Triggers .										
Notes	Lists all notes associated with this record.										
Versions	Stores copies of all previous versions of the current record. See Record Versioning .										

7.4 Viewing a System Monitor Task Instance

When a System Monitor task is launched, the Controller creates a task instance record of that task.

A task instance contains detailed information about a single execution of that task.

You can access a task instance from:

- **Instances tab** on the [System Monitor Task Details](#) for that task
- [Activity Monitor](#)
- [Task Instances list](#)

7.4.1 System Monitor Task Instance Details

The following System Monitor Task Instance Details contains information on the execution of the task shown in the [System Monitor Task Details](#).

Dashboards x
System Monitors x
System Monitor Details: stonebranch-systemmonitor-01 x
System Monitor Task Instance Details: stonebranch-syst x

Re-run v
↻

System Monitor Task Instance
Actions
Virtual Resources
Exclusive Requests
Notes

General

Instance Name stonebranch-systemmonitor-01	Instance Number 1
Description <input style="width: 90%; height: 20px;" type="text"/>	
Member of Business Services <input style="width: 90%; height: 20px;" type="text"/>	
Task stonebranch-systemmonitor-01 ⌵	Source Version 3
Launch Source Launch Task / User Interface	
Invoked By Manually Launched	Execution User Admin
Calendar System Default ⌵	Time Zone Preference -- System Default --
Virtual Resource Priority 10 v	Hold Resources on Failure <input type="checkbox"/>
Mutually Exclusive With Self <input type="checkbox"/>	Simulate <input type="checkbox"/>
Previous Instance Wait Resolved -- None -- v	

Status

Status Finished	Exit Code 0
Status Description State was forced from FAILED to FINISHED	
Operational Memo <input style="width: 90%; height: 20px;" type="text"/>	
Trigger Time <input style="width: 90%; height: 20px;" type="text"/>	Launch Time 2023-09-19 15:36:32 -0400
Wait Until Time 2023-09-19 15:36:42 -0400	
Start Time 2023-09-19 15:36:27 -0400	End Time 2023-09-19 15:36:27 -0400
Duration 0 Seconds	
Actual Available <input style="width: 50%; height: 20px;" type="text"/>	Actual Scale MB

Agent Details

Cluster <input type="checkbox"/>	
Agent * QAZOS205 - QAZOS205-V750 ⌵	Agent Variable <input type="checkbox"/>
Credentials <input style="width: 90%; height: 20px;" type="text"/> ⌵	Credentials Variable <input type="checkbox"/>

System Monitor Details

Monitor Type Diskspace Free v	
Condition Greater Than v	
Resource Available * 5	By Scale MB v
Mount Point or Drive * drive 1	

Wait/Delay Options

Wait To Start Seconds v	Wait Duration In Seconds * 5
Delay On Start Seconds v	Delay Duration In Seconds * 5

Statistics

7.4.2 System Monitor Task Instance Details Field Descriptions

The following table describes the fields, buttons, and tabs that display in System Monitor Task Instance Details.

Field Name	Description
General	This section contains general information about the task instance.
Instance Name	Name of this task instance.
Instance Number	System-supplied; Sequentially assigned number, maintained per task, representing the creation order of the instance.
Description	Description of this record. (Maximum = 255 characters.)
Member of Business Services	<p>User-defined; Allows you to select one or more Business Services that this record belongs to. (You also can Check All or Uncheck All Business Services for this record.)</p> <p>You can select up to 62 Business Services for any record type, and enter a maximum of 2048 characters for each Business Service.</p> <p>If the Business Service Visibility Restricted Universal Controller system property is set to true, depending on your assigned (or inherited) Permissions or Roles, Business Services available for selection may be restricted.</p>
Task	Name of the task that was run to create this task instance. Click the icon to display Task Details for the task.
Source Version	Version of the task that was run to create this task instance.

<p>Launch Source</p>	<p>System-supplied; Source from which this task was launched.</p> <p>Options:</p> <ul style="list-style-type: none"> • Scheduled Trigger If the instance was directly launched by a scheduled trigger, the Trigger (trigger_id) column is assigned the UUID of the scheduled trigger. • Trigger Monitor If the instance is a monitor associated with monitor trigger, the Trigger (trigger_id) column is assigned the UUID of the monitor trigger. • Trigger Now / User Interface If the instance was directly launched by a Trigger Now command, the Trigger (trigger_id) column is assigned the UUID of the trigger. • Trigger Now / System Operation If the instance was directly launched by a Trigger Now command, the Trigger (trigger_id) column is assigned the UUID of the trigger and the Source Instance (source_instance) column will be assigned the UUID of the instance invoking the System Operation. • Trigger Now / Web Service If the instance was directly launched by a Trigger Now command, the Trigger (trigger_id) column is assigned the UUID of the trigger. • Trigger Now / Command Line If the instance was directly launched by a Trigger Now command, the Trigger (trigger_id) column is assigned the UUID of the trigger. • Workflow If the instance was launched by a workflow, the Workflow (workflow_id) column is assigned the UUID of the workflow instance. Likewise, the Source Instance (source_instance) column will also be assigned the UUID of the workflow instance. • Launch Task / User Interface If the instance was directly launched by the Launch Task command, the Source Instance (source_instance) column will be null. • Launch Task / System Operation If the instance was directly launched by the Launch Task command, the Source Instance (source_instance) column will be assigned the UUID of the instance invoking the System Operation. • Launch Task / Web Service If the instance was directly launched by the Launch Task command, the Source Instance (source_instance) column will be null. • Launch Task / Command Line If the instance was directly launched by the Launch Task command, the Source Instance (source_instance) column will be null. • Recurring If the instance was directly launched by a Recurring Task Instance, the Source Instance (source_instance) column will be assigned the UUID of the Recurring Task Instance.
<p>Source Instance</p>	<p>System-supplied; UUID of the source instance.</p> <ul style="list-style-type: none"> • If the instance was directly launched by a Trigger Now command; the UUID of the instance invoking the System Operation. • If the instance was launched by a workflow; the UUID of the workflow instance. • If the instance was directly launched by the Launch Task command; the UUID of the instance invoking the System Operation. • If the instance was directly launched by a Recurring Task Instance; the UUID of the Recurring Task Instance.
<p>Invoked by</p>	<p>System-supplied; how the task instance was launched.</p> <p>Options:</p> <ul style="list-style-type: none"> • Trigger: (Trigger Name) Instance was launched by the named trigger. • Workflow: (Workflow Name) Instance was launched by the named workflow. • Manually Launched Instance was launched by a user. To identify the user, check the Execution User column for that task instance on the Task Instances screen or, on most task instance screens, the Execution User field.

Execution User	System-supplied; If the task was launched manually; ID of the user who launched it.
Calendar	Calendar associated with the task instance.
Time Zone Preference	<p>User-defined; Allows you to specify the time zone that will be applied to the task.</p> <p>Options:</p> <ul style="list-style-type: none"> – System Default – Time zone is based on the value of the Task Time Zone Preference Universal Controller system property: Server or Inherited. Server (xxx) Where (xxx) is the time zone ID of the server; time zone is evaluated in the time zone of the server. Inherited Time zone is evaluated in the time zone of the Parent Workflow or Trigger / Launch specification in the case there is no Parent Workflow.
Virtual Resource Priority	<p>Priority for acquiring a resource when two or more tasks are waiting for the resource. This priority applies to all resources required by the task.</p> <p>Options: 1 (high) - 100 (low).</p> <p>Default is 10.</p>
Hold Resources on Failure	If enabled, the task instance will continue to hold Renewable resources if the task instance fails. Renewable resources will be returned only if the task instance status is either Complete, Finished, or Skipped.
Mutually Exclusive With Self	If enabled, the task will not be allowed to run concurrently with itself. Task will not start until the instance that is running finishes. An instance will transition to Exclusive Wait status if it cannot start due to another instance already running.
Simulate	Specifies if the instance should execute under simulation mode .
Previous Instance Wait Resolved	<p>System-supplied; If the Override Previous Instance Wait field for the task is set to No, the Previous Instance Wait Resolved field will be set to the value of the Previous Instance Wait field of the parent workflow. Otherwise, it will be set to the value specified by the Override Previous Instance Wait.</p> <p>Options:</p> <ul style="list-style-type: none"> -- None -- Wait for Last Every task instance directly within the workflow instance will remain in Instance Wait until the most recent prior instance of the same task has completed. Wait for Last / Same Workflow Every task instance directly within the workflow instance will remain in Instance Wait until the most recent prior instance of the same task, within an instance of the same workflow, have completed. Wait for All Every task instance directly within the workflow instance will remain in Instance Wait until all prior instances of the same task has completed. Wait for All / Same Workflow Every task instance directly within the workflow instance will remain in Instance Wait until all prior instances of the same task, within an instance of the same workflow, have completed.
Status	This section contains information about the current status of the task instance.
Status	System-supplied; see Task Instance Statuses .
Exit Code	System-supplied; the exit code captured by the Agent when executing the task (for example, a command or script).
Status Description	System-supplied; additional information, if any, about the status of the task instance.
Operational Memo	User-defined operational memo.

Evaluation Time	If time zone of user is different than time zone of task instance; Time at which Execution Restrictions and Run Criteria were evaluated based upon the requested time zone. (Time zone of task instance displays in parentheses.)
Critical	Indicates that this task is in the Critical Path of a workflow.
Critical Endpoint	Indicates that this task was defined as a Critical Endpoint of a Critical Path in a workflow.
Wait Until Time	Amount of time calculated to wait before the task was started, based on Wait To Start and Delay On Start times.
Queued Time	System-supplied; Date and time the task was queued for processing.
Trigger Time	System-supplied; Date and time the task instance was triggered.
Launch Time	System-supplied; Date and time the task instance was launched.
Start Time	System-supplied; Date and time the task instance started.
End Time	System-supplied; Date and time the task instance completed.
Duration	System-supplied; amount of time the task instance took to run.
Actual Available	Amount of free disk space on the specified system.
By Scale	Scale of the number show in the Actual Available field. Options: <ul style="list-style-type: none"> • KB (kilobyte) • MB (megabyte) • GB (gigabyte)
Agent Details	This section contains assorted detailed information about the Agent / Agent Cluster selected for this task.
Cluster	Indication that selecting an Agent Cluster is required and selecting Broadcast , which lets you select a Cluster Broadcast , is optional. If Cluster is selected, selecting an Agent is not required unless Agent Variable is selected.
Agent	Name of the Agent resource that identifies the machine where the operation will run. If you do not specify an Agent, you must specify an Agent Cluster or Cluster Broadcast .
Agent Variable	Indication of whether the Agent field is a reference field for selecting a specific Agent (unchecked) or a text field for specifying the Agent as a variable (checked). Use the format: $\$(variable\ name)$. The variable must be a supported type as described in Variables and Functions . <div style="border: 2px solid orange; padding: 10px;"> <p>Note</p> <p>When updating multiple Tasks, to change from using an Agent reference to using an Agent variable, you must change the Agent Variable field to Yes and specify the Agent variable in the Agent Unresolved field. Conversely, to change from using an Agent variable to using an Agent reference, you must change the Agent Variable field to No and specify the Agent reference in the Agent field.</p> </div>

<p>Agent Cluster</p>	<p>If Cluster is selected and Broadcast is not selected; Group of Agents, one of which the Controller will choose to run this task (compare with Cluster Broadcast). You can specify an agent cluster in addition to or in place of a specific Agent. If you specify an Agent and an agent cluster, the Controller first tries to run the task on the specific agent. If the Agent is not available, the Controller reverts to the agent cluster. See Agent Clusters for more information.</p>
<p>Agent Cluster Variable</p>	<p>Indication of whether the Agent Cluster field is a reference field for selecting a specific Agent Cluster (unchecked) or a text field for specifying the Agent Cluster as a variable (checked). Use the format: <code>\${variable name}</code>.</p> <p>The variable must be a supported type as described in Variables and Functions.</p> <div style="border: 1px solid orange; padding: 10px; margin-top: 10px;"> <p>Note</p> <p>When updating multiple Tasks, to change from using an Agent Cluster reference to using an Agent Cluster variable, you must change the Agent Cluster Variable field to Yes and specify the Agent Cluster variable in the Agent Cluster Unresolved field. Conversely, to change from using an Agent Cluster variable to using an Agent Cluster reference, you must change the Agent Cluster Variable field to No and specify the Agent Cluster reference in the Agent Cluster field.</p> </div>
<p>Credentials</p>	<p>Credentials under which an Agent runs this task. These Credentials override any Credentials provided in the Agent Details for any Agent running this task.</p> <p>If the user does not have a login shell, add a - character in front of the runtime credentials name. The Controller will provide a shell for that user and strip the - character from the name.</p> <p>Required if the Agent Credentials Required Universal Controller system property is true. When required, if the Credential is specified as a variable, and the variable resolves to blank, a Start Failure will occur.</p>
<p>Credentials Variable</p>	<p>Indication of whether the Credentials field is a reference field for selecting a specific Credential (unchecked) or a text field for specifying the Credential as a variable (checked). Use the format: <code>\${variable name}</code>.</p> <p>The variable must be a supported type as described in Variables and Functions.</p> <div style="border: 1px solid orange; padding: 10px; margin-top: 10px;"> <p>Note</p> <p>When updating multiple Tasks, to change from using a Credentials reference to using a Credentials variable, you must change the Credentials Variable field to Yes and specify the Credentials variable in the Credentials Unresolved field. Conversely, to change from using a Credentials variable to using a Credentials reference, you must change the Credentials Variable field to No and specify the Credentials reference in the Credentials field.</p> </div>
<p>System Monitor Details</p>	<p>This section contains assorted detailed information about the task instance.</p>

<p>Monitor Type</p>	<p>Type of system status to monitor for.</p> <p>Options:</p> <ul style="list-style-type: none"> • Diskspace Free <div style="border: 1px solid orange; padding: 5px; margin-top: 10px;"> <p>Note</p> <p>For UNIX and Windows, System File Monitor polls the system every 120 seconds to see if there was a change in system status.</p> </div>
<p>Condition</p>	<p>Specifies whether you want to check for free disk space greater than or less than the amount specified in the Resource Available field.</p>
<p>Resource Available</p>	<p>Used in conjunction with the By Scale field. Enter a number indicating the amount of the resource you are checking for. For example, to check to see if the machine has at least 1GB of free disk space, select Greater Than in the Condition field, enter 1 in the Resource Available field, and select GB in the By Scale field.</p>
<p>By Scale</p>	<p>Scale of the number you entered in the Resource Available field. Options: KB (kilobyte), MB (megabyte), GB (gigabyte).</p>
<p>Mount Point or Drive</p>	<p>Use this field to limit the check to a specific mount point or drive, such as drive C: for Windows.</p>
<p>Wait / Delay Options</p>	<p>This section contains specifications for waiting to start and/or delaying on start the task.</p>
<p>Wait To Start</p>	<p>Amount of time to wait before starting a task from the time that it was launched.</p> <p>Options are:</p> <ul style="list-style-type: none"> • – None – • Time • Relative Time • Duration • Seconds
<p>Wait Time</p>	<p>If Wait To Start = Time or Relative Time; Number of hours and minutes to wait before starting the task.</p>

<p>Wait Day Constraint</p>	<p>If Wait Time = Time or Relative Time; Specification for whether or not to advance the wait time to another day.</p> <p>Valid values:</p> <ul style="list-style-type: none"> • -- None -- <ul style="list-style-type: none"> • If Wait To Start = Time; Advance to the next day if the specified wait time is before the time that the task instance is eligible to start; that is, all dependencies have been met. For example: it is not being held, and it is not waiting on any predecessors. • If Wait To Start = Relative Time; Advance to the next day if the specified wait time is before the task instance Trigger Time or, if there is no Trigger Time, before the task instance Launch Time. In the latter case, when a task instance is within a workflow, it will inherit the Launch Time of the top-level parent workflow task instance. • Same Day Do not advance day. • Next Day Advance to the next day. • Next Business Day Advance to the next business day. • Sunday If today is not Sunday, advance to next Sunday. • Monday If today is not Monday, advance to next Monday. • Tuesday If today is not Tuesday, advance to next Tuesday. • Wednesday If today is not Wednesday, advance to next Wednesday. • Thursday If today is not Thursday, advance to next Thursday. • Friday If today is not Friday, advance to next Friday. • Saturday If today is not Saturday, advance to next Saturday. <p>Default is -- None --.</p>
<p>Wait Duration</p>	<p>If Wait To Start = Duration; Number of days, hours, minutes, and seconds to wait before starting the task.</p>
<p>Wait Duration In Seconds</p>	<p>If Wait To Start = Seconds; Number of seconds to wait before starting the task.</p>
<p>Delay On Start</p>	<p>Amount of time to delay the start of a task, after it has been launched, from the time that it is eligible to start; that is, all dependencies have been met. For example: it is not being held, it is not waiting on any predecessors, or there is no wait time specified.</p> <p>Options are:</p> <ul style="list-style-type: none"> • -- None -- • Duration • Seconds
<p>Delay Duration</p>	<p>If Delay On Start = Duration; Number of days, hours, minutes, and seconds to delay after starting the task.</p>
<p>Delay Duration In Seconds</p>	<p>If Delay On Start = Seconds; Number of seconds to delay after starting the task.</p>
<p>Time Options</p>	<p>This section contains time-related specifications for the task instance.</p>
<p>Late Start</p>	<p>If enabled, and if the task instance starts after the time or period specified, the task instance is flagged as late. You can specify a time or duration to determine a late start (see Late Start Type). To determine whether a task instance started late, open the task instance and locate the Started Late field; the field is checked if the instance started after the specified time. The Started Late field displays in the task instance Details only if the user specified a Late Start in the task Details.</p>

Started Late	System-supplied; this field is flagged if the task started later than the time specified in the Late Start fields.
Late Start Type	Required if Late Start is enabled. Options: <ul style="list-style-type: none"> • Time - Flag the task if it starts after the specified time. • Duration - Flag the task if it starts a certain amount of time after the programmed start time. The task must have a specific start time.
Late Start Time	If Late Start Type = Time; Time after which the task start time is considered late. Use HH:MM, 24-hour time.
Late Start Day Constraint	If Late Start Type = Time; Specification for whether or not to advance the late start time to another day. Valid values: <ul style="list-style-type: none"> • -- None -- Advance to the next day if the specified late start time is before the Created time of the task instance. • Same Day Do not advance day. • Next Day Advance to the next day. • Next Business Day Advance to the next business day. • Sunday If today is not Sunday, advance to next Sunday. • Monday If today is not Monday, advance to next Monday. • Tuesday If today is not Tuesday, advance to next Tuesday. • Wednesday If today is not Wednesday, advance to next Wednesday. • Thursday If today is not Thursday, advance to next Thursday. • Friday If today is not Friday, advance to next Friday. • Saturday If today is not Saturday, advance to next Saturday. • Nth Day Advance to a specific number of days in the future. Default is -- None --.
Late Start Nth Amount	If Late Start Day Constraint = Nth Day; Number of days to advance.
Late Start Duration	If Late Start Type = Duration; Duration (amount of relative time) after which the task is considered to have started late. For a task within a workflow, the duration is the period between the time the workflow starts and the time the task itself starts. For example, a task might have a Late Start Duration of 60 minutes. If the workflow starts at 9:00 a.m. but the task itself does not start until 10:30, the task has started late. For a task that is not within a workflow, Late Start Duration has meaning only if the task has been held upon starting. For example, if a task has a Late Start Duration of 60 minutes and the Hold on Start field is enabled, if the task is not released from hold within the amount of time specified in the Late Start Duration field, the task has started late.
Computed Late Start Time	If Late Start is enabled, the computed Date/Time for when the task instance will be Late Started.
Late Finish	If enabled, and if the task instance finishes after the time or period specified, the task instance is flagged as late. You can specify a time or duration to determine a late finish (see Late Finish Type). To determine whether a task instance finished late, open the task instance and locate the Finished Late field; the field is checked if the instance finished after the specified time or lasted longer than expected. This field only appears on the task instance if the user specified a Late Finish in the task definition.

Finished Late	System-supplied; this field is flagged if the task finished later than the time or duration specified in the Late Finish fields.
Late Finish Type	Required if Late Finish is enabled. Options: <ul style="list-style-type: none"> • Time - Flag the task if it finishes after the specified time (see Late Finish Time). • Duration - Flag the task if it finishes a certain amount of time after the programmed finish time (see Late Finish Duration). The task must have a specific finish time. • Average Duration - Flag the task if it finishes before the average duration (see Average Instance Time) for the task, less an offset (see Late Finish Offset Type), if specified.
Late Finish Offset Type	If Late Finish Type = Average Duration; Options: <ul style="list-style-type: none"> • Percentage • Duration
Late Finish Percentage Offset (+)	Required if Late Finish Offset Type = <i>Percentage</i> ; Percentage of Average Duration to use as an offset. The late finish time is calculated by adding the offset to the Average Duration .
Late Finish Duration Offset (+)	Required if Late Finish Offset Type = <i>Duration</i> ; Duration to use as an offset. The late finish time is calculated by adding the offset to the Average Duration .
Late Finish Duration Offset Unit	If Late Finish Offset Type = Duration; Options: <ul style="list-style-type: none"> • Seconds • Minutes • Hours
Late Finish Time	If Late Finish Type = Time; Time after which the task finish time is considered late. Use HH:MM, 24-hour time.
Late Finish Day Constraint	If Late Finish Type = Time; Specification for whether or not to advance the late finish time to another day. Valid values: <ul style="list-style-type: none"> • -- None -- Advance to the next day if the specified late finish time is before the Created time of the task instance. • Same Day Do not advance day. • Next Day Advance to the next day. • Next Business Day Advance to the next business day. • Sunday If today is not Sunday, advance to next Sunday. • Monday If today is not Monday, advance to next Monday. • Tuesday If today is not Tuesday, advance to next Tuesday. • Wednesday If today is not Wednesday, advance to next Wednesday. • Thursday If today is not Thursday, advance to next Thursday. • Friday If today is not Friday, advance to next Friday. • Saturday If today is not Saturday, advance to next Saturday. • Nth Day Advance to a specific number of days in the future. Default is -- None --.
Late Finish Nth Amount	If Late Finish Day Constraint = Nth Day; Number of days to advance.

Late Finish Duration	If Late Finish Type = Duration; Longest amount of time this task instance should take to run.
Computed Late Finish Time	If Late Finish is enabled, the computed Date/Time for when the task instance will be Late Finished.
Early Finish	If enabled, and if the task instance finishes before the time or period specified, the task instance is flagged as early. You can specify a time or duration to determine an early finish (see Early Finish Type). To determine whether a task instance finished early, open the task instance and locate the Finished Early field; the field is checked if the instance finished before the specified time or did not last as long as expected. This field only appears on the task instance if the user added Early Finish specifications to the task definition.
Finished Early	System-supplied; this field is flagged if the task finished earlier than the time specified in the Early Finish fields.
Early Finish Type	Required if Early Finish is enabled. Options: <ul style="list-style-type: none"> • Time - Flag the task if it finishes before the specified time (see Early Finish Time). • Duration - Flag the task if it finishes a certain amount of time before the programmed finish time (see Early Finish Duration). The task must have a specific finish time. • Average Duration - Flag the task if it finishes before the average duration (see Average Instance Time) for the task, less an offset (see Early Finish Offset Type), if specified.
Early Finish Offset Type	If Early Finish Type = Average Duration; Options: <ul style="list-style-type: none"> • Percentage • Duration
Early Finish Percentage Offset (-)	Required if Early Finish Offset Type = <i>Percentage</i> ; Percentage of Average Duration to use as an offset. The early finish time is calculated by subtracting the offset from the Average Duration .
Early Finish Duration Offset (-)	Required if Early Finish Offset Type = <i>Duration</i> ; Duration to use as an offset. The early finish time is calculated by subtracting the offset from the Average Duration .
Early Finish Duration Offset Unit	If Early Finish Offset Type = Duration; Options: <ul style="list-style-type: none"> • Seconds • Minutes • Hours
Early Finish Time	If Early Finish Type = Time; Time before which the task finish time is considered early. That is, enter a time at which the task should still be running. Use HH:MM, 24-hour time.

<p>Early Finish Day Constraint</p>	<p>If Early Finish Type = Time; Specification for whether or not to advance the early finish time to another day.</p> <p>Valid values:</p> <ul style="list-style-type: none"> • -- None -- Advance to the next day if the specified early finish time is before the Created time of the task instance. • Same Day Do not advance day. • Next Day Advance to the next day. • Next Business Day Advance to the next business day. • Sunday If today is not Sunday, advance to next Sunday. • Monday If today is not Monday, advance to next Monday. • Tuesday If today is not Tuesday, advance to next Tuesday. • Wednesday If today is not Wednesday, advance to next Wednesday. • Thursday If today is not Thursday, advance to next Thursday. • Friday If today is not Friday, advance to next Friday. • Saturday If today is not Saturday, advance to next Saturday. • Nth Day Advance to a specific number of days in the future. <p>Default is -- None --.</p>
<p>Early Finish Nth Amount</p>	<p>If Early Finish Day Constraint = Nth Day; Number of days to advance.</p>
<p>Early Finish Duration</p>	<p>If Early Finish Type = Duration; Shortest amount of time this task instance should take to run.</p>
<p>Projected Late</p>	<p>System-provided if Late Start Time, Late Start Duration, or Late Finish Time is specified; This field is flagged if the task instance is projected to be late based on critical path projected end times (see Critical Path Projected Late Action Maximum and Critical Path Projected Late Threshold In Minutes Universal Controller system properties).</p> <p>.</p>
<p>Critical Path Options</p>	<p>This section contains Critical Path-related specifications for the task.</p>
<p>CP Duration</p>	<p>Optional; Allows you to override the estimated Critical Path Duration of the task when running in a Workflow; used in conjunction with the CP Duration Unit field. In most cases, this field should be left blank, which implies that the Controller will estimate the Critical Path Duration based on historical executions. Valid values are any integer equal to or greater than 0. Variables and Functions are supported.</p>
<p>CP Duration (Resolved)</p>	<p>Displays the current resolved value of the CP Duration field, which may contain variables or functions that will be displayed as unresolved until the task instance starts. The CP Duration (Resolved) field can continue to change value until the task instance starts, at which time CP Duration will display as resolved and CP Duration (Resolved) will no longer be visible unless there was an issue resolving the variables and/or functions contained within CP Duration. If the Controller is unable to resolve CP Duration or it resolves to an invalid value, CP Duration will be ignored and the Controller will estimate the Critical Path Duration based on historical executions.</p>

<p>CP Duration Unit</p>	<p>Type of CP Duration; used in conjunction with the CP Duration field. For example, for a CP Duration of two minutes, specify 2 in the CP Duration field and select Minutes in this field.</p> <p>Options:</p> <ul style="list-style-type: none"> • Seconds • Minutes • Hours <p>Default is Minutes.</p>
<p>Workflow Execution Options</p>	<p>This section contains Execution Restriction specifications for the task if it is within a Workflow.</p>
<p>Execution Restriction</p>	<p>Specification for whether or not there is a restriction for this task to be run, skipped, or held.</p> <p>Options are:</p> <ul style="list-style-type: none"> • -- None -- No restriction for this task. • Run Restriction for when this task will be run. • Skip Restriction for when this task will be skipped. • Hold Restriction for when this task will be held. <p>If Execution Restriction on a task is Run or Skip, then when it is part of a Workflow that is being launched, the Restriction Period is evaluated. The task instance will be skipped if Execution Restriction is Skip and the date is within the Restriction Period or Execution Restriction is Run and the date is not within the Restriction Period. Execution Restriction can be set to Skip with a Restriction Period of - None -, meaning the restriction is always active and the task will be skipped when it is part of a Workflow.</p>
<p>Restriction Period</p>	<p>If Execution Restriction = Run, Skip, or Hold; Period of time when the task is restricted.</p> <p>Options are:</p> <ul style="list-style-type: none"> • -- None -- No period of restriction for this task. • Before Restriction is valid if the date is before the Before Date value. • After Restriction is valid if the date is after the After Date value. • Span Restriction is valid if the date is before the Before Date value and after After Date value. • On Restriction is valid if the date is one of the Date List values.
<p>Before Date</p>	<p>If Restriction Period = Before or Span; Date before which the restriction is valid.</p>
<p>Before Time</p>	<p>If Restriction Period = Before or Span; Time on the selected date before which the restriction is valid.</p>
<p>After Date</p>	<p>If Restriction Period = After or Span; Date after which the restriction is valid.</p>
<p>After Time</p>	<p>If Restriction Period = After or Span; Time on the selected date after which the restriction is valid.</p>
<p>Date List</p>	<p>If Restriction Period = On; Date(s) on which the restriction is valid.</p>
<p>Statistics</p>	<p>This section contains time-related statistics for the the task instance.</p>
<p>User Estimated End Time</p>	<p>System-supplied; If the user entered information into the User Estimated Duration field in the task Details, the Controller uses this information to calculate an end time for the task instance, based on the date/time the task instance started.</p>
<p>Lowest Estimated End Time</p>	<p>System-supplied; Lowest estimated end time of the task instance, calculated by the Controller based on the date/time the task instance started.</p>
<p>Average Estimated End Time</p>	<p>System-supplied; Average estimated end time of the task instance, calculated by the Controller based on the date/time the task instance started.</p>

Highest Estimated End Time	System-supplied; Highest estimated end time of the task instance, calculated by the Controller based on the date/time the task instance started.
Projected Start Time	System-supplied; projected start time of the task instance, calculated by the Controller based on Projected End Time minus Projected Duration.
Projected End Time	System-supplied; projected end time of the task instance, calculated by the Controller based on the projected end time of its predecessor (or the maximum projected end time of all its predecessors, if more than one path exists to that task instance) plus its estimated critical path duration .
Metadata	This section contains Metadata information about this record.
UUID	Universally Unique Identifier of this record.
Updated By	Name of the user that last updated this record.
Updated	Date and time that this record was last updated.
Created By	Name of the user that created this record.
Created	Date and time that this record was created.
Status History	History of all statuses that the task instance has gone through.
Buttons	This section identifies the buttons displayed above and below the Task Instance Details that let you perform various actions.
Update	Saves updates to the record.
Force Finish	See Force Finishing a Task .
Hold	Places the task instance on Hold (see Putting a Task on Hold).
Skip	For tasks loaded into the schedule that have not yet run; allows you to tell the Controller to skip this task. See Skipping a Task .
Re-run	See Re-running a Task Instance . <div style="border: 1px solid orange; padding: 10px; margin: 10px 0;"> <p>Note</p> <p>If the Re-run (Suppress Intermediate Failures) Permitted Universal Controller system property is set to true, the Re-run button is a drop-down list containing the following options:</p> <ul style="list-style-type: none"> • Re-run • Re-run (Suppress Intermediate Failures) </div> <p>The Re-run button does not display if the task instance does not qualify for Re-run. If the task instance qualifies for Re-run, but already has Retry Options enabled, Re-run (Suppress Intermediate Failures) displays as disabled in the drop-down list.</p>
View Parent	Displays the task instance Details for the parent Workflow of this task instance.
Delete	Deletes the current record.
Refresh	Refreshes any dynamic data displayed in the Details.

Close	For pop-up view only; closes the pop-up view of this task instance.										
Tabs	This section identifies the tabs across the top of the Task Instance Details that provide access to additional information about the task instance.										
Actions	<p>Actions that the Controller took automatically based on events that occurred during the execution of this task.</p> <p>Events are:</p> <ul style="list-style-type: none"> • Task instance status • Exit codes • Late start • Late finish • Early finish <p>Actions are:</p> <table border="1"> <tr> <td>Abort Action</td> <td>Abort the task if certain events occur. For details, see Abort Actions.</td> </tr> <tr> <td>Email Notification</td> <td>Send an email if certain events occur. For details, see Email Notification Actions.</td> </tr> <tr> <td>Set Variable</td> <td>Used in tasks and workflows to set a variable based on the occurrence of certain events. For details, see Creating a Set Variable Action within a Task or Workflow.</td> </tr> <tr> <td>SNMP Notification</td> <td>Send an email if certain events occur. For details, see SNMP Notification Actions.</td> </tr> <tr> <td>System Operation</td> <td>Run an Universal Controller system operation based on specified conditions. For details, see System Operation Actions.</td> </tr> </table>	Abort Action	Abort the task if certain events occur. For details, see Abort Actions .	Email Notification	Send an email if certain events occur. For details, see Email Notification Actions .	Set Variable	Used in tasks and workflows to set a variable based on the occurrence of certain events. For details, see Creating a Set Variable Action within a Task or Workflow .	SNMP Notification	Send an email if certain events occur. For details, see SNMP Notification Actions .	System Operation	Run an Universal Controller system operation based on specified conditions. For details, see System Operation Actions .
Abort Action	Abort the task if certain events occur. For details, see Abort Actions .										
Email Notification	Send an email if certain events occur. For details, see Email Notification Actions .										
Set Variable	Used in tasks and workflows to set a variable based on the occurrence of certain events. For details, see Creating a Set Variable Action within a Task or Workflow .										
SNMP Notification	Send an email if certain events occur. For details, see SNMP Notification Actions .										
System Operation	Run an Universal Controller system operation based on specified conditions. For details, see System Operation Actions .										
Virtual Resources	<p>Lists all Virtual Resources to which this task is assigned.</p> <p>If you want to create a Task Virtual Resource for this task, you can select an existing Virtual Resource (or, optionally, first create a new Virtual Resource and then select it as the Task Virtual Resource) or enter a Virtual Resource variable. The variable must be a supported type as described in Variables and Functions.</p>										
Exclusive Requests	Lists all records in the Exclusive Requests table (ops_exclusive_order) for this task instance.										
Notes	Lists all notes associated with this record.										

7.5 Running a System Monitor Task

You can run a System Monitor task:

- Manually, by clicking the [Launch](#) or [Launch with Variables](#) button in the System Monitor Tasks list or System Monitor Task Details [Action menu](#).
- As part of a [workflow](#).
- [Specify triggers](#) that run the task automatically based on times or events.

7.6 Monitoring Task Execution

You can monitor all system activity from the [Activity Monitor](#) and can view activity history from the [History list](#).

8 Variable Monitor Task

8.1 Overview

The Variable Monitor task allows you to monitor the value of a [Global Variable](#).

8.2 Variable Values to Monitor

The Variable Monitor task lets you monitor for:

- [Current](#) value of a [Global Variable](#).
- [Change](#) in the value of a [Global Variable](#).
- [Both](#) current value and change in the value of a [Global Variable](#).

8.2.1 Monitoring for the Current Value of a Variable

- If the [Variable To Monitor](#) exists and its current value matches the Variable Monitor conditions, the Variable Monitor task instance will transition to a **Success** status; otherwise, it will transition to a **Failed** status.
- If the [Variable To Monitor](#) does not exist (or the [Execution User](#) does not have [Read permission](#) for the [Global Variable](#)) and the [Value Condition](#) field is **undefined**, the Variable Monitor task instance will transition to a **Success** status; otherwise, it will transition to a **Failed** status.

8.2.2 Monitoring for a Change in the Value of a Variable

- The Variable Monitor task instance will not check the current value of the [Variable To Monitor](#), but it will monitor for changes to the [Variable To Monitor](#) value. If a change to the [Variable To Monitor](#) value matches the Variable Monitor conditions, the Variable Monitor task instance will transition to a **Success** status; otherwise, it will continue to monitor for changes to the [Variable To Monitor](#) value.
- The Variable Monitor task instance will monitor indefinitely for the Variable Monitor conditions to be met unless you specify a value in the [Time Limit](#) field. The Variable Monitor task instance will transition to a **Failed** status if the Variable Monitor conditions are not met within the specified [Time Limit](#).

Note

- A Variable Monitor task instance will not detect changes to a [Global Variable Value](#) if the [Execution User](#) does not have [Read permission](#) for the [Global Variable](#).
- Setting the [Global Variable Value](#) to the same value from the Universal Controller user interface, [CLI](#), or [web service](#) is not considered a change.

- Only changes to the **Global Variable Name** (case-insensitive) and **Global Variable Value** will be considered a change in value to the **Global Variable**. That is, changes to the Description and/or Member of Business Services fields alone will not be considered a change in value to the **Global Variable**.

8.2.3 Monitoring for Current Value of a Variable and a Change in the Value of a Variable

- If the **Variable To Monitor** exists and its current value matches the Variable Monitor conditions, the Variable Monitor task instance will transition to a **Success** status; otherwise, it will continue to monitor as though **Variable To Monitor** is **Change**.
- If the **Variable To Monitor** does not exist (or the **Execution User** does not have **Read permission** for the **Global Variable**) and the **Value Condition** is **undefined**, the Variable Monitor task instance will transition to a **Success** status; otherwise, it will continue to monitor as though **Value Monitor Type** is **Change**.

8.3 Built-In Variables

When the Variable Monitor conditions are met, the following built-in variables will be set for the Variable Monitor task instance:

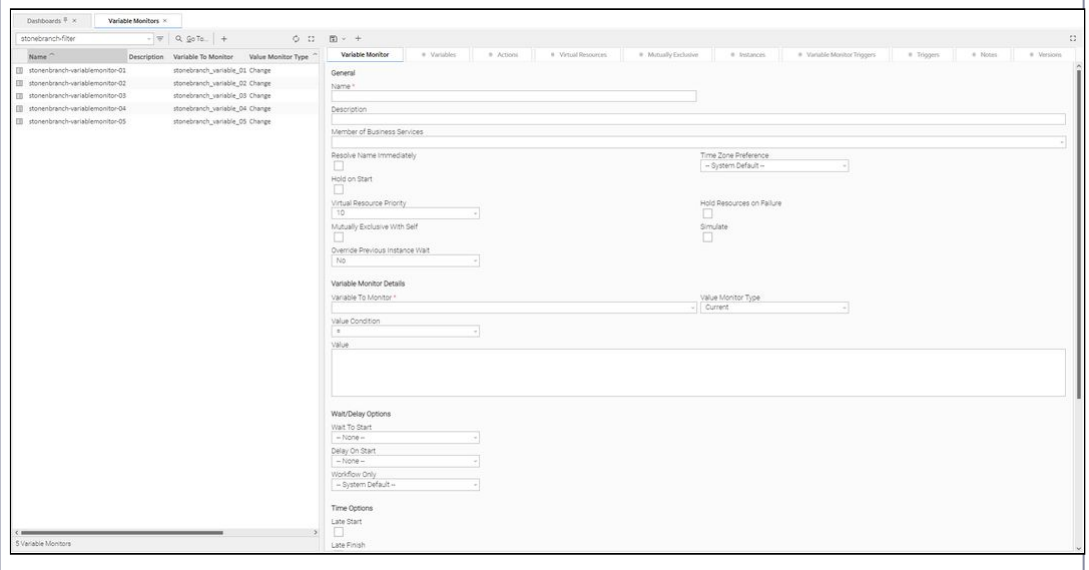
- **Variable Monitor Task Instance/Trigger Variables**
- **Task Instance Variables**



8.4 Creating a Variable Monitor Task

Step 1

From the **Automation Center** navigation pane, select **Tasks > Variable Monitor Tasks**. The Variable Monitor Tasks list displays a list of all currently defined Variable Monitor tasks.

To the right of the list, Variable Monitor Task Details for a new Variable Monitor task displays.



<p>Step 2</p>	<p>Enter/select Details for a new Variable Monitor task, using the field descriptions below as a guide.</p> <ul style="list-style-type: none"> • Required fields display an asterisk (*) after the field name. • Default values for fields, if available, display automatically. <p>To display more of the Details fields on the screen, you can either:</p> <ul style="list-style-type: none"> • Use the scroll bar. • Temporarily hide the list above the Details. • Click the  button above the list to display a pop-up version of the Details.
<p>Step 3</p>	<p>Click the  button. The task is added to the database, and all buttons and tabs in the Task Details are enabled.</p>

Note

To [open](#) an existing record on the list, either:

- Click a record in the list to display its record Details below the list. (To clear record Details below the list, click the **New** button that displays above and below the Details.)
- Clicking the [Details icon](#) next to a record name in the list, or right-click a record in the list and then click **Open** in the [Action menu](#) that displays, to display a pop-up version of the record Details.
- Right-click a record in the a list, or open a record and right-click in the record Details, and then click **Open In Tab** in the [Action menu](#) that displays, to display the record Details under a new tab on the record list page (see [Record Details as Tabs](#)).

8.4.1 Variable Monitor Task Details

The following Variable Monitor Task Details is for an existing Variable Monitor task.

Depending on the values that you enter / select for these fields, and whether or not the Variable Monitor task has ever been launched, more (or less) fields may display. See the [field descriptions](#), below, for a description of all fields that may display in the Variable Monitor Task Details.

Dashboards ↗ ×
Variable Monitors ×
Variable Monitor Details: stonbranch-variablemonitor-01 ↗ ×

Launch ↗
View Parents ↗
↻

Variable Monitor
Variables
Actions
Virtual Resources
Mutually Exclusive
Instances
Variable Monitor Triç ↔

General

Name * Version

Description

Member of Business Services

Resolve Name Immediately

Hold on Start

Virtual Resource Priority

Mutually Exclusive With Self

Override Previous Instance Wait

Time Zone Preference

Hold Resources on Failure

Simulate

Variable Monitor Details

Variable To Monitor * Value Monitor Type

Value Condition

Value

Time Limit Time Limit Unit

Expiration Action

Wait/Delay Options

Wait To Start

Delay On Start

Workflow Only

Time Options

Late Start

Late Finish

Early Finish

User Estimated Duration

Day	Hour	Min	Sec
<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>

Critical Path Options

OP Duration OP Duration Unit

Workflow Execution Options

Execution Restriction

Self-Service Options

Enforce Variables Lock Variables

8.4.2 Variable Monitor Task Details Field Descriptions

The following table describes the fields, buttons, and tabs that display in the Variable Monitor Task Details.

Field Name	Description
General	This section contains general information about the task.
Name	User-defined name of this task (Maximum = 255 alphanumeric characters); variables supported. It is the responsibility of the user to develop a workable naming scheme for tasks.
Version	System-supplied; version number of the current record, which is incremented by the Controller every time a user updates a record. Click the Versions tab to view previous versions. For details, see Record Versioning .
Description	Description of this record. (Maximum = 255 characters.)
Member of Business Services	User-defined; Allows you to select one or more Business Services that this record belongs to. (You also can Check All or Uncheck All Business Services for this record.) You can select up to 62 Business Services for any record type, and enter a maximum of 2048 characters for each Business Service. If the Business Service Visibility Restricted Universal Controller system property is set to true, depending on your assigned (or inherited) Permissions or Roles , Business Services available for selection may be restricted.
Resolve Name Immediately	If enabled, the Instance Name of the task instance will be resolved immediately at trigger/launch time.
Time Zone Preference	User-defined; Allows you to specify the time zone that will be applied to the task. Options: <ul style="list-style-type: none"> • – System Default – Time zone is based on the value of the Task Time Zone Preference Universal Controller system property: Server or Inherited. • Server (xxx) Where (xxx) is the time zone ID of the server; time zone is evaluated in the time zone of the server. • Inherited Time zone is evaluated in the time zone of the Parent Workflow or Trigger / Launch specification in the case there is no Parent Workflow.
Hold on Start	If enabled, when the task is launched it appears in the Activity Monitor with a status of Held . The task runs when the user releases it.
Hold Reason	Information about why the task will be put on hold when it starts.
Virtual Resource Priority	Priority for acquiring a resource when two or more tasks are waiting for the resource. This priority applies to all resources required by the task. Options: 1 (high) - 100 (low). Default is 10.
Hold Resources on Failure	If enabled, the task instance will continue to hold Renewable resources if the task instance fails. Renewable resources will be returned only if the task instance status is either Complete, Finished, or Skipped.
Mutually Exclusive With Self	If enabled, the task will not be allowed to run concurrently with itself. Task will not start until the instance that is running finishes. An instance will transition to Exclusive Wait status if it cannot start due to another instance already running.
Simulate	Specifies if the instance should execute under simulation mode .

<p>Override Previous Instance Wait</p>	<p>Specifies whether or not to override the parent workflow's Previous Instance Wait configuration. This option only applies for an instance running within a workflow.</p> <p>Options:</p> <ul style="list-style-type: none"> • No Behavior determined by the parent workflow configuration. • Yes / -- None -- Regardless of the parent workflow configuration, the task instance will never wait for a previous instance to complete. • Yes / Wait for Last Regardless of the parent workflow configuration, the task instance will remain in Instance Wait until the most recent prior instance of the same task has completed. • Yes / Wait for Last / Same Workflow Regardless of the parent workflow configuration, the task instance will remain in Instance Wait until the most recent prior instance of the same task, within an instance of the same workflow, have completed. • Yes / Wait for All Regardless of the parent workflow configuration, the task instance will remain in Instance Wait until all prior instances of the same task has completed. • Yes / Wait for All / Same Workflow Regardless of the parent workflow configuration, the task instance will remain in Instance Wait until all prior instances of the same task, within an instance of the same workflow, have completed.
<p>Variable Monitor Details</p>	<p>This section contains assorted detailed information about the task.</p>
<p>Variable to Monitor</p>	<p>Name of the variable to monitor. Variables are supported.</p>
<p>Value Monitor Type</p>	<p>Type of monitoring to be done on the Variable value.</p> <p>Options:</p> <ul style="list-style-type: none"> • Current (monitor the current value) • Change (monitor for a change in value) • Current/Change (monitor for both the current value and a change in value) <div data-bbox="619 1234 1541 1440" style="border: 2px solid orange; padding: 10px; margin-top: 10px;"> <p>Note</p> <p>If the Variable Monitor task was created from a Variable Monitor trigger, Value Monitor Type is set to Change by default and is marked as read-only, since Change is the only valid value when sued for a trigger.</p> </div>
<p>Value Condition</p>	<p>Condition for the value of the variable being monitored.</p> <p>Options:</p> <ul style="list-style-type: none"> • -- None -- • = • != • > • >= • < • <= • regex • undefined
<p>Value</p>	<p>If Value Condition = =, !=, >, >=, <, <=, or regex; Value (up to a maximum 4000 characters) of the variable being monitored.</p>

<p>Time Limit</p>	<p>If Value Monitor Type = Change or Current/Change; Used for Variable Monitor tasks not associated with a trigger; Amount of time (in units specified by Time Limit Unit) to monitor for the Variable Monitor conditions to be met. The Time Limit duration is always relative to the start time of the Variable Monitor task instance.</p> <div style="border: 1px solid orange; padding: 5px; margin-top: 10px;"> <p>Note</p> <p>If the Variable Monitor task was created from a Variable Monitor trigger, Time Limit is not allowed, since Variable Monitor Type is Change and cannot be updated.</p> </div>
<p>Time Limit Unit</p>	<p>If Value Monitor Type = Change or Current/Change; Unit of time to use for Time Limit.</p> <p>Options:</p> <ul style="list-style-type: none"> • Minutes • Hours (default) • Days
<p>Expiration Action</p>	<p>State to transition to if monitor conditions are not met within the specified window,</p> <p>Options:</p> <ul style="list-style-type: none"> • Failed • Finished
<p>Wait / Delay Options</p>	<p>This section contains specifications for waiting to start and/or delaying on start the task.</p>
<p>Wait To Start</p>	<p>Amount of time to wait before starting a task from the time that it was launched.</p> <p>Options are:</p> <ul style="list-style-type: none"> • – None – • Time • Relative Time • Duration • Seconds
<p>Wait Time</p>	<p>If Wait To Start = Time or Relative Time; Number of hours and minutes to wait before starting the task.</p>

<p>Wait Day Constraint</p>	<p>If Wait Time = Time or Relative Time; Specification for whether or not to advance the wait time to another day.</p> <p>Valid values:</p> <ul style="list-style-type: none"> • -- None -- <ul style="list-style-type: none"> • If Wait To Start = Time; Advance to the next day if the specified wait time is before the time that the task instance is eligible to start; that is, all dependencies have been met. For example: it is not being held, and it is not waiting on any predecessors. • If Wait To Start = Relative Time; Advance to the next day if the specified wait time is before the task instance Trigger Time or, if there is no Trigger Time, before the task instance Launch Time. In the latter case, when a task instance is within a workflow, it will inherit the Launch Time of the top-level parent workflow task instance. • Same Day Do not advance day. • Next Day Advance to the next day. • Next Business Day Advance to the next business day. • Sunday If today is not Sunday, advance to next Sunday. • Monday If today is not Monday, advance to next Monday. • Tuesday If today is not Tuesday, advance to next Tuesday. • Wednesday If today is not Wednesday, advance to next Wednesday. • Thursday If today is not Thursday, advance to next Thursday. • Friday If today is not Friday, advance to next Friday. • Saturday If today is not Saturday, advance to next Saturday. <p>Default is -- None --.</p>
<p>Wait Duration</p>	<p>If Wait To Start = Duration; Number of days, hours, minutes, and seconds to wait before starting the task.</p>
<p>Wait Duration In Seconds</p>	<p>If Wait To Start = Seconds; Number of seconds to wait before starting the task.</p>
<p>Delay On Start</p>	<p>Amount of time to delay the start of a task, after it has been launched, from the time that it is eligible to start; that is, all dependencies have been met. For example: it is not being held, it is not waiting on any predecessors, or there is no wait time specified.</p> <p>Options are:</p> <ul style="list-style-type: none"> • -- None -- • Duration • Seconds
<p>Delay Duration</p>	<p>If Delay On Start = Duration; Number of days, hours, minutes, and seconds to delay after starting the task.</p>
<p>Delay Duration In Seconds</p>	<p>If Delay On Start = Seconds; Number of seconds to delay after starting the task.</p>

Workflow Only	<p>Specification for whether or not to apply the Wait To Start and Delay On Start specifications only if the task is in a Workflow.</p> <p>Options are:</p> <ul style="list-style-type: none"> • -- System Default -- Apply the Wait To Start and Delay On Start specifications as defined by the System Default Wait/Delay Workflow Only system property. (Default is yes.) • Yes Apply the Wait To Start and Delay On Start specifications only if the task is in a Workflow. • No Apply the Wait To Start and Delay On Start specifications whether or not the task is in a Workflow.
Time Options	This section contains time-related specifications for the task.
Late Start	<p>If enabled, and if the task instance starts after the time or period specified, the task instance is flagged as late. You can specify a time or duration to determine a late start (see Late Start Type). To determine whether a task instance started late, open the task instance and locate the Started Late field; the field is checked if the instance started after the specified time. The Started Late field displays in the task instance Details only if the user specified a Late Start in the task Details.</p>
Late Start Type	<p>Required if Late Start is enabled.</p> <p>Options:</p> <ul style="list-style-type: none"> • Time - Flag the task if it starts after the specified time. • Duration - Flag the task if it starts a certain amount of time after the programmed start time. The task must have a specific start time.
Late Start Time	<p>If Late Start Type = Time; Time after which the task start time is considered late. Use HH:MM, 24-hour time.</p>
Late Start Day Constraint	<p>If Late Start Type = Time; Specification for whether or not to advance the late start time to another day.</p> <p>Valid values:</p> <ul style="list-style-type: none"> • -- None -- Advance to the next day if the specified late start time is before the Created time of the task instance. • Same Day Do not advance day. • Next Day Advance to the next day. • Next Business Day Advance to the next business day. • Sunday If today is not Sunday, advance to next Sunday. • Monday If today is not Monday, advance to next Monday. • Tuesday If today is not Tuesday, advance to next Tuesday. • Wednesday If today is not Wednesday, advance to next Wednesday. • Thursday If today is not Thursday, advance to next Thursday. • Friday If today is not Friday, advance to next Friday. • Saturday If today is not Saturday, advance to next Saturday. • Nth Day Advance to a specific number of days in the future. <p>Default is -- None --.</p>
Late Start Nth Amount	<p>If Late Start Day Constraint = Nth Day; Number of days to advance.</p>

Late Start Duration	<p>If Late Start Type = Duration; Duration (amount of relative time) after which the task is considered to have started late.</p> <p>For a task within a workflow, the duration is the period between the time the workflow starts and the time the task itself starts. For example, a task might have a Late Start Duration of 60 minutes. If the workflow starts at 9:00 a.m. but the task itself does not start until 10:30, the task has started late.</p> <p>For a task that is not within a workflow, Late Start Duration has meaning only if the task has been held upon starting. For example, if a task has a Late Start Duration of 60 minutes and the Hold on Start field is enabled, if the task is not released from hold within the amount of time specified in the Late Start Duration field, the task has started late.</p>
Late Finish	<p>If enabled, and if the task instance finishes after the time or period specified, the task instance is flagged as late. You can specify a time or duration to determine a late finish (see Late Finish Type). To determine whether a task instance finished late, open the task instance and locate the Finished Late field; the field is checked if the instance finished after the specified time or lasted longer than expected. This field only appears on the task instance if the user specified a Late Finish in the task definition.</p>
Late Finish Type	<p>Required if Late Finish is enabled.</p> <p>Options:</p> <ul style="list-style-type: none"> • Time - Flag the task if it finishes after the specified time (see Late Finish Time). • Duration - Flag the task if it finishes a certain amount of time after the programmed finish time (see Late Finish Duration). The task must have a specific finish time. • Average Duration - Flag the task if it finishes before the average duration (see Average Instance Time) for the task, less an offset (see Late Finish Offset Type), if specified.
Late Finish Offset Type	<p>If Late Finish Type = Average Duration;</p> <p>Options:</p> <ul style="list-style-type: none"> • Percentage • Duration
Late Finish Percentage Offset (+)	<p>Required if Late Finish Offset Type = <i>Percentage</i>; Percentage of Average Duration to use as an offset. The late finish time is calculated by adding the offset to the Average Duration.</p>
Late Finish Duration Offset (+)	<p>Required if Late Finish Offset Type = <i>Duration</i>; Duration to use as an offset. The late finish time is calculated by adding the offset to the Average Duration.</p>
Late Finish Duration Offset Unit	<p>If Late Finish Offset Type = Duration;</p> <p>Options:</p> <ul style="list-style-type: none"> • Seconds • Minutes • Hours
Late Finish Time	<p>If Late Finish Type = Time; Time after which the task finish time is considered late. Use HH:MM, 24-hour time.</p>

<p>Late Finish Day Constraint</p>	<p>If Late Finish Type = Time; Specification for whether or not to advance the late finish time to another day.</p> <p>Valid values:</p> <ul style="list-style-type: none"> • -- None -- Advance to the next day if the specified late finish time is before the Created time of the task instance. • Same Day Do not advance day. • Next Day Advance to the next day. • Next Business Day Advance to the next business day. • Sunday If today is not Sunday, advance to next Sunday. • Monday If today is not Monday, advance to next Monday. • Tuesday If today is not Tuesday, advance to next Tuesday. • Wednesday If today is not Wednesday, advance to next Wednesday. • Thursday If today is not Thursday, advance to next Thursday. • Friday If today is not Friday, advance to next Friday. • Saturday If today is not Saturday, advance to next Saturday. • Nth Day Advance to a specific number of days in the future. <p>Default is -- None --.</p>
<p>Late Finish Nth Amount</p>	<p>If Late Finish Day Constraint = Nth Day; Number of days to advance.</p>
<p>Late Finish Duration</p>	<p>If Late Finish Type = Duration; Longest amount of time this task instance should take to run.</p>
<p>Early Finish</p>	<p>If enabled, and if the task instance finishes before the time or period specified, the task instance is flagged as early. You can specify a time or duration to determine an early finish (see Early Finish Type). To determine whether a task instance finished early, open the task instance and locate the Finished Early field; the field is checked if the instance finished before the specified time or did not last as long as expected. This field only appears on the task instance if the user added Early Finish specifications to the task definition.</p>
<p>Early Finish Type</p>	<p>Required if Early Finish is enabled.</p> <p>Options:</p> <ul style="list-style-type: none"> • Time - Flag the task if it finishes before the specified time (see Early Finish Time). • Duration - Flag the task if it finishes a certain amount of time before the programmed finish time (see Early Finish Duration). The task must have a specific finish time. • Average Duration - Flag the task if it finishes before the average duration (see Average Instance Time) for the task, less an offset (see Early Finish Offset Type), if specified.
<p>Early Finish Offset Type</p>	<p>If Early Finish Type = Average Duration;</p> <p>Options:</p> <ul style="list-style-type: none"> • Percentage • Duration
<p>Early Finish Percentage Offset (-)</p>	<p>Required if Early Finish Offset Type = <i>Percentage</i>; Percentage of Average Duration to use as an offset. The early finish time is calculated by subtracting the offset from the Average Duration.</p>
<p>Early Finish Duration Offset (-)</p>	<p>Required if Early Finish Offset Type = <i>Duration</i>; Duration to use as an offset. The early finish time is calculated by subtracting the offset from the Average Duration.</p>

<p>Early Finish Duration Offset Unit</p>	<p>If Early Finish Offset Type = Duration; Options:</p> <ul style="list-style-type: none"> • Seconds • Minutes • Hours
<p>Early Finish Time</p>	<p>If Early Finish Type = Time; Time before which the task finish time is considered early. That is, enter a time at which the task should still be running. Use HH:MM, 24-hour time.</p>
<p>Early Finish Day Constraint</p>	<p>If Early Finish Type = Time; Specification for whether or not to advance the early finish time to another day.</p> <p>Valid values:</p> <ul style="list-style-type: none"> • -- None -- Advance to the next day if the specified early finish time is before the Created time of the task instance. • Same Day Do not advance day. • Next Day Advance to the next day. • Next Business Day Advance to the next business day. • Sunday If today is not Sunday, advance to next Sunday. • Monday If today is not Monday, advance to next Monday. • Tuesday If today is not Tuesday, advance to next Tuesday. • Wednesday If today is not Wednesday, advance to next Wednesday. • Thursday If today is not Thursday, advance to next Thursday. • Friday If today is not Friday, advance to next Friday. • Saturday If today is not Saturday, advance to next Saturday. • Nth Day Advance to a specific number of days in the future. <p>Default is -- None --.</p>
<p>Early Finish Nth Amount</p>	<p>If Early Finish Day Constraint = Nth Day; Number of days to advance.</p>
<p>Early Finish Duration</p>	<p>If Early Finish Type = Duration; Shortest amount of time this task instance should take to run.</p>
<p>User Estimated Duration</p>	<p>Required if Early Finish Type or Late Finish Type = Average Duration; Estimated amount of time it should normally take to run this task. The Controller uses this information to calculate the User Estimated End Time on a task instance record.</p> <p>User Estimated Duration is used when the Average Duration is not available; for example, on the first launch of a task.</p>
<p>Critical Path Options</p>	<p>This section contains Critical Path-related specifications for the task.</p>
<p>CP Duration</p>	<p>Optional; Allows you to override the estimated Critical Path Duration of the task when running in a Workflow; used in conjunction with the CP Duration Unit field. In most cases, this field should be left blank, which implies that the Controller will estimate the Critical Path Duration based on historical executions. Valid values are any integer equal to or greater than 0. Variables and Functions are supported.</p>
<p>CP Duration (Resolved)</p>	<p>Displays the current resolved value of the CP Duration field, which may contain variables or functions that will be displayed as unresolved until the task instance starts. The CP Duration (Resolved) field can continue to change value until the task instance starts, at which time CP Duration will display as resolved and CP Duration (Resolved) will no longer be visible unless there was an issue resolving the variables and/or functions contained within CP Duration. If the Controller is unable to resolve CP Duration or it resolves to an invalid value, CP Duration will be ignored and the Controller will estimate the Critical Path Duration based on historical executions.</p>

<p>CP Duration Unit</p>	<p>Type of CP Duration; used in conjunction with the CP Duration field. For example, for a CP Duration of two minutes, specify 2 in the CP Duration field and select Minutes in this field.</p> <p>Options:</p> <ul style="list-style-type: none"> • Seconds • Minutes • Hours <p>Default is Minutes.</p>
<p>Workflow Execution Options</p>	<p>This section contains Execution Restriction specifications for the task if it is within a Workflow.</p>
<p>Execution Restriction</p>	<p>Specification for whether or not there is a restriction for this task to be run, skipped, or held.</p> <p>Options are:</p> <ul style="list-style-type: none"> • -- None -- No restriction for this task. • Run Restriction for when this task will be run. • Skip Restriction for when this task will be skipped. • Hold Restriction for when this task will be held. <p>If Execution Restriction on a task is Run or Skip, then when it is part of a Workflow that is being launched, the Restriction Period is evaluated. The task instance will be skipped if Execution Restriction is Skip and the date is within the Restriction Period or Execution Restriction is Run and the date is not within the Restriction Period. Execution Restriction can be set to Skip with a Restriction Period of - None -, meaning the restriction is always active and the task will be skipped when it is part of a Workflow.</p>
<p>Restriction Period</p>	<p>If Execution Restriction = Run, Skip, or Hold; Period of time when the task is restricted.</p> <p>Options are:</p> <ul style="list-style-type: none"> • -- None -- No period of restriction for this task. • Before Restriction is valid if the date is before the Before Date value. • After Restriction is valid if the date is after the After Date value. • Span Restriction is valid if the date is before the Before Date value and after After Date value. • On Restriction is valid if the date is one of the Date List values.
<p>Before Date</p>	<p>If Restriction Period = Before or Span; Date before which the restriction is valid.</p>
<p>Before Time</p>	<p>If Restriction Period = Before or Span; Time on the selected date before which the restriction is valid.</p>
<p>After Date</p>	<p>If Restriction Period = After or Span; Date after which the restriction is valid.</p>
<p>After Time</p>	<p>If Restriction Period = After or Span; Time on the selected date after which the restriction is valid.</p>
<p>Date List</p>	<p>If Restriction Period = On; Date(s) on which the restriction is valid.</p>
<p>Self-Service Options</p>	<p>This section contains Self-Service specifications for the task.</p>
<p>Enforce Variables</p>	<p>Specifies whether or not to enforce Launch with Variables... when launching a task using the User Interface.</p>
<p>Lock Variables</p>	<p>Specifies whether or not to prevent editing variables when using Launch with Variables... from the User Interface.</p>
<p>Statistics</p>	<p>This section contains time-related statistics for task instances of the task.</p>
<p>First Execution</p>	<p>System-supplied; End Time of the first instance of this task to complete.</p>

Last Execution	System-supplied; End Time of the last instance of this task to complete.
Last Instance Duration	System-supplied; Amount of time the task took to run the last time it ran.
Lowest Instance Time	System-supplied; Lowest amount of time this task has taken to run.
Average Instance Time	System-supplied; Average amount of time this task takes to run.
Highest Instance Time	System-supplied; Highest amount of time this task has taken to run.
Number of Instances	System-supplied; Number of instances in the database for this task.
Metadata	This section contains Metadata information about this record.
UUID	Universally Unique Identifier of this record.
Updated By	Name of the user that last updated this record.
Updated	Date and time that this record was last updated.
Created By	Name of the user that created this record.
Created	Date and time that this record was created.
Buttons	This section identifies the buttons displayed above and below the Task Details that let you perform various actions.
Save	Saves a new task record in the Controller database.
Save & New	Saves a new record in the Controller database and redisplay empty Details so that you can create another new record.
Save & View	Saves a new record in the Controller database and continues to display that record.
New	Displays empty (except for default values) Details for creating a new task.
Update	Saves updates to the record.
Launch	Manually launches the task.
View Parents	Displays a list of any parent Workflow tasks for this task.
Copy	Creates a copy of this task, which you are prompted to rename.
Delete	Deletes the current record. <div style="border: 2px solid yellow; padding: 10px;"> <p>Note</p> <p>You cannot delete a task if it is either:</p> <ul style="list-style-type: none"> • Specified in an enabled Trigger. • The only task specified in a disabled Trigger. </div>
Refresh	Refreshes any dynamic data displayed in the Details.
Close	For pop-up view only; closes the pop-up view of this task.

Tabs	This section identifies the tabs across the top of the Task Details that provide access to additional information about the task.										
Variables	Lists all user-defined variables associated with this record; that is, variables that have been defined for this specific record.										
Actions	<p>Allows you to specify actions that the Controller will take automatically based on events that occur during the execution of this task.</p> <p>Events are:</p> <ul style="list-style-type: none"> • Task instance status • Exit codes • Late start • Late finish • Early finish <p>Actions are:</p> <table border="1"> <tr> <td>Abort Action</td> <td>Abort the task if certain events occur. For details, see Abort Actions.</td> </tr> <tr> <td>Email Notification</td> <td>Send an email if certain events occur. For details, see Email Notification Actions.</td> </tr> <tr> <td>Set Variable</td> <td>Used in tasks and workflows to set a variable based on the occurrence of certain events. For details, see Creating a Set Variable Action within a Task or Workflow.</td> </tr> <tr> <td>SNMP Notification</td> <td>Send an email if certain events occur. For details, see SNMP Notification Actions.</td> </tr> <tr> <td>System Operation</td> <td>Run an Universal Controller system operation based on specified conditions. For details, see System Operation Actions.</td> </tr> </table>	Abort Action	Abort the task if certain events occur. For details, see Abort Actions .	Email Notification	Send an email if certain events occur. For details, see Email Notification Actions .	Set Variable	Used in tasks and workflows to set a variable based on the occurrence of certain events. For details, see Creating a Set Variable Action within a Task or Workflow .	SNMP Notification	Send an email if certain events occur. For details, see SNMP Notification Actions .	System Operation	Run an Universal Controller system operation based on specified conditions. For details, see System Operation Actions .
Abort Action	Abort the task if certain events occur. For details, see Abort Actions .										
Email Notification	Send an email if certain events occur. For details, see Email Notification Actions .										
Set Variable	Used in tasks and workflows to set a variable based on the occurrence of certain events. For details, see Creating a Set Variable Action within a Task or Workflow .										
SNMP Notification	Send an email if certain events occur. For details, see SNMP Notification Actions .										
System Operation	Run an Universal Controller system operation based on specified conditions. For details, see System Operation Actions .										
Virtual Resources	<p>Lists all Virtual Resources to which this task is assigned.</p> <p>If you want to create a Task Virtual Resource for this task, you can select an existing Virtual Resource (or, optionally, first create a new Virtual Resource and then select it as the Task Virtual Resource) or enter a Virtual Resource variable. The variable must be a supported type as described in Variables and Functions.</p>										
Mutually Exclusive	Lists all tasks that have been set to be mutually exclusive of this task.										
Instances	Lists all instances of the task.										
Variable Monitor Triggers	Lists all Variable Monitor triggers that reference this task in the Variable Monitor field of the trigger Details; that is, a list of all Variable Monitor triggers that execute this task. Also allows you to add new triggers. For instructions on creating triggers, see Triggers .										
Triggers	List of all triggers that reference this task in the Task(s) field of the trigger Details; that is, a list of all triggers that have been defined to launch this task. Also allows you to add new triggers. If you add a new trigger from this location, the Controller automatically constructs a default trigger name as follows: <current task name>#TRIGGER#. You can change the default name if desired. For instructions on creating triggers, see Triggers .										
Notes	Lists all notes associated with this record.										

Versions	Stores copies of all previous versions of the current record. See Record Versioning .
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8.5 Viewing a Variable Monitor Task Instance

When a Variable Monitor task is launched, the Controller creates a task instance record of that task.

A task instance contains detailed information about a single execution of that task.

You can access a task instance from:

- **Instances tab** on the [Variable Monitor Task Details](#) for that task
- [Activity Monitor](#)
- [Task Instances list](#)

8.5.1 Variable Monitor Task Instance Details

The following Variable Monitor Task Instance Details contains information on the execution of the task shown in the [Variable Monitor Task Details](#).

ards
Variable Monitor Task Instance Details: stonbranch-variablemon

Variable Monitors
Variable Monitor Details: stonbranch-variablemonitor-01

Re-run
Refresh

Variable Monitor Task Instance
Actions
Virtual Resources
Exclusive Requests
Notes

General

Instance Name stonbranch-variablemonitor-01	Instance Number 1
Description <input type="text"/>	
Member of Business Services <input type="text"/>	
Task stonbranch-variablemonitor-01	Source Version 3
Launch Source Launch Task / User Interface	
Invoked By Manually Launched	Execution User Admin
Calendar System Default	Time Zone Preference -- System Default --
Virtual Resource Priority 10	Hold Resources on Failure <input type="checkbox"/>
Mutually Exclusive With Self <input type="checkbox"/>	Simulate <input type="checkbox"/>
Previous Instance Wait Resolved -- None --	

Status

Status Finished	
Status Description State was forced from RUNNING to FINISHED	
Operational Memo <input type="text"/>	
Trigger Time	Launch Time 2023-09-19 15:38:49 -0400
Wait Until Time <input type="text"/>	
Start Time 2023-09-19 15:38:49 -0400	End Time 2023-09-19 15:39:01 -0400
Duration 12 Seconds	

Variable Monitor Details

Variable To Monitor * stonebranch_variable_01	Value Monitor Type Change
Value Condition regex	
Value <input type="text"/>	
Time Limit	Time Limit Unit Hours
Expiration Action Failed	

Wait/Delay Options

Wait To Start -- None --
Delay On Start -- None --

Statistics

User Estimated End Time	Average Estimated End Time 2023-09-19 15:38:49 -0400
Lowest Estimated End Time	Highest Estimated End Time

8.5.2 Variable Monitor Task Instance Details Field Descriptions

The following table describes the fields, buttons, and tabs that display in Variable Monitor Task Instance Details.

Field Name	Description
General	This section contains general information about the task instance.
Instance Name	Name of this task instance.
Instance Number	System-supplied; Sequentially assigned number, maintained per task, representing the creation order of the instance.
Description	Description of this record. (Maximum = 255 characters.)
Member of Business Services	<p>User-defined; Allows you to select one or more Business Services that this record belongs to. (You also can Check All or Uncheck All Business Services for this record.)</p> <p>You can select up to 62 Business Services for any record type, and enter a maximum of 2048 characters for each Business Service.</p> <p>If the Business Service Visibility Restricted Universal Controller system property is set to true, depending on your assigned (or inherited) Permissions or Roles, Business Services available for selection may be restricted.</p>
Task	Name of the task that was run to create this task instance. Click the icon to display Task Details for the task.
Source Version	Version of the task that was run to create this task instance.

<p>Launch Source</p>	<p>System-supplied; Source from which this task was launched.</p> <p>Options:</p> <ul style="list-style-type: none"> • Scheduled Trigger If the instance was directly launched by a scheduled trigger, the Trigger (trigger_id) column is assigned the UUID of the scheduled trigger. • Trigger Monitor If the instance is a monitor associated with monitor trigger, the Trigger (trigger_id) column is assigned the UUID of the monitor trigger. • Trigger Now / User Interface If the instance was directly launched by a Trigger Now command, the Trigger (trigger_id) column is assigned the UUID of the trigger. • Trigger Now / System Operation If the instance was directly launched by a Trigger Now command, the Trigger (trigger_id) column is assigned the UUID of the trigger and the Source Instance (source_instance) column will be assigned the UUID of the instance invoking the System Operation. • Trigger Now / Web Service If the instance was directly launched by a Trigger Now command, the Trigger (trigger_id) column is assigned the UUID of the trigger. • Trigger Now / Command Line If the instance was directly launched by a Trigger Now command, the Trigger (trigger_id) column is assigned the UUID of the trigger. • Workflow If the instance was launched by a workflow, the Workflow (workflow_id) column is assigned the UUID of the workflow instance. Likewise, the Source Instance (source_instance) column will also be assigned the UUID of the workflow instance. • Launch Task / User Interface If the instance was directly launched by the Launch Task command, the Source Instance (source_instance) column will be null. • Launch Task / System Operation If the instance was directly launched by the Launch Task command, the Source Instance (source_instance) column will be assigned the UUID of the instance invoking the System Operation. • Launch Task / Web Service If the instance was directly launched by the Launch Task command, the Source Instance (source_instance) column will be null. • Launch Task / Command Line If the instance was directly launched by the Launch Task command, the Source Instance (source_instance) column will be null. • Recurring If the instance was directly launched by a Recurring Task Instance, the Source Instance (source_instance) column will be assigned the UUID of the Recurring Task Instance.
<p>Source Instance</p>	<p>System-supplied; UUID of the source instance.</p> <ul style="list-style-type: none"> • If the instance was directly launched by a Trigger Now command; the UUID of the instance invoking the System Operation. • If the instance was launched by a workflow; the UUID of the workflow instance. • If the instance was directly launched by the Launch Task command; the UUID of the instance invoking the System Operation. • If the instance was directly launched by a Recurring Task Instance; the UUID of the Recurring Task Instance.
<p>Invoked by</p>	<p>System-supplied; how the task instance was launched.</p> <p>Options:</p> <ul style="list-style-type: none"> • Trigger: (Trigger Name) Instance was launched by the named trigger. • Workflow: (Workflow Name) Instance was launched by the named workflow. • Manually Launched Instance was launched by a user. To identify the user, check the Execution User column for that task instance on the Task Instances screen or, on most task instance screens, the Execution User field.

Execution User	System-supplied; If the task was launched manually; ID of the user who launched it.
Calendar	Calendar associated with the task instance.
Time Zone Preference	<p>User-defined; Allows you to specify the time zone that will be applied to the task.</p> <p>Options:</p> <ul style="list-style-type: none"> • – System Default – Time zone is based on the value of the Task Time Zone Preference Universal Controller system property: Server or Inherited. • Server (xxx) Where (xxx) is the time zone ID of the server; time zone is evaluated in the time zone of the server. • Inherited Time zone is evaluated in the time zone of the Parent Workflow or Trigger / Launch specification in the case there is no Parent Workflow.
Virtual Resource Priority	<p>Priority for acquiring a resource when two or more tasks are waiting for the resource. This priority applies to all resources required by the task.</p> <p>Options: 1 (high) - 100 (low).</p> <p>Default is 10.</p>
Hold Resources on Failure	If enabled, the task instance will continue to hold Renewable resources if the task instance fails. Renewable resources will be returned only if the task instance status is either Complete, Finished, or Skipped.
Mutually Exclusive With Self	If enabled, the task will not be allowed to run concurrently with itself. Task will not start until the instance that is running finishes. An instance will transition to Exclusive Wait status if it cannot start due to another instance already running.
Simulate	Specifies if the instance should execute under simulation mode .
Previous Instance Wait Resolved	<p>System-supplied; If the Override Previous Instance Wait field for the task is set to No, the Previous Instance Wait Resolved field will be set to the value of the Previous Instance Wait field of the parent workflow. Otherwise, it will be set to the value specified by the Override Previous Instance Wait.</p> <p>Options:</p> <ul style="list-style-type: none"> • -- None -- • Wait for Last Every task instance directly within the workflow instance will remain in Instance Wait until the most recent prior instance of the same task has completed. • Wait for Last / Same Workflow Every task instance directly within the workflow instance will remain in Instance Wait until the most recent prior instance of the same task, within an instance of the same workflow, have completed. • Wait for All Every task instance directly within the workflow instance will remain in Instance Wait until all prior instances of the same task has completed. • Wait for All / Same Workflow Every task instance directly within the workflow instance will remain in Instance Wait until all prior instances of the same task, within an instance of the same workflow, have completed.
Status	This section contains information about the current status of the task instance.
Status	System-supplied; see Task Instance Statuses .
Exit Code	System-supplied; the exit code captured by the Agent when executing the task (for example, a command or script).
Status Description	System-supplied; additional information, if any, about the status of the task instance.
Operational Memo	User-defined operational memo.

Evaluation Time	If time zone of user is different than time zone of task instance; Time at which Execution Restrictions and Run Criteria were evaluated based upon the requested time zone. (Time zone of task instance displays in parentheses.)
Critical	Indicates that this task is in the Critical Path of a workflow.
Critical Endpoint	Indicates that this task was defined as a Critical Endpoint of a Critical Path in a workflow.
Wait Until Time	Amount of time calculated to wait before the task was started, based on Wait To Start and Delay On Start times.
Queued Time	System-supplied; Date and time the task was queued for processing.
Trigger Time	System-supplied; Date and time the task instance was triggered.
Launch Time	System-supplied; Date and time the task instance was launched.
Start Time	System-supplied; Date and time the task instance started.
End Time	System-supplied; Date and time the task instance completed.
Duration	System-supplied; amount of time the task instance took to run.
Variable Monitor Details	This section contains assorted detailed information about the task instance.
Variable to Monitor	Name of the variable to monitor. Variables are supported.
Value Monitor Type	Type of monitoring to be done on the Variable value. Options: <ul style="list-style-type: none"> • Current (monitor the current value) • Change (monitor for a change in value) • Current/Change (monitor for both the current value and a change in value) <div style="border: 1px solid orange; padding: 5px; margin-top: 10px;"> <p>Note</p> <p>If the Variable Monitor task was created from a Variable Monitor trigger, Value Monitor Type is set to Change by default and is marked as read-only, since Change is the only valid value when used for a trigger.</p> </div>
Value Condition	Condition for the value of the variable being monitored. Options: <ul style="list-style-type: none"> • – None – • = • != • > • >= • < • <= • regex • undefined
Value	If Value Condition = =, !=, >, >=, <, <=, or regex; Value (up to a maximum 4000 characters) of the variable being monitored.

<p>Time Limit</p>	<p>If Value Monitor Type = Change or Current/Change; Used for Variable Monitor tasks not associated with a trigger; Amount of time (in units specified by Time Limit Unit) to monitor for the Variable Monitor conditions to be met. The Time Limit duration is always relative to the start time of the Variable Monitor task instance.</p> <div style="border: 1px solid orange; padding: 5px; margin-top: 10px;"> <p>Note</p> <p>If the Variable Monitor task was created from a Variable Monitor trigger, Time Limit is not allowed, since Variable Monitor Type is Change and cannot be updated.</p> </div>
<p>Time Limit Unit</p>	<p>If Value Monitor Type = Change or Current/Change; Unit of time to use for Time Limit.</p> <p>Options:</p> <ul style="list-style-type: none"> • Minutes • Hours (default) • Days
<p>Expiration Action</p>	<p>State to transition to if monitor conditions are not met within the specified window,</p> <p>Options:</p> <ul style="list-style-type: none"> • Failed • Finished
<p>Wait / Delay Options</p>	<p>This section contains specifications for waiting to start and/or delaying on start the task.</p>
<p>Wait To Start</p>	<p>Amount of time to wait before starting a task from the time that it was launched.</p> <p>Options are:</p> <ul style="list-style-type: none"> • – None – • Time • Relative Time • Duration • Seconds
<p>Wait Time</p>	<p>If Wait To Start = Time or Relative Time; Number of hours and minutes to wait before starting the task.</p>

<p>Wait Day Constraint</p>	<p>If Wait Time = Time or Relative Time; Specification for whether or not to advance the wait time to another day.</p> <p>Valid values:</p> <ul style="list-style-type: none"> • -- None -- <ul style="list-style-type: none"> • If Wait To Start = Time; Advance to the next day if the specified wait time is before the time that the task instance is eligible to start; that is, all dependencies have been met. For example: it is not being held, and it is not waiting on any predecessors. • If Wait To Start = Relative Time; Advance to the next day if the specified wait time is before the task instance Trigger Time or, if there is no Trigger Time, before the task instance Launch Time. In the latter case, when a task instance is within a workflow, it will inherit the Launch Time of the top-level parent workflow task instance. • Same Day Do not advance day. • Next Day Advance to the next day. • Next Business Day Advance to the next business day. • Sunday If today is not Sunday, advance to next Sunday. • Monday If today is not Monday, advance to next Monday. • Tuesday If today is not Tuesday, advance to next Tuesday. • Wednesday If today is not Wednesday, advance to next Wednesday. • Thursday If today is not Thursday, advance to next Thursday. • Friday If today is not Friday, advance to next Friday. • Saturday If today is not Saturday, advance to next Saturday. <p>Default is -- None --.</p>
<p>Wait Duration</p>	<p>If Wait To Start = Duration; Number of days, hours, minutes, and seconds to wait before starting the task.</p>
<p>Wait Duration In Seconds</p>	<p>If Wait To Start = Seconds; Number of seconds to wait before starting the task.</p>
<p>Delay On Start</p>	<p>Amount of time to delay the start of a task, after it has been launched, from the time that it is eligible to start; that is, all dependencies have been met. For example: it is not being held, it is not waiting on any predecessors, or there is no wait time specified.</p> <p>Options are:</p> <ul style="list-style-type: none"> • -- None -- • Duration • Seconds
<p>Delay Duration</p>	<p>If Delay On Start = Duration; Number of days, hours, minutes, and seconds to delay after starting the task.</p>
<p>Delay Duration In Seconds</p>	<p>If Delay On Start = Seconds; Number of seconds to delay after starting the task.</p>
<p>Time Options</p>	<p>This section contains time-related specifications for the task instance.</p>

Late Start	If enabled, and if the task instance starts after the time or period specified, the task instance is flagged as late. You can specify a time or duration to determine a late start (see Late Start Type). To determine whether a task instance started late, open the task instance and locate the Started Late field; the field is checked if the instance started after the specified time. The Started Late field displays in the task instance Details only if the user specified a Late Start in the task Details.
Started Late	System-supplied; this field is flagged if the task started later than the time specified in the Late Start fields.
Late Start Type	Required if Late Start is enabled. Options: <ul style="list-style-type: none"> • Time - Flag the task if it starts after the specified time. • Duration - Flag the task if it starts a certain amount of time after the programmed start time. The task must have a specific start time.
Late Start Time	If Late Start Type = Time; Time after which the task start time is considered late. Use HH:MM, 24-hour time.
Late Start Day Constraint	If Late Start Type = Time; Specification for whether or not to advance the late start time to another day. Valid values: <ul style="list-style-type: none"> • -- None -- Advance to the next day if the specified late start time is before the Created time of the task instance. • Same Day Do not advance day. • Next Day Advance to the next day. • Next Business Day Advance to the next business day. • Sunday If today is not Sunday, advance to next Sunday. • Monday If today is not Monday, advance to next Monday. • Tuesday If today is not Tuesday, advance to next Tuesday. • Wednesday If today is not Wednesday, advance to next Wednesday. • Thursday If today is not Thursday, advance to next Thursday. • Friday If today is not Friday, advance to next Friday. • Saturday If today is not Saturday, advance to next Saturday. • Nth Day Advance to a specific number of days in the future. Default is -- None --.
Late Start Nth Amount	If Late Start Day Constraint = Nth Day; Number of days to advance.
Late Start Duration	If Late Start Type = Duration; Duration (amount of relative time) after which the task is considered to have started late. For a task within a workflow, the duration is the period between the time the workflow starts and the time the task itself starts. For example, a task might have a Late Start Duration of 60 minutes. If the workflow starts at 9:00 a.m. but the task itself does not start until 10:30, the task has started late. For a task that is not within a workflow, Late Start Duration has meaning only if the task has been held upon starting. For example, if a task has a Late Start Duration of 60 minutes and the Hold on Start field is enabled, if the task is not released from hold within the amount of time specified in the Late Start Duration field, the task has started late.
Computed Late Start Time	If Late Start is enabled, the computed Date/Time for when the task instance will be Late Started.

Late Finish	If enabled, and if the task instance finishes after the time or period specified, the task instance is flagged as late. You can specify a time or duration to determine a late finish (see Late Finish Type). To determine whether a task instance finished late, open the task instance and locate the Finished Late field; the field is checked if the instance finished after the specified time or lasted longer than expected. This field only appears on the task instance if the user specified a Late Finish in the task definition.
Finished Late	System-supplied; this field is flagged if the task finished later than the time or duration specified in the Late Finish fields.
Late Finish Type	Required if Late Finish is enabled. Options: <ul style="list-style-type: none"> • Time - Flag the task if it finishes after the specified time (see Late Finish Time). • Duration - Flag the task if it finishes a certain amount of time after the programmed finish time (see Late Finish Duration). The task must have a specific finish time. • Average Duration - Flag the task if it finishes before the average duration (see Average Instance Time) for the task, less an offset (see Late Finish Offset Type), if specified.
Late Finish Offset Type	If Late Finish Type = Average Duration; Options: <ul style="list-style-type: none"> • Percentage • Duration
Late Finish Percentage Offset (+)	Required if Late Finish Offset Type = <i>Percentage</i> ; Percentage of Average Duration to use as an offset. The late finish time is calculated by adding the offset to the Average Duration .
Late Finish Duration Offset (+)	Required if Late Finish Offset Type = <i>Duration</i> ; Duration to use as an offset. The late finish time is calculated by adding the offset to the Average Duration .
Late Finish Duration Offset Unit	If Late Finish Offset Type = Duration; Options: <ul style="list-style-type: none"> • Seconds • Minutes • Hours
Late Finish Time	If Late Finish Type = Time; Time after which the task finish time is considered late. Use HH:MM, 24-hour time.

<p>Late Finish Day Constraint</p>	<p>If Late Finish Type = Time; Specification for whether or not to advance the late finish time to another day.</p> <p>Valid values:</p> <ul style="list-style-type: none"> • -- None -- Advance to the next day if the specified late finish time is before the Created time of the task instance. • Same Day Do not advance day. • Next Day Advance to the next day. • Next Business Day Advance to the next business day. • Sunday If today is not Sunday, advance to next Sunday. • Monday If today is not Monday, advance to next Monday. • Tuesday If today is not Tuesday, advance to next Tuesday. • Wednesday If today is not Wednesday, advance to next Wednesday. • Thursday If today is not Thursday, advance to next Thursday. • Friday If today is not Friday, advance to next Friday. • Saturday If today is not Saturday, advance to next Saturday. • Nth Day Advance to a specific number of days in the future. <p>Default is -- None --.</p>
<p>Late Finish Nth Amount</p>	<p>If Late Finish Day Constraint = Nth Day; Number of days to advance.</p>
<p>Late Finish Duration</p>	<p>If Late Finish Type = Duration; Longest amount of time this task instance should take to run.</p>
<p>Computed Late Finish Time</p>	<p>If Late Finish is enabled, the computed Date/Time for when the task instance will be Late Finished.</p>
<p>Early Finish</p>	<p>If enabled, and if the task instance finishes before the time or period specified, the task instance is flagged as early. You can specify a time or duration to determine an early finish (see Early Finish Type). To determine whether a task instance finished early, open the task instance and locate the Finished Early field; the field is checked if the instance finished before the specified time or did not last as long as expected. This field only appears on the task instance if the user added Early Finish specifications to the task definition.</p>
<p>Finished Early</p>	<p>System-supplied; this field is flagged if the task finished earlier than the time specified in the Early Finish fields.</p>
<p>Early Finish Type</p>	<p>Required if Early Finish is enabled.</p> <p>Options:</p> <ul style="list-style-type: none"> • Time - Flag the task if it finishes before the specified time (see Early Finish Time). • Duration - Flag the task if it finishes a certain amount of time before the programmed finish time (see Early Finish Duration). The task must have a specific finish time. • Average Duration - Flag the task if it finishes before the average duration (see Average Instance Time) for the task, less an offset (see Early Finish Offset Type), if specified.
<p>Early Finish Offset Type</p>	<p>If Early Finish Type = Average Duration;</p> <p>Options:</p> <ul style="list-style-type: none"> • Percentage • Duration
<p>Early Finish Percentage Offset (-)</p>	<p>Required if Early Finish Offset Type = <i>Percentage</i>; Percentage of Average Duration to use as an offset. The early finish time is calculated by subtracting the offset from the Average Duration.</p>

Early Finish Duration Offset (-)	Required if Early Finish Offset Type = <i>Duration</i> ; Duration to use as an offset. The early finish time is calculated by subtracting the offset from the Average Duration .
Early Finish Duration Offset Unit	If Early Finish Offset Type = <i>Duration</i> ; Options: <ul style="list-style-type: none"> • Seconds • Minutes • Hours
Early Finish Time	If Early Finish Type = <i>Time</i> ; Time before which the task finish time is considered early. That is, enter a time at which the task should still be running. Use HH:MM, 24-hour time.
Early Finish Day Constraint	If Early Finish Type = <i>Time</i> ; Specification for whether or not to advance the early finish time to another day. Valid values: <ul style="list-style-type: none"> • -- None -- Advance to the next day if the specified early finish time is before the Created time of the task instance. • Same Day Do not advance day. • Next Day Advance to the next day. • Next Business Day Advance to the next business day. • Sunday If today is not Sunday, advance to next Sunday. • Monday If today is not Monday, advance to next Monday. • Tuesday If today is not Tuesday, advance to next Tuesday. • Wednesday If today is not Wednesday, advance to next Wednesday. • Thursday If today is not Thursday, advance to next Thursday. • Friday If today is not Friday, advance to next Friday. • Saturday If today is not Saturday, advance to next Saturday. • Nth Day Advance to a specific number of days in the future. Default is -- None --.
Early Finish Nth Amount	If Early Finish Day Constraint = <i>Nth Day</i> ; Number of days to advance.
Early Finish Duration	If Early Finish Type = <i>Duration</i> ; Shortest amount of time this task instance should take to run.
Projected Late	System-provided if Late Start Time , Late Start Duration , or Late Finish Time is specified; This field is flagged if the task instance is projected to be late based on critical path projected end times (see Critical Path Projected Late Action Maximum and Critical Path Projected Late Threshold In Minutes Universal Controller system properties).
Critical Path Options	This section contains Critical Path-related specifications for the task.
CP Duration	Optional; Allows you to override the estimated Critical Path Duration of the task when running in a Workflow; used in conjunction with the CP Duration Unit field. In most cases, this field should be left blank, which implies that the Controller will estimate the Critical Path Duration based on historical executions. Valid values are any integer equal to or greater than 0. Variables and Functions are supported.

<p>CP Duration (Resolved)</p>	<p>Displays the current resolved value of the CP Duration field, which may contain variables or functions that will be displayed as unresolved until the task instance starts. The CP Duration (Resolved) field can continue to change value until the task instance starts, at which time CP Duration will display as resolved and CP Duration (Resolved) will no longer be visible unless there was an issue resolving the variables and/or functions contained within CP Duration. If the Controller is unable to resolve CP Duration or it resolves to an invalid value, CP Duration will be ignored and the Controller will estimate the Critical Path Duration based on historical executions.</p>
<p>CP Duration Unit</p>	<p>Type of CP Duration; used in conjunction with the CP Duration field. For example, for a CP Duration of two minutes, specify 2 in the CP Duration field and select Minutes in this field.</p> <p>Options:</p> <ul style="list-style-type: none"> • Seconds • Minutes • Hours <p>Default is Minutes.</p>
<p>Workflow Execution Options</p>	<p>This section contains Execution Restriction specifications for the task if it is within a Workflow.</p>
<p>Execution Restriction</p>	<p>Specification for whether or not there is a restriction for this task to be run, skipped, or held.</p> <p>Options are:</p> <ul style="list-style-type: none"> • -- None -- No restriction for this task. • Run Restriction for when this task will be run. • Skip Restriction for when this task will be skipped. • Hold Restriction for when this task will be held. <p>If Execution Restriction on a task is Run or Skip, then when it is part of a Workflow that is being launched, the Restriction Period is evaluated. The task instance will be skipped if Execution Restriction is Skip and the date is within the Restriction Period or Execution Restriction is Run and the date is not within the Restriction Period. Execution Restriction can be set to Skip with a Restriction Period of - None -, meaning the restriction is always active and the task will be skipped when it is part of a Workflow.</p>
<p>Restriction Period</p>	<p>If Execution Restriction = Run, Skip, or Hold; Period of time when the task is restricted.</p> <p>Options are:</p> <ul style="list-style-type: none"> • – None – No period of restriction for this task. • Before Restriction is valid if the date is before the Before Date value. • After Restriction is valid if the date is after the After Date value. • Span Restriction is valid if the date is before the Before Date value and after After Date value. • On Restriction is valid if the date is one of the Date List values.
<p>Before Date</p>	<p>If Restriction Period = Before or Span; Date before which the restriction is valid.</p>
<p>Before Time</p>	<p>If Restriction Period = Before or Span; Time on the selected date before which the restriction is valid.</p>
<p>After Date</p>	<p>If Restriction Period = After or Span; Date after which the restriction is valid.</p>
<p>After Time</p>	<p>If Restriction Period = After or Span; Time on the selected date after which the restriction is valid.</p>
<p>Date List</p>	<p>If Restriction Period = On; Date(s) on which the restriction is valid.</p>
<p>Statistics</p>	<p>This section contains time-related statistics for the the task instance.</p>

User Estimated End Time	System-supplied; If the user entered information into the User Estimated Duration field in the task Details, the Controller uses this information to calculate an end time for the task instance, based on the date/time the task instance started.
Lowest Estimated End Time	System-supplied; Lowest estimated end time of the task instance, calculated by the Controller based on the date/time the task instance started.
Average Estimated End Time	System-supplied; Average estimated end time of the task instance, calculated by the Controller based on the date/time the task instance started.
Highest Estimated End Time	System-supplied; Highest estimated end time of the task instance, calculated by the Controller based on the date/time the task instance started.
Projected Start Time	System-supplied; projected start time of the task instance, calculated by the Controller based on Projected End Time minus Projected Duration.
Projected End Time	System-supplied; projected end time of the task instance, calculated by the Controller based on the projected end time of its predecessor (or the maximum projected end time of all its predecessors, if more than one path exists to that task instance) plus its estimated critical path duration .
Metadata	This section contains Metadata information about this record.
UUID	Universally Unique Identifier of this record.
Updated By	Name of the user that last updated this record.
Updated	Date and time that this record was last updated.
Created By	Name of the user that created this record.
Created	Date and time that this record was created.
Status History	History of all statuses that the task instance has gone through.
Buttons	This section identifies the buttons displayed above and below the Task Instance Details that let you perform various actions.
Update	Saves updates to the record.
Force Finish	See Force Finishing a Task .
Hold	Places the task instance on Hold (see Putting a Task on Hold).
Skip	For tasks loaded into the schedule that have not yet run; allows you to tell the Controller to skip this task. See Skipping a Task .

<p>Re-run</p>	<p>See Re-running a Task Instance.</p> <div style="border: 1px solid orange; padding: 10px; margin: 10px 0;"> <p>Note</p> <p>If the Re-run (Suppress Intermediate Failures) Permitted Universal Controller system property is set to true, the Re-run button is a drop-down list containing the following options:</p> <ul style="list-style-type: none"> • Re-run • Re-run (Suppress Intermediate Failures) </div> <p>The Re-run button does not display if the task instance does not qualify for Re-run. If the task instance qualifies for Re-run, but already has Retry Options enabled, Re-run (Suppress Intermediate Failures) displays as disabled in the drop-down list.</p>										
<p>View Parent</p>	<p>Displays the task instance Details for the parent Workflow of this task instance.</p>										
<p>Delete</p>	<p>Deletes the current record.</p>										
<p>Refresh</p>	<p>Refreshes any dynamic data displayed in the Details.</p>										
<p>Close</p>	<p>For pop-up view only; closes the pop-up view of this task instance.</p>										
<p>Tabs</p>	<p>This section identifies the tabs across the top of the Task Instance Details that provide access to additional information about the task instance.</p>										
<p>Actions</p>	<p>Actions that the Controller took automatically based on events that occurred during the execution of this task.</p> <p>Events are:</p> <ul style="list-style-type: none"> • Task instance status • Exit codes • Late start • Late finish • Early finish <p>Actions are:</p> <table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 30%;">Abort Action</td> <td>Abort the task if certain events occur. For details, see Abort Actions.</td> </tr> <tr> <td>Email Notification</td> <td>Send an email if certain events occur. For details, see Email Notification Actions.</td> </tr> <tr> <td>Set Variable</td> <td>Used in tasks and workflows to set a variable based on the occurrence of certain events. For details, see Creating a Set Variable Action within a Task or Workflow.</td> </tr> <tr> <td>SNMP Notification</td> <td>Send an email if certain events occur. For details, see SNMP Notification Actions.</td> </tr> <tr> <td>System Operation</td> <td>Run an Universal Controller system operation based on specified conditions. For details, see System Operation Actions.</td> </tr> </table>	Abort Action	Abort the task if certain events occur. For details, see Abort Actions .	Email Notification	Send an email if certain events occur. For details, see Email Notification Actions .	Set Variable	Used in tasks and workflows to set a variable based on the occurrence of certain events. For details, see Creating a Set Variable Action within a Task or Workflow .	SNMP Notification	Send an email if certain events occur. For details, see SNMP Notification Actions .	System Operation	Run an Universal Controller system operation based on specified conditions. For details, see System Operation Actions .
Abort Action	Abort the task if certain events occur. For details, see Abort Actions .										
Email Notification	Send an email if certain events occur. For details, see Email Notification Actions .										
Set Variable	Used in tasks and workflows to set a variable based on the occurrence of certain events. For details, see Creating a Set Variable Action within a Task or Workflow .										
SNMP Notification	Send an email if certain events occur. For details, see SNMP Notification Actions .										
System Operation	Run an Universal Controller system operation based on specified conditions. For details, see System Operation Actions .										

Virtual Resources	<p>Lists all Virtual Resources to which this task is assigned.</p> <p>If you want to create a Task Virtual Resource for this task, you can select an existing Virtual Resource (or, optionally, first create a new Virtual Resource and then select it as the Task Virtual Resource) or enter a Virtual Resource variable. The variable must be a supported type as described in Variables and Functions.</p>
Exclusive Requests	<p>Lists all records in the Exclusive Requests table (<code>ops_exclusive_order</code>) for this task instance.</p>
Notes	<p>Lists all notes associated with this record.</p>

8.6 Running a Variable Monitor Task

You can run a Variable Monitor task:

- Manually, by clicking the [Launch](#) or [Launch with Variables](#) button in the Variable Monitor Tasks list or Variable Monitor Task Details [Action menu](#).
- As part of a [workflow](#).
- [Specify triggers](#) that run the task automatically based on times or events.

8.7 Monitoring Task Execution

You can monitor all system activity from the [Activity Monitor](#) and can view activity history from the [History list](#).

9 Email Monitor Task

9.1 Overview

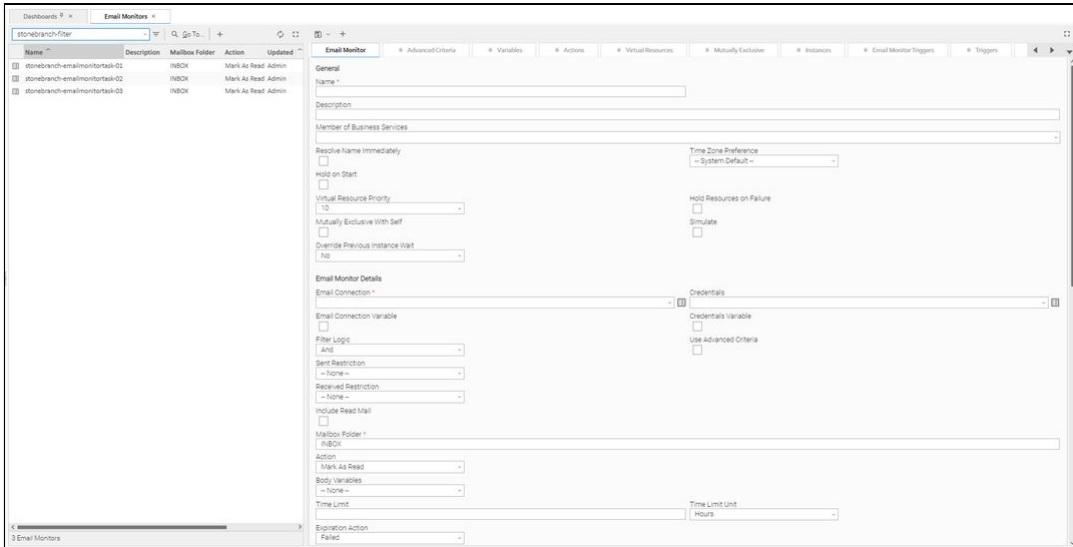

The Email Monitor task allows you to monitor a Mailbox Folder for emails matching specific criteria, and to take action on any matching emails.

9.2 Built-In Variables

The following [built-in variables](#) can be used in an Email Monitor task to pass data where appropriate:

- [Task Instance variables](#)
- [Email Monitor Task variables](#)

9.3 Creating an Email Monitor Task

<p>Step 1</p>	<p>From the Automation Center navigation pane, select Tasks > Email Monitors. The Email Monitor Tasks list displays a list of all currently defined Email Monitor tasks.</p> <p>To the right of the list, Email Monitor Task Details for a new Email Monitor task displays.</p>  <p>The screenshot shows the 'Email Monitors' dashboard. On the left, there is a table with columns: Name, Description, Mailbox Folder, Action, and Updated. Three tasks are listed, all with 'stonebranch-emailmonitortask-02' as the name and 'INBOX' as the mailbox folder. The action is 'Mark As Read Admin'. On the right, the 'Email Monitor' configuration panel is open, showing various settings like 'General', 'Member of Business Services', 'Email Monitor Details', and 'Mailbox Folder'.</p>
<p>Step 2</p>	<p>Enter/select Details for a new Email Monitor task, using the field descriptions below as a guide.</p> <ul style="list-style-type: none"> • Required fields display an asterisk (*) after the field name. • Default values for fields, if available, display automatically. <p>To display more of the Details fields on the screen, you can either:</p> <ul style="list-style-type: none"> • Use the scroll bar. • Temporarily hide the list above the Details. • Click the  button above the list to display a pop-up version of the Details.

Step 3

Click the  button. The task is added to the database, and all buttons and tabs in the Task Details are enabled.

Note

To [open](#) an existing record on the list, either:

- Click a record in the list to display its record Details below the list. (To clear record Details below the list, click the **New** button that displays above and below the Details.)
- Clicking the [Details icon](#) next to a record name in the list, or right-click a record in the list and then click **Open** in the [Action menu](#) that displays, to display a pop-up version of the record Details.
- Right-click a record in the a list, or open a record and right-click in the record Details, and then click **Open In Tab** in the [Action menu](#) that displays, to display the record Details under a new tab on the record list page (see [Record Details as Tabs](#)).

9.3.1 Email Monitor Task Details

The following Email Monitor Task Details is for an existing Email Monitor task.

Depending on the values that you enter / select for these fields, and whether or not the Email Monitor task has ever been launched, more (or less) fields may display. See the [field descriptions](#), below, for a description of all fields that may display in the Email Monitor Task Details.

Dashboards ▾ ×
Email Monitors ▾ ×
Email Monitor Details: stonebranch-emailmonitortask-01 ▾ ×

Launch ▾
View Parents ▾
↻

Email Monitor
Advanced Criteria
Variables
Actions
Virtual Resources
Mutually Exclusive
Instances
Email Monitor Trig ◀ ▶ ▾

General

Name * Version

Description

Member of Business Services

Resolve Name Immediately

Time Zone Preference

Hold on Start

Virtual Resource Priority

Hold Resources on Failure

Mutually Exclusive With Self

Simulate

Override Previous Instance Wait

Email Monitor Details

Email Connection * Credentials *

Email Connection Variable

Credentials Variable

Filter Logic

Use Advanced Criteria

Sent Restriction

Received Restriction

Include Read Mail

Mailbox Folder *

Action

Body Variables

Time Limit Time Limit Unit

Expiration Action

Email Content Processing

Email Monitor Criteria

From Filter

To Filter

Cc Filter

Subject Filter

Body Filter

Case Sensitive

Wait/Delay Options

Wait To Start

Delay On Start

Workflow Only

Time Options

Late Start

Late Finish

Early Finish

9.3.2 Email Monitor Task Details Field Descriptions

The following table describes the fields, buttons, and tabs that display in the Email Monitor Task Details.

Field Name	Description
General	This section contains general information about the task.
Name	User-defined name of this task (Maximum = 255 alphanumeric characters); variables supported. It is the responsibility of the user to develop a workable naming scheme for tasks.
Version	System-supplied; version number of the current record, which is incremented by the Controller every time a user updates a record. Click the Versions tab to view previous versions. For details, see Record Versioning .
Description	Description of this record. (Maximum = 255 characters.)
Member of Business Services	User-defined; Allows you to select one or more Business Services that this record belongs to. (You also can Check All or Uncheck All Business Services for this record.) You can select up to 62 Business Services for any record type, and enter a maximum of 2048 characters for each Business Service. If the Business Service Visibility Restricted Universal Controller system property is set to true, depending on your assigned (or inherited) Permissions or Roles , Business Services available for selection may be restricted.
Resolve Name Immediately	If enabled, the Instance Name of the task instance will be resolved immediately at trigger/launch time.
Time Zone Preference	User-defined; Allows you to specify the time zone that will be applied to the task. Options: <ul style="list-style-type: none"> • – System Default – Time zone is based on the value of the Task Time Zone Preference Universal Controller system property: Server or Inherited. • Server (xxx) Where (xxx) is the time zone ID of the server; time zone is evaluated in the time zone of the server. • Inherited Time zone is evaluated in the time zone of the Parent Workflow or Trigger / Launch specification in the case there is no Parent Workflow.
Hold on Start	If enabled, when the task is launched it appears in the Activity Monitor with a status of Held . The task runs when the user releases it.
Hold Reason	Information about why the task will be put on hold when it starts.
Virtual Resource Priority	Priority for acquiring a resource when two or more tasks are waiting for the resource. This priority applies to all resources required by the task. Options: 1 (high) - 100 (low). Default is 10.
Hold Resources on Failure	If enabled, the task instance will continue to hold Renewable resources if the task instance fails. Renewable resources will be returned only if the task instance status is either Complete, Finished, or Skipped.
Mutually Exclusive With Self	If enabled, the task will not be allowed to run concurrently with itself. Task will not start until the instance that is running finishes. An instance will transition to Exclusive Wait status if it cannot start due to another instance already running.
Simulate	Specifies if the instance should execute under simulation mode .

<p>Override Previous Instance Wait</p>	<p>Specifies whether or not to override the parent workflow's Previous Instance Wait configuration. This option only applies for an instance running within a workflow.</p> <p>Options:</p> <ul style="list-style-type: none"> • No Behavior determined by the parent workflow configuration. • Yes / -- None -- Regardless of the parent workflow configuration, the task instance will never wait for a previous instance to complete. • Yes / Wait for Last Regardless of the parent workflow configuration, the task instance will remain in Instance Wait until the most recent prior instance of the same task has completed. • Yes / Wait for Last / Same Workflow Regardless of the parent workflow configuration, the task instance will remain in Instance Wait until the most recent prior instance of the same task, within an instance of the same workflow, have completed. • Yes / Wait for All Regardless of the parent workflow configuration, the task instance will remain in Instance Wait until all prior instances of the same task has completed. • Yes / Wait for All / Same Workflow Regardless of the parent workflow configuration, the task instance will remain in Instance Wait until all prior instances of the same task, within an instance of the same workflow, have completed.
<p>Email Monitor Details</p>	<p>This section contains assorted detailed information about the task.</p>
<p>Email Connection</p>	<p>Required; Name of an incoming Email Connection (Type = Incoming). An Email Connection specifies information about an outgoing or incoming email server. Enter the name of an existing incoming Email Connection, select an existing incoming Email Connection from the drop-down list, or clear the Email Connection field and click the Details icon to create a new Email Connection (Incoming will be pre-selected in the Type field).</p> <div style="border: 1px solid orange; padding: 10px; margin-top: 10px;"> <p>The Credentials and Credentials Variable fields will not be shown if Authentication is OAuth 2.0 for the selected Email Connection.</p> <p>The Credentials and Credentials Variable fields will be shown if Email Connection Variable is checked, however, Credentials will not be required in this case. The Email Monitor instance will transition to Start Failure status if Authentication is Password for the resolved Email Connection and Credentials is not specified.</p> </div>
<p>Email Connection Variable</p>	<p>Indication of whether the Email Connection field is a reference field for selecting a specific Email Connection (unchecked) or a text field for specifying the Email Connection as a variable (checked). Use the format: <code>\${variable name}</code>. The variable must be a supported type as described in Variables and Functions.</p> <div style="border: 1px solid orange; padding: 10px; margin-top: 10px;"> <p>Note</p> <p>When updating multiple Tasks, to change from using an Email Connection reference to using an Email Connection variable, you must change the Email Connection Variable field to Yes and specify the Email Connection variable in the Email Connection Unresolved field. Conversely, to change from using an Email Connection variable to using an Email Connection reference, you must change the Email Connection Variable field to No and specify the Email Connection reference in the Email Connection field.</p> </div>

<p>Credentials</p>	<p>Credentials to be used to connect to the Email server.</p>
<p>Credentials Variable</p>	<p>Indication of whether the Credentials field is a reference field for selecting a specific Credential (unchecked) or a text field for specifying the Credential as a variable (checked). Use the format: <code>\${variable name}</code>.</p> <p>The variable must be a supported type as described in Variables and Functions.</p> <div style="border: 1px solid yellow; padding: 10px; margin-top: 10px;"> <p>Note</p> <p>When updating multiple Tasks, to change from using a Credentials reference to using a Credentials variable, you must change the Credentials Variable field to Yes and specify the Credentials variable in the Credentials Unresolved field. Conversely, to change from using a Credentials variable to using a Credentials reference, you must change the Credentials Variable field to No and specify the Credentials reference in the Credentials field.</p> </div>
<p>Filter Logic</p>	<p>Logic to apply when combining filters. If Use Advanced Criteria is enabled, it is the logic to apply when combining Advanced Criteria records.</p> <p>Options:</p> <ul style="list-style-type: none"> • And (default) • Or
<p>Use Advanced Criteria</p>	<p>If enabled, use advanced criteria specified under the Advanced Criteria tab for the Email Monitor filter criteria.</p>
<p>Sent Restriction</p>	<p>Type of Sent restriction to apply.</p> <p>Options:</p> <ul style="list-style-type: none"> • -- None -- (default) • On • Before • After • Span
<p>Sent On</p>	<p>If Sent Restriction = On; Sent On restriction value.</p> <p>Options:</p> <ul style="list-style-type: none"> • Date (default) • Today • Yesterday • Tomorrow
<p>Sent On Date</p>	<p>If Sent On = Date; Specific date for the Sent On restriction value.</p>
<p>Sent Before</p>	<p>If Sent Restriction = Before; Sent Before restriction value.</p> <p>Options:</p> <ul style="list-style-type: none"> • Date (default) • Today • Yesterday • Tomorrow • Launch Time • Relative
<p>Sent Before Date</p>	<p>If Sent Before = Date; Specific date for the Sent Before restriction value.</p>
<p>Sent Before Offset</p>	<p>If Sent Before = Relative; Offset, relative to the last launch time, for the Sent Before restriction value. Format: [+/-]hh:mm</p>

Sent After	If Sent Restriction = After; Sent After restriction value. Options: <ul style="list-style-type: none"> • Date (default) • Today • Yesterday • Tomorrow • Launch Time • Relative
Sent After Date	If Sent After = Date; Specific date for the Sent After restriction value.
Sent After Offset	If Sent After = Relative; Offset, relative to the last launch time, for the Sent After restriction value.
Received Restriction	Type of Received restriction to apply. Options: <ul style="list-style-type: none"> • -- None -- (default) • On • Before • After • Span
Received On	If Received Restriction = On; Received On restriction value. Options: <ul style="list-style-type: none"> • Date (default) • Today • Yesterday • Tomorrow
Received On Date	If Received On = Date; Specific date for the Received On restriction value.
Received Before	If Received Restriction = Before; Received Before restriction value. Options: <ul style="list-style-type: none"> • Date (default) • Today • Yesterday • Tomorrow • Relative
Received Before Date	If Received Before = Date; Specific date for the Received Before restriction value.
Received Before Offset	If Received Before = Relative; Offset, relative to the last launch time, for the Received Before restriction value. Format: [+/-]hh:mm
Received After	If Received Restriction = After; Received After restriction value. Options: <ul style="list-style-type: none"> • Date (default) • Today • Yesterday • Tomorrow • Relative
Received After Date	If Received After = Date; Specific date for the Received After restriction value.
Received After Offset	If Received After = Relative; Offset, relative to the last launch time, for the Received After restriction value.
Include Read Mail	If enabled, specifies that mail marked as read should be included by the filter.
Mailbox Folder	Mailbox folder to monitor on the server specified in the selected Email Connection.

Action	<p>Action to take on mail that matches the filter.</p> <p>Options:</p> <ul style="list-style-type: none"> • Mark As Read (default) • Delete • Delete/Mark As Read • Move • Move/Mark As Read
Move To Trash	<p>If Action = Delete or Delete/Mark As Read; If enabled, mail matching the filter will be moved to the trash folder specified in the Email Connection.</p>
Mailbox Folder Destination	<p>If Action = Move or Move/Mark As Read; Mailbox folder to move matched mail into.</p>
Body Variables	<p>Specifies whether to parse the Email body for name/value pairs to create variables from.</p> <p>Options:</p> <ul style="list-style-type: none"> • -- None -- No processing of the Email body will occur. • Within Body Entire body of the Email will be scanned for a "=" (equal sign) and any lines containing a "=" will be variablized as long as the text to the left of the "=" conforms to the naming standards for variables. • Within Default Markers Marker begin and end values are defined by the Email Body Default Begin Marker and Email Body Default End Marker Universal Controller system properties. • Within Custom Markers Marker begin and end values are defined in the Begin Marker and #End Marker fields. <p>If markers are used, all lines of the Email body between the begin and end markers will be variablized in accordance to java properties. Any lines of the Email body outside the markers will be ignored w/r variablization.</p>
Begin Marker	<p>If Body Variables is Within Customer Markers; Begin marker for the Body Variables.</p>
End Marker	<p>If Body Variables is Within Customer Markers; End marker for the Body Variables.</p>
Time Limit	<p>Used for Email Monitor tasks not associated with a trigger; Amount of time (in units specified by Time Limit Unit) to monitor for the Email Monitor conditions to be met. The Time Limit duration is always relative to the start time of the Email Monitor task instance.</p>
Time Limit Unit	<p>Unit of time to use for Time Limit.</p> <p>Options:</p> <ul style="list-style-type: none"> • Minutes • Hours (default) • Days
Expiration Action	<p>State to transition to if monitor conditions are not met within the specified window,</p> <p>Options:</p> <ul style="list-style-type: none"> • Failed • Finished

<p>Email Content Processing</p>	<p>Method for determining the success or failure of this task based on Email content.</p> <p>Options:</p> <ul style="list-style-type: none"> • -- None -- • Success Body Contains • Failure Body Contains • Success Body Does Not Contain • Failure Body Does Not Contain • Success Subject Contains • Failure Subject Contains • Success Subject Does Not Contain • Failure Subject Does Not Contain <p>Default is -- None --.</p>
<p>Content Value</p>	<p>Required if Email Content Processing is not -- None --; Content Value to be matched in the email.</p>
<p>Case Sensitive Content</p>	<p>If Email Content Processing is not -- None --; Indication of whether or not matching will be performed in a case sensitive manner.</p>
<p>Email Monitor Criteria</p>	<p>This section contains criteria for selecting emails to monitor.</p>
<p>From Filter</p>	<p>Type of From filter condition to apply.</p> <p>Options:</p> <ul style="list-style-type: none"> • -- None -- (default) • Equals • Contains • Does Not Equal • Does Not Contain • Regex
<p>From</p>	<p>If From Filter = any value other than -- None --; From filter condition value.</p>
<p>To Filter</p>	<p>Type of To filter condition to apply.</p> <p>Options:</p> <ul style="list-style-type: none"> • -- None -- (default) • Equals • Contains • Does Not Equal • Does Not Contain • Is Blank • Is Not Blank • Regex
<p>To</p>	<p>If To Filter = Equals, Contains, Does Not Equal, Does Not Contain, or Regex; To filter condition value.</p>
<p>Cc Filter</p>	<p>Type of Cc filter condition to apply.</p> <p>Options:</p> <ul style="list-style-type: none"> • -- None -- (default) • Equals • Contains • Does Not Equal • Does Not Contain • Is Blank • Is Not Blank • Regex
<p>Cc</p>	<p>If Cc Filter = Equals, Contains, Does Not Equal, Does Not Contain, or Regex; Cc filter condition value.</p>

Subject Filter	<p>Type of Subject filter condition to apply.</p> <p>Options:</p> <ul style="list-style-type: none"> • -- None -- (default) • Equals • Starts With • Contains • Ends With • Does Not Equal • Does Not Start With • Does Not Contain • Does Not End With • Is Blank • Is Not Blank • Regex
Subject	<p>If Subject Filter = anything other than -- None --, Is Blank, or Is Not Blank; Subject filter condition value.</p>
Body Filter	<p>Type of Body filter condition to apply.</p> <p>Options:</p> <ul style="list-style-type: none"> • -- None -- (default) • Equals • Starts With • Contains • Ends With • Does Not Equal • Does Not Start With • Does Not Contain • Does Not End With • Is Blank • Is Not Blank • Regex
Body	<p>If Body Filter = anything other than -- None --, Is Blank, or Is Not Blank; Body filter condition value.</p> <div style="border: 2px solid orange; padding: 10px; margin-top: 10px;"> <p>Note</p> <p>If an email being monitored does not contain the body in plain text, but only in HTML format, a plain text body will be generated from the HTML body content.</p> </div>
Case Sensitive	<p>If enabled, text-based filters should be treated as case-sensitive.</p>
Wait / Delay Options	<p>This section contains specifications for waiting to start and/or delaying on start the task.</p>
Wait To Start	<p>Amount of time to wait before starting a task from the time that it was launched.</p> <p>Options are:</p> <ul style="list-style-type: none"> • – None – • Time • Relative Time • Duration • Seconds
Wait Time	<p>If Wait To Start = Time or Relative Time; Number of hours and minutes to wait before starting the task.</p>

<p>Wait Day Constraint</p>	<p>If Wait Time = Time or Relative Time; Specification for whether or not to advance the wait time to another day.</p> <p>Valid values:</p> <ul style="list-style-type: none"> • -- None -- <ul style="list-style-type: none"> • If Wait To Start = Time; Advance to the next day if the specified wait time is before the time that the task instance is eligible to start; that is, all dependencies have been met. For example: it is not being held, and it is not waiting on any predecessors. • If Wait To Start = Relative Time; Advance to the next day if the specified wait time is before the task instance Trigger Time or, if there is no Trigger Time, before the task instance Launch Time. In the latter case, when a task instance is within a workflow, it will inherit the Launch Time of the top-level parent workflow task instance. • Same Day Do not advance day. • Next Day Advance to the next day. • Next Business Day Advance to the next business day. • Sunday If today is not Sunday, advance to next Sunday. • Monday If today is not Monday, advance to next Monday. • Tuesday If today is not Tuesday, advance to next Tuesday. • Wednesday If today is not Wednesday, advance to next Wednesday. • Thursday If today is not Thursday, advance to next Thursday. • Friday If today is not Friday, advance to next Friday. • Saturday If today is not Saturday, advance to next Saturday. <p>Default is -- None --.</p>
<p>Wait Duration</p>	<p>If Wait To Start = Duration; Number of days, hours, minutes, and seconds to wait before starting the task.</p>
<p>Wait Duration In Seconds</p>	<p>If Wait To Start = Seconds; Number of seconds to wait before starting the task.</p>
<p>Delay On Start</p>	<p>Amount of time to delay the start of a task, after it has been launched, from the time that it is eligible to start; that is, all dependencies have been met. For example: it is not being held, it is not waiting on any predecessors, or there is no wait time specified.</p> <p>Options are:</p> <ul style="list-style-type: none"> • -- None -- • Duration • Seconds
<p>Delay Duration</p>	<p>If Delay On Start = Duration; Number of days, hours, minutes, and seconds to delay after starting the task.</p>
<p>Delay Duration In Seconds</p>	<p>If Delay On Start = Seconds; Number of seconds to delay after starting the task.</p>

Workflow Only	<p>Specification for whether or not to apply the Wait To Start and Delay On Start specifications only if the task is in a Workflow.</p> <p>Options are:</p> <ul style="list-style-type: none"> • -- System Default -- Apply the Wait To Start and Delay On Start specifications as defined by the System Default Wait/Delay Workflow Only system property. (Default is yes.) • Yes Apply the Wait To Start and Delay On Start specifications only if the task is in a Workflow. • No Apply the Wait To Start and Delay On Start specifications whether or not the task is in a Workflow.
Time Options	This section contains time-related statistics for task instances of the task.
Late Start	<p>If enabled, and if the task instance starts after the time or period specified, the task instance is flagged as late. You can specify a time or duration to determine a late start (see Late Start Type). To determine whether a task instance started late, open the task instance and locate the Started Late field; the field is checked if the instance started after the specified time. The Started Late field displays in the task instance Details only if the user specified a Late Start in the task Details.</p>
Late Start Type	<p>Required if Late Start is enabled.</p> <p>Options:</p> <ul style="list-style-type: none"> • Time - Flag the task if it starts after the specified time. • Duration - Flag the task if it starts a certain amount of time after the programmed start time. The task must have a specific start time.
Late Start Time	<p>If Late Start Type = Time; Time after which the task start time is considered late. Use HH:MM, 24-hour time.</p>
Late Start Day Constraint	<p>If Late Start Type = Time; Specification for whether or not to advance the late start time to another day.</p> <p>Valid values:</p> <ul style="list-style-type: none"> • -- None -- Advance to the next day if the specified late start time is before the Created time of the task instance. • Same Day Do not advance day. • Next Day Advance to the next day. • Next Business Day Advance to the next business day. • Sunday If today is not Sunday, advance to next Sunday. • Monday If today is not Monday, advance to next Monday. • Tuesday If today is not Tuesday, advance to next Tuesday. • Wednesday If today is not Wednesday, advance to next Wednesday. • Thursday If today is not Thursday, advance to next Thursday. • Friday If today is not Friday, advance to next Friday. • Saturday If today is not Saturday, advance to next Saturday. • Nth Day Advance to a specific number of days in the future. <p>Default is -- None --.</p>
Late Start Nth Amount	<p>If Late Start Day Constraint = Nth Day; Number of days to advance.</p>

Late Start Duration	<p>If Late Start Type = Duration; Duration (amount of relative time) after which the task is considered to have started late.</p> <p>For a task within a workflow, the duration is the period between the time the workflow starts and the time the task itself starts. For example, a task might have a Late Start Duration of 60 minutes. If the workflow starts at 9:00 a.m. but the task itself does not start until 10:30, the task has started late.</p> <p>For a task that is not within a workflow, Late Start Duration has meaning only if the task has been held upon starting. For example, if a task has a Late Start Duration of 60 minutes and the Hold on Start field is enabled, if the task is not released from hold within the amount of time specified in the Late Start Duration field, the task has started late.</p>
Late Finish	<p>If enabled, and if the task instance finishes after the time or period specified, the task instance is flagged as late. You can specify a time or duration to determine a late finish (see Late Finish Type). To determine whether a task instance finished late, open the task instance and locate the Finished Late field; the field is checked if the instance finished after the specified time or lasted longer than expected. This field only appears on the task instance if the user specified a Late Finish in the task definition.</p>
Late Finish Type	<p>Required if Late Finish is enabled.</p> <p>Options:</p> <ul style="list-style-type: none"> • Time - Flag the task if it finishes after the specified time (see Late Finish Time). • Duration - Flag the task if it finishes a certain amount of time after the programmed finish time (see Late Finish Duration). The task must have a specific finish time. • Average Duration - Flag the task if it finishes before the average duration (see Average Instance Time) for the task, less an offset (see Late Finish Offset Type), if specified.
Late Finish Offset Type	<p>If Late Finish Type = Average Duration;</p> <p>Options:</p> <ul style="list-style-type: none"> • Percentage • Duration
Late Finish Percentage Offset (+)	<p>Required if Late Finish Offset Type = <i>Percentage</i>; Percentage of Average Duration to use as an offset. The late finish time is calculated by adding the offset to the Average Duration.</p>
Late Finish Duration Offset (+)	<p>Required if Late Finish Offset Type = <i>Duration</i>; Duration to use as an offset. The late finish time is calculated by adding the offset to the Average Duration.</p>
Late Finish Duration Offset Unit	<p>If Late Finish Offset Type = Duration;</p> <p>Options:</p> <ul style="list-style-type: none"> • Seconds • Minutes • Hours
Late Finish Time	<p>If Late Finish Type = Time; Time after which the task finish time is considered late. Use HH:MM, 24-hour time.</p>

<p>Late Finish Day Constraint</p>	<p>If Late Finish Type = Time; Specification for whether or not to advance the late finish time to another day.</p> <p>Valid values:</p> <ul style="list-style-type: none"> • -- None -- Advance to the next day if the specified late finish time is before the Created time of the task instance. • Same Day Do not advance day. • Next Day Advance to the next day. • Next Business Day Advance to the next business day. • Sunday If today is not Sunday, advance to next Sunday. • Monday If today is not Monday, advance to next Monday. • Tuesday If today is not Tuesday, advance to next Tuesday. • Wednesday If today is not Wednesday, advance to next Wednesday. • Thursday If today is not Thursday, advance to next Thursday. • Friday If today is not Friday, advance to next Friday. • Saturday If today is not Saturday, advance to next Saturday. • Nth Day Advance to a specific number of days in the future. <p>Default is -- None --.</p>
<p>Late Finish Nth Amount</p>	<p>If Late Finish Day Constraint = Nth Day; Number of days to advance.</p>
<p>Late Finish Duration</p>	<p>If Late Finish Type = Duration; Longest amount of time this task instance should take to run.</p>
<p>Early Finish</p>	<p>If enabled, and if the task instance finishes before the time or period specified, the task instance is flagged as early. You can specify a time or duration to determine an early finish (see Early Finish Type). To determine whether a task instance finished early, open the task instance and locate the Finished Early field; the field is checked if the instance finished before the specified time or did not last as long as expected. This field only appears on the task instance if the user added Early Finish specifications to the task definition.</p>
<p>Early Finish Type</p>	<p>Required if Early Finish is enabled.</p> <p>Options:</p> <ul style="list-style-type: none"> • Time - Flag the task if it finishes before the specified time (see Early Finish Time). • Duration - Flag the task if it finishes a certain amount of time before the programmed finish time (see Early Finish Duration). The task must have a specific finish time. • Average Duration - Flag the task if it finishes before the average duration (see Average Instance Time) for the task, less an offset (see Early Finish Offset Type), if specified.
<p>Early Finish Offset Type</p>	<p>If Early Finish Type = Average Duration;</p> <p>Options:</p> <ul style="list-style-type: none"> • Percentage • Duration
<p>Early Finish Percentage Offset (-)</p>	<p>Required if Early Finish Offset Type = <i>Percentage</i>; Percentage of Average Duration to use as an offset. The early finish time is calculated by subtracting the offset from the Average Duration.</p>
<p>Early Finish Duration Offset (-)</p>	<p>Required if Early Finish Offset Type = <i>Duration</i>; Duration to use as an offset. The early finish time is calculated by subtracting the offset from the Average Duration.</p>

<p>Early Finish Duration Offset Unit</p>	<p>If Early Finish Offset Type = Duration; Options:</p> <ul style="list-style-type: none"> • Seconds • Minutes • Hours
<p>Early Finish Time</p>	<p>If Early Finish Type = Time; Time before which the task finish time is considered early. That is, enter a time at which the task should still be running. Use HH:MM, 24-hour time.</p>
<p>Early Finish Day Constraint</p>	<p>If Early Finish Type = Time; Specification for whether or not to advance the early finish time to another day.</p> <p>Valid values:</p> <ul style="list-style-type: none"> • -- None -- Advance to the next day if the specified early finish time is before the Created time of the task instance. • Same Day Do not advance day. • Next Day Advance to the next day. • Next Business Day Advance to the next business day. • Sunday If today is not Sunday, advance to next Sunday. • Monday If today is not Monday, advance to next Monday. • Tuesday If today is not Tuesday, advance to next Tuesday. • Wednesday If today is not Wednesday, advance to next Wednesday. • Thursday If today is not Thursday, advance to next Thursday. • Friday If today is not Friday, advance to next Friday. • Saturday If today is not Saturday, advance to next Saturday. • Nth Day Advance to a specific number of days in the future. <p>Default is -- None --.</p>
<p>Early Finish Nth Amount</p>	<p>If Early Finish Day Constraint = Nth Day; Number of days to advance.</p>
<p>Early Finish Duration</p>	<p>If Early Finish Type = Duration; Shortest amount of time this task instance should take to run.</p>
<p>User Estimated Duration</p>	<p>Required if Early Finish Type or Late Finish Type = Average Duration; Estimated amount of time it should normally take to run this task. The Controller uses this information to calculate the User Estimated End Time on a task instance record.</p> <p>User Estimated Duration is used when the Average Duration is not available; for example, on the first launch of a task.</p>
<p>Critical Path Options</p>	<p>This section contains Critical Path-related specifications for the task.</p>
<p>CP Duration</p>	<p>Optional; Allows you to override the estimated Critical Path Duration of the task when running in a Workflow; used in conjunction with the CP Duration Unit field. In most cases, this field should be left blank, which implies that the Controller will estimate the Critical Path Duration based on historical executions. Valid values are any integer equal to or greater than 0. Variables and Functions are supported.</p>
<p>CP Duration (Resolved)</p>	<p>Displays the current resolved value of the CP Duration field, which may contain variables or functions that will be displayed as unresolved until the task instance starts. The CP Duration (Resolved) field can continue to change value until the task instance starts, at which time CP Duration will display as resolved and CP Duration (Resolved) will no longer be visible unless there was an issue resolving the variables and/or functions contained within CP Duration. If the Controller is unable to resolve CP Duration or it resolves to an invalid value, CP Duration will be ignored and the Controller will estimate the Critical Path Duration based on historical executions.</p>

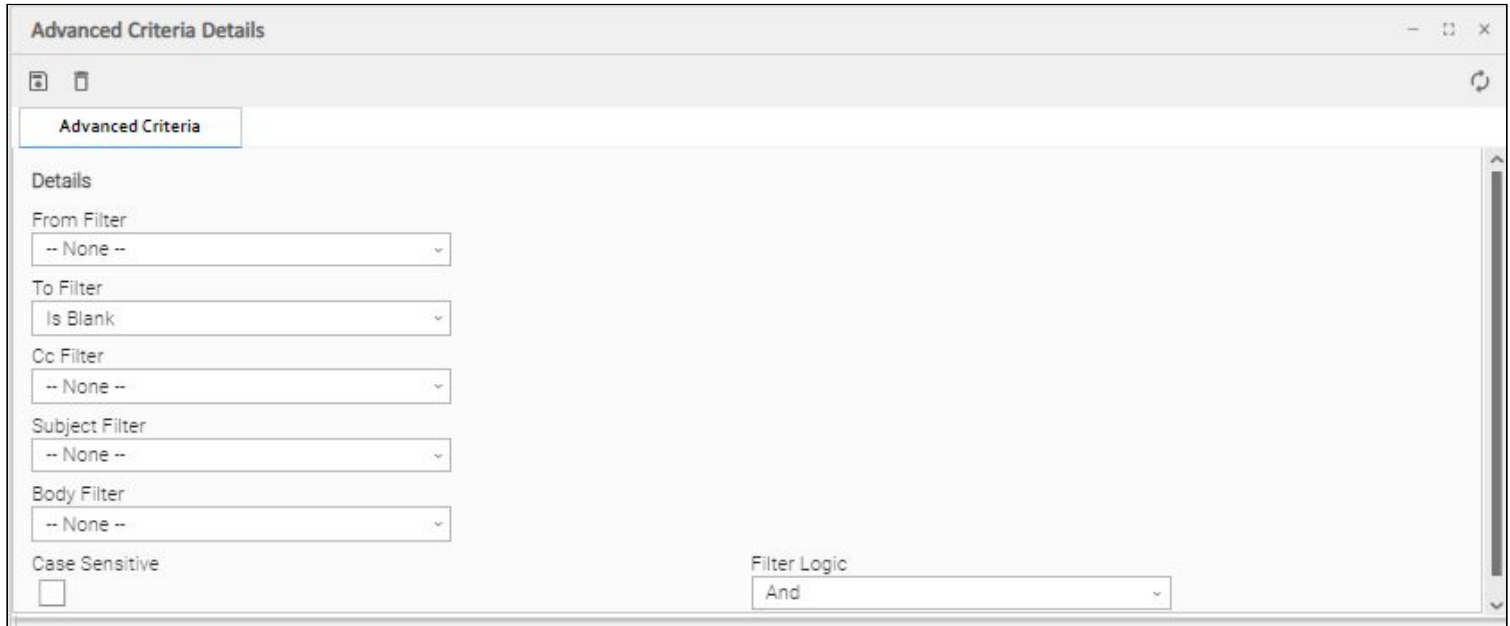
<p>CP Duration Unit</p>	<p>Type of CP Duration; used in conjunction with the CP Duration field. For example, for a CP Duration of two minutes, specify 2 in the CP Duration field and select Minutes in this field.</p> <p>Options:</p> <ul style="list-style-type: none"> • Seconds • Minutes • Hours <p>Default is Minutes.</p>
<p>Workflow Execution Options</p>	<p>This section contains Execution Restriction specifications for the task if it is within a Workflow.</p>
<p>Execution Restriction</p>	<p>Specification for whether or not there is a restriction for this task to be run, skipped, or held.</p> <p>Options are:</p> <ul style="list-style-type: none"> • -- None -- No restriction for this task. • Run Restriction for when this task will be run. • Skip Restriction for when this task will be skipped. • Hold Restriction for when this task will be held. <p>If Execution Restriction on a task is Run or Skip, then when it is part of a Workflow that is being launched, the Restriction Period is evaluated. The task instance will be skipped if Execution Restriction is Skip and the date is within the Restriction Period or Execution Restriction is Run and the date is not within the Restriction Period. Execution Restriction can be set to Skip with a Restriction Period of - None -, meaning the restriction is always active and the task will be skipped when it is part of a Workflow.</p>
<p>Restriction Period</p>	<p>If Execution Restriction = Run, Skip, or Hold; Period of time when the task is restricted.</p> <p>Options are:</p> <ul style="list-style-type: none"> • -- None -- No period of restriction for this task. • Before Restriction is valid if the date is before the Before Date value. • After Restriction is valid if the date is after the After Date value. • Span Restriction is valid if the date is before the Before Date value and after After Date value. • On Restriction is valid if the date is one of the Date List values.
<p>Before Date</p>	<p>If Restriction Period = Before or Span; Date before which the restriction is valid.</p>
<p>Before Time</p>	<p>If Restriction Period = Before or Span; Time on the selected date before which the restriction is valid.</p>
<p>After Date</p>	<p>If Restriction Period = After or Span; Date after which the restriction is valid.</p>
<p>After Time</p>	<p>If Restriction Period = After or Span; Time on the selected date after which the restriction is valid.</p>
<p>Date List</p>	<p>If Restriction Period = On; Date(s) on which the restriction is valid.</p>
<p>Self-Service Options</p>	<p>This section contains Self-Service specifications for the task.</p>
<p>Enforce Variables</p>	<p>Specifies whether or not to enforce Launch with Variables... when launching a task using the User Interface.</p>
<p>Lock Variables</p>	<p>Specifies whether or not to prevent editing variables when using Launch with Variables... from the User Interface.</p>
<p>Statistics</p>	<p>This section contains time-related statistics for task instances of the task.</p>
<p>First Execution</p>	<p>System-supplied; End Time of the first instance of this task to complete.</p>

Last Execution	System-supplied; End Time of the last instance of this task to complete.
Last Instance Duration	System-supplied; Amount of time the task took to run the last time it ran.
Lowest Instance Time	System-supplied; Lowest amount of time this task has taken to run.
Average Instance Time	System-supplied; Average amount of time this task takes to run.
Highest Instance Time	System-supplied; Highest amount of time this task has taken to run.
Number of Instances	System-supplied; Number of instances in the database for this task.
Metadata	This section contains Metadata information about this record.
UUID	Universally Unique Identifier of this record.
Updated By	Name of the user that last updated this record.
Updated	Date and time that this record was last updated.
Created By	Name of the user that created this record.
Created	Date and time that this record was created.
Buttons	This section identifies the buttons displayed above and below the Task Details that let you perform various actions.
Save	Saves a new task record in the Controller database.
Save & New	Saves a new record in the Controller database and redisplay empty Details so that you can create another new record.
Save & View	Saves a new record in the Controller database and continues to display that record.
New	Displays empty (except for default values) Details for creating a new task.
Update	Saves updates to the record.
Launch	Manually launches the task.
View Parents	Displays a list of any parent Workflow tasks for this task.
Copy	Creates a copy of this task, which you are prompted to rename.
Delete	Deletes the current record. <div style="border: 2px solid orange; padding: 10px;"> <p>Note</p> <p>You cannot delete a task if it is either:</p> <ul style="list-style-type: none"> • Specified in an enabled Trigger. • The only task specified in a disabled Trigger. </div>
Refresh	Refreshes any dynamic data displayed in the Details.
Close	For pop-up view only; closes the pop-up view of this task.

Tabs	This section identifies the tabs across the top of the Task Details that provide access to additional information about the task.										
Advanced Criteria	If the Use Advanced Criteria field is enabled; advanced search criteria to use for Email Monitor filter criteria.										
Variables	Lists all user-defined variables associated with this record; that is, variables that have been defined for this specific record.										
Actions	<p>Allows you to specify actions that the Controller will take automatically based on events that occur during the execution of this task.</p> <p>Events are:</p> <ul style="list-style-type: none"> • Task instance status • Exit codes • Late start • Late finish • Early finish <p>Actions are:</p> <table border="1" data-bbox="619 801 1536 1285"> <tr> <td data-bbox="619 801 970 891">Abort Action</td> <td data-bbox="970 801 1536 891">Abort the task if certain events occur. For details, see Abort Actions.</td> </tr> <tr> <td data-bbox="619 891 970 981">Email Notification</td> <td data-bbox="970 891 1536 981">Send an email if certain events occur. For details, see Email Notification Actions.</td> </tr> <tr> <td data-bbox="619 981 970 1093">Set Variable</td> <td data-bbox="970 981 1536 1093">Used in tasks and workflows to set a variable based on the occurrence of certain events. For details, see Creating a Set Variable Action within a Task or Workflow.</td> </tr> <tr> <td data-bbox="619 1093 970 1182">SNMP Notification</td> <td data-bbox="970 1093 1536 1182">Send an email if certain events occur. For details, see SNMP Notification Actions.</td> </tr> <tr> <td data-bbox="619 1182 970 1285">System Operation</td> <td data-bbox="970 1182 1536 1285">Run an Universal Controller system operation based on specified conditions. For details, see System Operation Actions.</td> </tr> </table>	Abort Action	Abort the task if certain events occur. For details, see Abort Actions .	Email Notification	Send an email if certain events occur. For details, see Email Notification Actions .	Set Variable	Used in tasks and workflows to set a variable based on the occurrence of certain events. For details, see Creating a Set Variable Action within a Task or Workflow .	SNMP Notification	Send an email if certain events occur. For details, see SNMP Notification Actions .	System Operation	Run an Universal Controller system operation based on specified conditions. For details, see System Operation Actions .
Abort Action	Abort the task if certain events occur. For details, see Abort Actions .										
Email Notification	Send an email if certain events occur. For details, see Email Notification Actions .										
Set Variable	Used in tasks and workflows to set a variable based on the occurrence of certain events. For details, see Creating a Set Variable Action within a Task or Workflow .										
SNMP Notification	Send an email if certain events occur. For details, see SNMP Notification Actions .										
System Operation	Run an Universal Controller system operation based on specified conditions. For details, see System Operation Actions .										
Virtual Resources	<p>Lists all Virtual Resources to which this task is assigned.</p> <p>If you want to create a Task Virtual Resource for this task, you can select an existing Virtual Resource (or, optionally, first create a new Virtual Resource and then select it as the Task Virtual Resource) or enter a Virtual Resource variable. The variable must be a supported type as described in Variables and Functions.</p>										
Mutually Exclusive	Lists all tasks that have been set to be mutually exclusive of this task.										
Instances	Lists all instances of the task.										
Email Monitor Triggers	Lists all Email Monitor triggers that reference this task in the Email Monitor field of the trigger Details; that is, a list of all Email Monitor triggers that execute this task. For instructions on creating triggers, see Triggers .										
Triggers	List of all triggers that reference this task in the Task(s) field of the trigger Details; that is, a list of all triggers that have been defined to launch this task. Also allows you to add new triggers. If you add a new trigger from this location, the Controller automatically constructs a default trigger name as follows: <current task name>#TRIGGER#. You can change the default name if desired. For instructions on creating triggers, see Triggers .										

Notes	Lists all notes associated with this record.
Versions	Stores copies of all previous versions of the current record. See Record Versioning .

9.3.3 Advanced Criteria



9.3.4 Advanced Criteria Field Descriptions

The following table describes the fields, buttons, and tabs that display in the Advanced Criteria Details of an Email Monitor Task.

Field Name	Description
From Filter	Type of From filter condition to apply. Options: <ul style="list-style-type: none"> • -- None -- (default) • Equals • Contains • Does Not Equal • Does Not Contain • Regex
Reply-To Filter	Type of Reply-To filter condition to apply. Options: <ul style="list-style-type: none"> • -- None -- (default) • Equals • Contains • Does Not Equal • Does Not Contain • Is Blank • Is Not Blank • Regex

Field Name	Description
To Filter	<p>Type of To filter condition to apply.</p> <p>Options:</p> <ul style="list-style-type: none"> • -- None -- (default) • Equals • Contains • Does Not Equal • Does Not Contain • Is Blank • Is Not Blank • Regex
Cc Filter	<p>Type of Cc filter condition to apply.</p> <p>Options:</p> <ul style="list-style-type: none"> • -- None -- (default) • Equals • Contains • Does Not Equal • Does Not Contain • Is Blank • Is Not Blank • Regex
Subject Filter	<p>Type of Subject filter condition to apply.</p> <p>Options:</p> <ul style="list-style-type: none"> • -- None -- (default) • Equals • Starts With • Contains • Ends With • Does Not Equal • Does Not Start With • Does Not Contain • Does Not End With • Is Blank • Is Not Blank • Regex
Body Filter	<p>Type of Body filter condition to apply.</p> <p>Options:</p> <ul style="list-style-type: none"> • -- None -- (default) • Equals • Starts With • Contains • Ends With • Does Not Equal • Does Not Start With • Does Not Contain • Does Not End With • Is Blank • Is Not Blank • Regex
Case Sensitive	If enabled, text-based filters should be treated as case-sensitive.
Filter Logic	Logic to apply when combining filters.

9.4 Viewing an Email Monitor Task Instance

When an Email Monitor task is launched, the Controller creates a task instance record of that task.

A task instance contains detailed information about a single execution of that task.

You can access a task instance from:

- **Instances tab** on the [Email Monitor Task Details](#) for that task
- [Activity Monitor](#)
- [Task Instances list](#)

9.4.1 Email Monitor Task Instance Details

The following Email Monitor Task Instance Details contains information on the execution of the task shown in the [Email Monitor Task Details](#).

Dashboards x Email Monitors x Email Monitor Details: stonebranch-emailmonitortask-01 x **Email Monitor Instance Details: stonebranch-emailmonitortask-01 x**

Re-run

Email Monitor Instance | Advanced Criteria | Actions | Virtual Resources | Exclusive Requests | Notes

General

Instance Name: stonebranch-emailmonitortask-01 Instance Number: 1

Description:

Member of Business Services:

Task: stonebranch-emailmonitortask-01 Source Version: 1

Launch Source: Launch Task / User Interface

Invoked By: Manually Launched Execution User: Admin

Calendar: System Default Time Zone Preference: -- System Default --

Virtual Resource Priority: 10 Hold Resources on Failure:

Mutually Exclusive With Self: Simulate:

Previous Instance Wait Resolved: -- None --

Status

Status: Finished

Status Description: AuthenticationFailedException: AUTHENTICATE failed. -> State was forced from START FAILURE to FINISHED

Operational Memo:

Trigger Time: Launch Time: 2023-09-19 15:52:34 -0400

Wait Until Time:

Start Time: 2023-09-19 15:52:34 -0400 End Time: 2023-09-19 15:52:47 -0400

Duration: 12 Seconds

Email Monitor Details

Email Connection*: Office365 Email Monitor Connection Credentials*: Email Cred

Email Connection Variable: Credentials Variable:

Filter Logic: And Use Advanced Criteria:

Sent Restriction: -- None --

Received Restriction: -- None --

Include Read Mail:

Mailbox Folder*: INBOX

Action: Mark As Read

Body Variables: -- None --

Time Limit: Time Limit Unit: Hours

Expiration Action: Failed

Email Content Processing: -- None --

Email Monitor Criteria

From Filter: -- None --

To Filter: -- None --

Cc Filter: -- None --

9.4.2 Email Monitor Task Instance Details Field Descriptions

The following table describes the fields, buttons, and tabs that display in Email Monitor Task Instance Details.

Field Name	Description
General	This section contains general information about the task instance.
Instance Name	Name of this task instance.
Instance Number	System-supplied; Sequentially assigned number, maintained per task, representing the creation order of the instance.
Description	Description of this record. (Maximum = 255 characters.)
Member of Business Services	<p>User-defined; Allows you to select one or more Business Services that this record belongs to. (You also can Check All or Uncheck All Business Services for this record.)</p> <p>You can select up to 62 Business Services for any record type, and enter a maximum of 2048 characters for each Business Service.</p> <p>If the Business Service Visibility Restricted Universal Controller system property is set to true, depending on your assigned (or inherited) Permissions or Roles, Business Services available for selection may be restricted.</p>
Task	Name of the task that was run to create this task instance. Click the icon to display Task Details for the task.
Source Version	Version of the task that was run to create this task instance.

<p>Launch Source</p>	<p>System-supplied; Source from which this task was launched.</p> <p>Options:</p> <ul style="list-style-type: none"> • Scheduled Trigger If the instance was directly launched by a scheduled trigger, the Trigger (trigger_id) column is assigned the UUID of the scheduled trigger. • Trigger Monitor If the instance is a monitor associated with monitor trigger, the Trigger (trigger_id) column is assigned the UUID of the monitor trigger. • Trigger Now / User Interface If the instance was directly launched by a Trigger Now command, the Trigger (trigger_id) column is assigned the UUID of the trigger. • Trigger Now / System Operation If the instance was directly launched by a Trigger Now command, the Trigger (trigger_id) column is assigned the UUID of the trigger and the Source Instance (source_instance) column will be assigned the UUID of the instance invoking the System Operation. • Trigger Now / Web Service If the instance was directly launched by a Trigger Now command, the Trigger (trigger_id) column is assigned the UUID of the trigger. • Trigger Now / Command Line If the instance was directly launched by a Trigger Now command, the Trigger (trigger_id) column is assigned the UUID of the trigger. • Workflow If the instance was launched by a workflow, the Workflow (workflow_id) column is assigned the UUID of the workflow instance. Likewise, the Source Instance (source_instance) column will also be assigned the UUID of the workflow instance. • Launch Task / User Interface If the instance was directly launched by the Launch Task command, the Source Instance (source_instance) column will be null. • Launch Task / System Operation If the instance was directly launched by the Launch Task command, the Source Instance (source_instance) column will be assigned the UUID of the instance invoking the System Operation. • Launch Task / Web Service If the instance was directly launched by the Launch Task command, the Source Instance (source_instance) column will be null. • Launch Task / Command Line If the instance was directly launched by the Launch Task command, the Source Instance (source_instance) column will be null. • Recurring If the instance was directly launched by a Recurring Task Instance, the Source Instance (source_instance) column will be assigned the UUID of the Recurring Task Instance.
<p>Source Instance</p>	<p>System-supplied; UUID of the source instance.</p> <ul style="list-style-type: none"> • If the instance was directly launched by a Trigger Now command; the UUID of the instance invoking the System Operation. • If the instance was launched by a workflow; the UUID of the workflow instance. • If the instance was directly launched by the Launch Task command; the UUID of the instance invoking the System Operation. • If the instance was directly launched by a Recurring Task Instance; the UUID of the Recurring Task Instance.
<p>Invoked by</p>	<p>System-supplied; how the task instance was launched.</p> <p>Options:</p> <ul style="list-style-type: none"> • Trigger: (Trigger Name) Instance was launched by the named trigger. • Workflow: (Workflow Name) Instance was launched by the named workflow. • Manually Launched Instance was launched by a user. To identify the user, check the Execution User column for that task instance on the Task Instances screen or, on most task instance screens, the Execution User field.

Execution User	System-supplied; If the task was launched manually; ID of the user who launched it.
Calendar	Calendar associated with the task instance.
Time Zone Preference	<p>User-defined; Allows you to specify the time zone that will be applied to the task.</p> <p>Options:</p> <ul style="list-style-type: none"> – System Default – Time zone is based on the value of the Task Time Zone Preference Universal Controller system property: Server or Inherited. Server (xxx) Where (xxx) is the time zone ID of the server; time zone is evaluated in the time zone of the server. Inherited Time zone is evaluated in the time zone of the Parent Workflow or Trigger / Launch specification in the case there is no Parent Workflow.
Virtual Resource Priority	<p>Priority for acquiring a resource when two or more tasks are waiting for the resource. This priority applies to all resources required by the task.</p> <p>Options: 1 (high) - 100 (low).</p> <p>Default is 10.</p>
Hold Resources on Failure	If enabled, the task instance will continue to hold Renewable resources if the task instance fails. Renewable resources will be returned only if the task instance status is either Complete, Finished, or Skipped.
Mutually Exclusive With Self	If enabled, the task will not be allowed to run concurrently with itself. Task will not start until the instance that is running finishes. An instance will transition to Exclusive Wait status if it cannot start due to another instance already running.
Simulate	Specifies if the instance should execute under simulation mode .
Previous Instance Wait Resolved	<p>System-supplied; If the Override Previous Instance Wait field for the task is set to No, the Previous Instance Wait Resolved field will be set to the value of the Previous Instance Wait field of the parent workflow. Otherwise, it will be set to the value specified by the Override Previous Instance Wait.</p> <p>Options:</p> <ul style="list-style-type: none"> – None – Wait for Last Every task instance directly within the workflow instance will remain in Instance Wait until the most recent prior instance of the same task has completed. Wait for Last / Same Workflow Every task instance directly within the workflow instance will remain in Instance Wait until the most recent prior instance of the same task, within an instance of the same workflow, have completed. Wait for All Every task instance directly within the workflow instance will remain in Instance Wait until all prior instances of the same task has completed. Wait for All / Same Workflow Every task instance directly within the workflow instance will remain in Instance Wait until all prior instances of the same task, within an instance of the same workflow, have completed.
Status	This section contains information about the current status of the task instance.
Status	System-supplied; see Task Instance Statuses .
Exit Code	System-supplied; the exit code captured by the Agent when executing the task (for example, a command or script).
Status Description	System-supplied; additional information, if any, about the status of the task instance.
Operational Memo	User-defined operational memo.

Evaluation Time	If time zone of user is different than time zone of task instance; Time at which Execution Restrictions and Run Criteria were evaluated based upon the requested time zone. (Time zone of task instance displays in parentheses.)
Critical	Indicates that this task is in the Critical Path of a workflow.
Critical Endpoint	Indicates that this task was defined as a Critical Endpoint of a Critical Path in a workflow.
Wait Until Time	Amount of time calculated to wait before the task was started, based on Wait To Start and Delay On Start times.
Queued Time	System-supplied; Date and time the task was queued for processing.
Trigger Time	System-supplied; Date and time the task instance was triggered.
Launch Time	System-supplied; Date and time the task instance was launched.
Start Time	System-supplied; Date and time the task instance started.
End Time	System-supplied; Date and time the task instance completed.
Duration	System-supplied; amount of time the task instance took to run.
Email Monitor Details	This section contains assorted detailed information about the task.
Email Connection	Required; Name of an incoming Email Connection (Type = Incoming). An Email Connection specifies information about an outgoing or incoming email server. Enter the name of an existing incoming Email Connection, select an existing incoming Email Connection from the drop-down list, or clear the Email Connection field and click the Details icon to create a new Email Connection (Incoming will be pre-selected in the Type field).
Email Connection Variable	<p>Indication of whether the Email Connection field is a reference field for selecting a specific Email Connection (unchecked) or a text field for specifying the Email Connection as a variable (checked). Use the format: <code>\${variable name}</code>. The variable must be a supported type as described in Variables and Functions.</p> <div style="border: 2px solid orange; padding: 10px; margin-top: 10px;"> <p>Note</p> <p>When updating multiple Tasks, to change from using an Email Connection reference to using an Email Connection variable, you must change the Email Connection Variable field to Yes and specify the Email Connection variable in the Email Connection Unresolved field. Conversely, to change from using an Email Connection variable to using an Email Connection reference, you must change the Email Connection Variable field to No and specify the Email Connection reference in the Email Connection field.</p> </div>
Credentials	Credentials to be used to connect to the Email server.

<p>Credentials Variable</p>	<p>Indication of whether the Credentials field is a reference field for selecting a specific Credential (unchecked) or a text field for specifying the Credential as a variable (checked). Use the format: <code>\${variable name}</code>.</p> <p>The variable must be a supported type as described in Variables and Functions.</p> <div style="border: 1px solid orange; padding: 5px; margin-top: 10px;"> <p>Note</p> <p>When updating multiple Tasks, to change from using a Credentials reference to using a Credentials variable, you must change the Credentials Variable field to Yes and specify the Credentials variable in the Credentials Unresolved field. Conversely, to change from using a Credentials variable to using a Credentials reference, you must change the Credentials Variable field to No and specify the Credentials reference in the Credentials field.</p> </div>
<p>Filter Logic</p>	<p>Logic to apply when combining filters. If Use Advanced Criteria is enabled, it is the logic to apply when combining Advanced Criteria records.</p> <p>Options:</p> <ul style="list-style-type: none"> • And (default) • Or
<p>Use Advanced Criteria</p>	<p>If enabled, use advanced criteria specified under the Advanced Criteria tab for the Email Monitor filter criteria.</p>
<p>Sent Restriction</p>	<p>Type of Sent restriction to apply.</p> <p>Options:</p> <ul style="list-style-type: none"> • -- None -- (default) • On • Before • After • Span
<p>Sent On</p>	<p>If Sent Restriction = On; Sent On restriction value.</p> <p>Options:</p> <ul style="list-style-type: none"> • Date (default) • Today • Yesterday • Tomorrow
<p>Sent On Date</p>	<p>If Sent On = Date; Specific date for the Sent On restriction value.</p>
<p>Sent Before</p>	<p>If Sent Restriction = Before; Sent Before restriction value.</p> <p>Options:</p> <ul style="list-style-type: none"> • Date (default) • Today • Yesterday • Tomorrow • Launch Time • Relative
<p>Sent Before Date</p>	<p>If Sent Before = Date; Specific date for the Sent Before restriction value.</p>
<p>Sent Before Offset</p>	<p>If Sent Before = Relative; Offset, relative to the last launch time, for the Sent Before restriction value. Format: <code>[+/-]hh:mm</code></p>

Sent After	If Sent Restriction = After; Sent After restriction value. Options: <ul style="list-style-type: none"> • Date (default) • Today • Yesterday • Tomorrow • Launch Time • Relative
Sent After Date	If Sent After = Date; Specific date for the Sent After restriction value.
Sent After Offset	If Sent After = Relative; Offset, relative to the last launch time, for the Sent After restriction value.
Received Restriction	Type of Received restriction to apply. Options: <ul style="list-style-type: none"> • -- None -- (default) • On • Before • After • Span
Received On	If Received Restriction = On; Received On restriction value. Options: <ul style="list-style-type: none"> • Date (default) • Today • Yesterday • Tomorrow
Received On Date	If Received On = Date; Specific date for the Received On restriction value.
Received Before	If Received Restriction = Before; Received Before restriction value. Options: <ul style="list-style-type: none"> • Date (default) • Today • Yesterday • Tomorrow • Relative
Received Before Date	If Received Before = Date; Specific date for the Received Before restriction value.
Received Before Offset	If Received Before = Relative; Offset, relative to the last launch time, for the Received Before restriction value. Format: [+/-]hh:mm
Received After	If Received Restriction = After; Received After restriction value. Options: <ul style="list-style-type: none"> • Date (default) • Today • Yesterday • Tomorrow • Relative
Received After Date	If Received After = Date; Specific date for the Received After restriction value.
Received After Offset	If Received After = Relative; Offset, relative to the last launch time, for the Received After restriction value.
Include Read Mail	If enabled, specifies that mail marked as read should be included by the filter.
Mailbox Folder	Mailbox folder to monitor on the server specified in the selected Email Connection.

Action	<p>Action to take on mail that matches the filter.</p> <p>Options:</p> <ul style="list-style-type: none"> • Mark As Read (default) • Delete • Delete/Mark As Read • Move • Move/Mark As Read
Move To Trash	<p>If Action = Delete or Delete/Mark As Read; If enabled, mail matching the filter will be moved to the trash folder specified in the Email Connection.</p>
Mailbox Folder Destination	<p>If Action = Move or Move/Mark As Read; Mailbox folder to move matched mail into.</p>
Body Variables	<p>Specifies whether to parse the Email body for name/value pairs to create variables from.</p> <p>Options:</p> <ul style="list-style-type: none"> • -- None -- No processing of the Email body will occur. • Within Body Entire body of the Email will be scanned for a "=" (equal sign) and any lines containing a "=" will be variablized as long as the text to the left of the "=" conforms to the naming standards for variables. • Within Default Markers Marker begin and end values are defined by the Email Body Default Begin Marker and Email Body Default End Marker Universal Controller system properties. • Within Custom Markers Marker begin and end values are defined in the Begin Marker and #End Marker fields. <p>If markers are used, all lines of the Email body between the begin and end markers will be variablized in accordance to java properties. Any lines of the Email body outside the markers will be ignored w/r variablization.</p>
Begin Marker	<p>If Body Variables is Within Customer Markers; Begin marker for the Body Variables.</p>
End Marker	<p>If Body Variables is Within Customer Markers; End marker for the Body Variables.</p>
Time Limit	<p>Used for Email Monitor tasks not associated with a trigger; Amount of time (in units specified by Time Limit Unit) to monitor for the Email Monitor conditions to be met. The Time Limit duration is always relative to the start time of the Email Monitor task instance.</p>
Time Limit Unit	<p>Unit of time to use for Time Limit.</p> <p>Options:</p> <ul style="list-style-type: none"> • Minutes • Hours (default) • Days
Expiration Action	<p>State to transition to if monitor conditions are not met within the specified window,</p> <p>Options:</p> <ul style="list-style-type: none"> • Failed • Finished

Email Content Processing	<p>Method for determining the success or failure of this task based on Email content.</p> <p>Options:</p> <ul style="list-style-type: none"> • -- None -- • Success Body Contains • Failure Body Contains • Success Body Does Not Contain • Failure Body Does Not Contain • Success Subject Contains • Failure Subject Contains • Success Subject Does Not Contain • Failure Subject Does Not Contain <p>Default is -- None --.</p>
Content Value	<p>Required if Email Content Processing is not -- None --; Content Value to be matched in the email.</p>
Case Sensitive Content	<p>If Email Content Processing is not -- None --; Indication of whether or not matching will be performed in a case sensitive manner.</p>
Email Monitor Criteria	<p>This section contains criteria for selecting emails to monitor.</p>
From Filter	<p>Type of From filter condition to apply.</p> <p>Options:</p> <ul style="list-style-type: none"> • -- None -- (default) • Equals • Contains • Does Not Equal • Does Not Contain • Regex
From	<p>If From Filter = any value other than -- None --; From filter condition value.</p>
To Filter	<p>Type of To filter condition to apply.</p> <p>Options:</p> <ul style="list-style-type: none"> • -- None -- (default) • Equals • Contains • Does Not Equal • Does Not Contain • Is Blank • Is Not Blank • Regex
To	<p>If To Filter = Equals, Contains, Does Not Equal, Does Not Contain, or Regex; To filter condition value.</p>
Cc Filter	<p>Type of Cc filter condition to apply.</p> <p>Options:</p> <ul style="list-style-type: none"> • -- None -- (default) • Equals • Contains • Does Not Equal • Does Not Contain • Is Blank • Is Not Blank • Regex
Cc	<p>If Cc Filter = Equals, Contains, Does Not Equal, Does Not Contain, or Regex; Cc filter condition value.</p>

Subject Filter	<p>Type of Subject filter condition to apply.</p> <p>Options:</p> <ul style="list-style-type: none"> • -- None -- (default) • Equals • Starts With • Contains • Ends With • Does Not Equal • Does Not Start With • Does Not Contain • Does Not End With • Is Blank • Is Not Blank • Regex
Subject	<p>If Subject Filter = anything other than -- None --, Is Blank, or Is Not Blank; Subject filter condition value.</p>
Body Filter	<p>Type of Body filter condition to apply.</p> <p>Options:</p> <ul style="list-style-type: none"> • -- None -- (default) • Equals • Starts With • Contains • Ends With • Does Not Equal • Does Not Start With • Does Not Contain • Does Not End With • Is Blank • Is Not Blank • Regex
Body	<p>If Body Filter = anything other than -- None --, Is Blank, or Is Not Blank; Body filter condition value.</p> <div style="border: 1px solid orange; padding: 10px; margin-top: 10px;"> <p>Note</p> <p>If an email being monitored does not contain the body in plain text, but only in HTML format, a plain text body will be generated from the HTML body content.</p> </div>
Case Sensitive	<p>If enabled, text-based filters should be treated as case-sensitive.</p>
Wait / Delay Options	<p>This section contains specifications for waiting to start and/or delaying on start the task.</p>
Wait To Start	<p>Amount of time to wait before starting a task from the time that it was launched.</p> <p>Options are:</p> <ul style="list-style-type: none"> • – None – • Time • Relative Time • Duration • Seconds
Wait Time	<p>If Wait To Start = Time or Relative Time; Number of hours and minutes to wait before starting the task.</p>

<p>Wait Day Constraint</p>	<p>If Wait Time = Time or Relative Time; Specification for whether or not to advance the wait time to another day.</p> <p>Valid values:</p> <ul style="list-style-type: none"> • – None – <ul style="list-style-type: none"> • If Wait To Start = Time; Advance to the next day if the specified wait time is before the time that the task instance is eligible to start; that is, all dependencies have been met. For example: it is not being held, and it is not waiting on any predecessors. • If Wait To Start = Relative Time; Advance to the next day if the specified wait time is before the task instance Trigger Time or, if there is no Trigger Time, before the task instance Launch Time. In the latter case, when a task instance is within a workflow, it will inherit the Launch Time of the top-level parent workflow task instance. • Same Day Do not advance day. • Next Day Advance to the next day. • Next Business Day Advance to the next business day. • Sunday If today is not Sunday, advance to next Sunday. • Monday If today is not Monday, advance to next Monday. • Tuesday If today is not Tuesday, advance to next Tuesday. • Wednesday If today is not Wednesday, advance to next Wednesday. • Thursday If today is not Thursday, advance to next Thursday. • Friday If today is not Friday, advance to next Friday. • Saturday If today is not Saturday, advance to next Saturday. <p>Default is – None –.</p>
<p>Wait Duration</p>	<p>If Wait To Start = Duration; Number of days, hours, minutes, and seconds to wait before starting the task.</p>
<p>Wait Duration In Seconds</p>	<p>If Wait To Start = Seconds; Number of seconds to wait before starting the task.</p>
<p>Delay On Start</p>	<p>Amount of time to delay the start of a task, after it has been launched, from the time that it is eligible to start; that is, all dependencies have been met. For example: it is not being held, it is not waiting on any predecessors, or there is no wait time specified.</p> <p>Options are:</p> <ul style="list-style-type: none"> • – None – • Duration • Seconds
<p>Delay Duration</p>	<p>If Delay On Start = Duration; Number of days, hours, minutes, and seconds to delay after starting the task.</p>
<p>Delay Duration In Seconds</p>	<p>If Delay On Start = Seconds; Number of seconds to delay after starting the task.</p>
<p>Time Options</p>	<p>This section contains time-related specifications for the task instance.</p>
<p>Late Start</p>	<p>If enabled, and if the task instance starts after the time or period specified, the task instance is flagged as late. You can specify a time or duration to determine a late start (see Late Start Type). To determine whether a task instance started late, open the task instance and locate the Started Late field; the field is checked if the instance started after the specified time. The Started Late field displays in the task instance Details only if the user specified a Late Start in the task Details.</p>

Started Late	System-supplied; this field is flagged if the task started later than the time specified in the Late Start fields.
Late Start Type	<p>Required if Late Start is enabled.</p> <p>Options:</p> <ul style="list-style-type: none"> • Time - Flag the task if it starts after the specified time. • Duration - Flag the task if it starts a certain amount of time after the programmed start time. The task must have a specific start time.
Late Start Time	If Late Start Type = Time; Time after which the task start time is considered late. Use HH:MM, 24-hour time.
Late Start Day Constraint	<p>If Late Start Type = Time; Specification for whether or not to advance the late start time to another day.</p> <p>Valid values:</p> <ul style="list-style-type: none"> • -- None -- Advance to the next day if the specified late start time is before the Created time of the task instance. • Same Day Do not advance day. • Next Day Advance to the next day. • Next Business Day Advance to the next business day. • Sunday If today is not Sunday, advance to next Sunday. • Monday If today is not Monday, advance to next Monday. • Tuesday If today is not Tuesday, advance to next Tuesday. • Wednesday If today is not Wednesday, advance to next Wednesday. • Thursday If today is not Thursday, advance to next Thursday. • Friday If today is not Friday, advance to next Friday. • Saturday If today is not Saturday, advance to next Saturday. • Nth Day Advance to a specific number of days in the future. <p>Default is -- None --.</p>
Late Start Nth Amount	If Late Start Day Constraint = Nth Day; Number of days to advance.
Late Start Duration	<p>If Late Start Type = Duration; Duration (amount of relative time) after which the task is considered to have started late.</p> <p>For a task within a workflow, the duration is the period between the time the workflow starts and the time the task itself starts. For example, a task might have a Late Start Duration of 60 minutes. If the workflow starts at 9:00 a.m. but the task itself does not start until 10:30, the task has started late.</p> <p>For a task that is not within a workflow, Late Start Duration has meaning only if the task has been held upon starting. For example, if a task has a Late Start Duration of 60 minutes and the Hold on Start field is enabled, if the task is not released from hold within the amount of time specified in the Late Start Duration field, the task has started late.</p>
Computed Late Start Time	If Late Start is enabled, the computed Date/Time for when the task instance will be Late Started.
Late Finish	If enabled, and if the task instance finishes after the time or period specified, the task instance is flagged as late. You can specify a time or duration to determine a late finish (see Late Finish Type). To determine whether a task instance finished late, open the task instance and locate the Finished Late field; the field is checked if the instance finished after the specified time or lasted longer than expected. This field only appears on the task instance if the user specified a Late Finish in the task definition.

Finished Late	System-supplied; this field is flagged if the task finished later than the time or duration specified in the Late Finish fields.
Late Finish Type	Required if Late Finish is enabled. Options: <ul style="list-style-type: none"> • Time - Flag the task if it finishes after the specified time (see Late Finish Time). • Duration - Flag the task if it finishes a certain amount of time after the programmed finish time (see Late Finish Duration). The task must have a specific finish time. • Average Duration - Flag the task if it finishes before the average duration (see Average Instance Time) for the task, less an offset (see Late Finish Offset Type), if specified.
Late Finish Offset Type	If Late Finish Type = Average Duration; Options: <ul style="list-style-type: none"> • Percentage • Duration
Late Finish Percentage Offset (+)	Required if Late Finish Offset Type = <i>Percentage</i> ; Percentage of Average Duration to use as an offset. The late finish time is calculated by adding the offset to the Average Duration .
Late Finish Duration Offset (+)	Required if Late Finish Offset Type = <i>Duration</i> ; Duration to use as an offset. The late finish time is calculated by adding the offset to the Average Duration .
Late Finish Duration Offset Unit	If Late Finish Offset Type = Duration; Options: <ul style="list-style-type: none"> • Seconds • Minutes • Hours
Late Finish Time	If Late Finish Type = Time; Time after which the task finish time is considered late. Use HH:MM, 24-hour time.
Late Finish Day Constraint	If Late Finish Type = Time; Specification for whether or not to advance the late finish time to another day. Valid values: <ul style="list-style-type: none"> • -- None -- Advance to the next day if the specified late finish time is before the Created time of the task instance. • Same Day Do not advance day. • Next Day Advance to the next day. • Next Business Day Advance to the next business day. • Sunday If today is not Sunday, advance to next Sunday. • Monday If today is not Monday, advance to next Monday. • Tuesday If today is not Tuesday, advance to next Tuesday. • Wednesday If today is not Wednesday, advance to next Wednesday. • Thursday If today is not Thursday, advance to next Thursday. • Friday If today is not Friday, advance to next Friday. • Saturday If today is not Saturday, advance to next Saturday. • Nth Day Advance to a specific number of days in the future. Default is -- None --.
Late Finish Nth Amount	If Late Finish Day Constraint = Nth Day; Number of days to advance.

Late Finish Duration	If Late Finish Type = Duration; Longest amount of time this task instance should take to run.
Computed Late Finish Time	If Late Finish is enabled, the computed Date/Time for when the task instance will be Late Finished.
Early Finish	If enabled, and if the task instance finishes before the time or period specified, the task instance is flagged as early. You can specify a time or duration to determine an early finish (see Early Finish Type). To determine whether a task instance finished early, open the task instance and locate the Finished Early field; the field is checked if the instance finished before the specified time or did not last as long as expected. This field only appears on the task instance if the user added Early Finish specifications to the task definition.
Finished Early	System-supplied; this field is flagged if the task finished earlier than the time specified in the Early Finish fields.
Early Finish Type	Required if Early Finish is enabled. Options: <ul style="list-style-type: none"> • Time - Flag the task if it finishes before the specified time (see Early Finish Time). • Duration - Flag the task if it finishes a certain amount of time before the programmed finish time (see Early Finish Duration). The task must have a specific finish time. • Average Duration - Flag the task if it finishes before the average duration (see Average Instance Time) for the task, less an offset (see Early Finish Offset Type), if specified.
Early Finish Offset Type	If Early Finish Type = Average Duration; Options: <ul style="list-style-type: none"> • Percentage • Duration
Early Finish Percentage Offset (-)	Required if Early Finish Offset Type = <i>Percentage</i> ; Percentage of Average Duration to use as an offset. The early finish time is calculated by subtracting the offset from the Average Duration .
Early Finish Duration Offset (-)	Required if Early Finish Offset Type = <i>Duration</i> ; Duration to use as an offset. The early finish time is calculated by subtracting the offset from the Average Duration .
Early Finish Duration Offset Unit	If Early Finish Offset Type = Duration; Options: <ul style="list-style-type: none"> • Seconds • Minutes • Hours
Early Finish Time	If Early Finish Type = Time; Time before which the task finish time is considered early. That is, enter a time at which the task should still be running. Use HH:MM, 24-hour time.

<p>Early Finish Day Constraint</p>	<p>If Early Finish Type = Time; Specification for whether or not to advance the early finish time to another day.</p> <p>Valid values:</p> <ul style="list-style-type: none"> • – None – Advance to the next day if the specified early finish time is before the Created time of the task instance. • Same Day Do not advance day. • Next Day Advance to the next day. • Next Business Day Advance to the next business day. • Sunday If today is not Sunday, advance to next Sunday. • Monday If today is not Monday, advance to next Monday. • Tuesday If today is not Tuesday, advance to next Tuesday. • Wednesday If today is not Wednesday, advance to next Wednesday. • Thursday If today is not Thursday, advance to next Thursday. • Friday If today is not Friday, advance to next Friday. • Saturday If today is not Saturday, advance to next Saturday. • Nth Day Advance to a specific number of days in the future. <p>Default is – None –.</p>
<p>Early Finish Nth Amount</p>	<p>If Early Finish Day Constraint = Nth Day; Number of days to advance.</p>
<p>Early Finish Duration</p>	<p>If Early Finish Type = Duration; Shortest amount of time this task instance should take to run.</p>
<p>Projected Late</p>	<p>System-provided if Late Start Time, Late Start Duration, or Late Finish Time is specified; This field is flagged if the task instance is projected to be late based on critical path projected end times (see Critical Path Projected Late Action Maximum and Critical Path Projected Late Threshold In Minutes Universal Controller system properties).</p>
<p>Critical Path Options</p>	<p>This section contains Critical Path-related specifications for the task.</p>
<p>CP Duration</p>	<p>Optional; Allows you to override the estimated Critical Path Duration of the task when running in a Workflow; used in conjunction with the CP Duration Unit field. In most cases, this field should be left blank, which implies that the Controller will estimate the Critical Path Duration based on historical executions. Valid values are any integer equal to or greater than 0. Variables and Functions are supported.</p>
<p>CP Duration (Resolved)</p>	<p>Displays the current resolved value of the CP Duration field, which may contain variables or functions that will be displayed as unresolved until the task instance starts. The CP Duration (Resolved) field can continue to change value until the task instance starts, at which time CP Duration will display as resolved and CP Duration (Resolved) will no longer be visible unless there was an issue resolving the variables and/or functions contained within CP Duration. If the Controller is unable to resolve CP Duration or it resolves to an invalid value, CP Duration will be ignored and the Controller will estimate the Critical Path Duration based on historical executions.</p>

<p>CP Duration Unit</p>	<p>Type of CP Duration; used in conjunction with the CP Duration field. For example, for a CP Duration of two minutes, specify 2 in the CP Duration field and select Minutes in this field.</p> <p>Options:</p> <ul style="list-style-type: none"> • Seconds • Minutes • Hours <p>Default is Minutes.</p>
<p>Workflow Execution Options</p>	<p>This section contains Execution Restriction specifications for the task if it is within a Workflow.</p>
<p>Execution Restriction</p>	<p>Specification for whether or not there is a restriction for this task to be run, skipped, or held.</p> <p>Options are:</p> <ul style="list-style-type: none"> • – None – No restriction for this task. • Run Restriction for when this task will be run. • Skip Restriction for when this task will be skipped. • Hold Restriction for when this task will be held. <p>If Execution Restriction on a task is Run or Skip, then when it is part of a Workflow that is being launched, the Restriction Period is evaluated. The task instance will be skipped if Execution Restriction is Skip and the date is within the Restriction Period or Execution Restriction is Run and the date is not within the Restriction Period. Execution Restriction can be set to Skip with a Restriction Period of - None -, meaning the restriction is always active and the task will be skipped when it is part of a Workflow.</p>
<p>Restriction Period</p>	<p>If Execution Restriction = Run, Skip, or Hold; Period of time when the task is restricted.</p> <p>Options are:</p> <ul style="list-style-type: none"> • – None – No period of restriction for this task. • Before Restriction is valid if the date is before the Before Date value. • After Restriction is valid if the date is after the After Date value. • Span Restriction is valid if the date is before the Before Date value and after After Date value. • On Restriction is valid if the date is one of the Date List values.
<p>Before Date</p>	<p>If Restriction Period = Before or Span; Date before which the restriction is valid.</p>
<p>Before Time</p>	<p>If Restriction Period = Before or Span; Time on the selected date before which the restriction is valid.</p>
<p>After Date</p>	<p>If Restriction Period = After or Span; Date after which the restriction is valid.</p>
<p>After Time</p>	<p>If Restriction Period = After or Span; Time on the selected date after which the restriction is valid.</p>
<p>Date List</p>	<p>If Restriction Period = On; Date(s) on which the restriction is valid.</p>
<p>Statistics</p>	<p>This section contains time-related statistics for the task instance.</p>
<p>User Estimated End Time</p>	<p>System-supplied; If the user entered information into the User Estimated Duration field in the task Details, the Controller uses this information to calculate an end time for the task instance, based on the date/time the task instance started.</p>
<p>Lowest Estimated End Time</p>	<p>System-supplied; Lowest estimated end time of the task instance, calculated by the Controller based on the date/time the task instance started.</p>

Average Estimated End Time	System-supplied; Average estimated end time of the task instance, calculated by the Controller based on the date/time the task instance started.
Highest Estimated End Time	System-supplied; Highest estimated end time of the task instance, calculated by the Controller based on the date/time the task instance started.
Projected Start Time	System-supplied; projected start time of the task instance, calculated by the Controller based on Projected End Time minus Projected Duration.
Projected End Time	System-supplied; projected end time of the task instance, calculated by the Controller based on the projected end time of its predecessor (or the maximum projected end time of all its predecessors, if more than one path exists to that task instance) plus its estimated critical path duration .
Metadata	This section contains Metadata information about this record.
UUID	Universally Unique Identifier of this record.
Updated By	Name of the user that last updated this record.
Updated	Date and time that this record was last updated.
Created By	Name of the user that created this record.
Created	Date and time that this record was created.
Status History	History of all statuses that the task instance has gone through.
Buttons	This section identifies the buttons displayed above and below the Task Instance Details that let you perform various actions.
Update	Saves updates to the record.
Force Finish	See Force Finishing a Task .
Hold	Places the task instance on Hold (see Putting a Task on Hold).
Skip	For tasks loaded into the schedule that have not yet run; allows you to tell the Controller to skip this task. See Skipping a Task .
Re-run	<p>See Re-running a Task Instance.</p> <div style="border: 2px solid orange; padding: 10px; margin: 10px 0;"> <p>Note</p> <p>If the Re-run (Suppress Intermediate Failures) Permitted Universal Controller system property is set to true, the Re-run button is a drop-down list containing the following options:</p> <ul style="list-style-type: none"> • Re-run • Re-run (Suppress Intermediate Failures) </div> <p>The Re-run button does not display if the task instance does not qualify for Re-run.</p> <p>If the task instance qualifies for Re-run, but already has Retry Options enabled, Re-run (Suppress Intermediate Failures) displays as disabled in the drop-down list.</p>
View Parent	Displays the task instance Details for the parent Workflow of this task instance.

Delete	Deletes the current record.										
Refresh	Refreshes any dynamic data displayed in the Details.										
Close	For pop-up view only; closes the pop-up view of this task instance.										
Tabs	This section identifies the tabs across the top of the Task Instance Details that provide access to additional information about the task instance.										
Advanced Criteria	If the Use Advanced Criteria field is enabled; advanced search criteria to use for Email Monitor filter criteria.										
Actions	<p>Actions that the Controller took automatically based on events that occurred during the execution of this task.</p> <p>Events are:</p> <ul style="list-style-type: none"> • Task instance status • Exit codes • Late start • Late finish • Early finish <p>Actions are:</p> <table border="1"> <tr> <td>Abort Action</td> <td>Abort the task if certain events occur. For details, see Abort Actions.</td> </tr> <tr> <td>Email Notification</td> <td>Send an email if certain events occur. For details, see Email Notification Actions.</td> </tr> <tr> <td>Set Variable</td> <td>Used in tasks and workflows to set a variable based on the occurrence of certain events. For details, see Creating a Set Variable Action within a Task or Workflow.</td> </tr> <tr> <td>SNMP Notification</td> <td>Send an email if certain events occur. For details, see SNMP Notification Actions.</td> </tr> <tr> <td>System Operation</td> <td>Run an Universal Controller system operation based on specified conditions. For details, see System Operation Actions.</td> </tr> </table>	Abort Action	Abort the task if certain events occur. For details, see Abort Actions .	Email Notification	Send an email if certain events occur. For details, see Email Notification Actions .	Set Variable	Used in tasks and workflows to set a variable based on the occurrence of certain events. For details, see Creating a Set Variable Action within a Task or Workflow .	SNMP Notification	Send an email if certain events occur. For details, see SNMP Notification Actions .	System Operation	Run an Universal Controller system operation based on specified conditions. For details, see System Operation Actions .
Abort Action	Abort the task if certain events occur. For details, see Abort Actions .										
Email Notification	Send an email if certain events occur. For details, see Email Notification Actions .										
Set Variable	Used in tasks and workflows to set a variable based on the occurrence of certain events. For details, see Creating a Set Variable Action within a Task or Workflow .										
SNMP Notification	Send an email if certain events occur. For details, see SNMP Notification Actions .										
System Operation	Run an Universal Controller system operation based on specified conditions. For details, see System Operation Actions .										
Virtual Resources	<p>Lists all Virtual Resources to which this task is assigned.</p> <p>If you want to create a Task Virtual Resource for this task, you can select an existing Virtual Resource (or, optionally, first create a new Virtual Resource and then select it as the Task Virtual Resource) or enter a Virtual Resource variable. The variable must be a supported type as described in Variables and Functions.</p>										
Exclusive Requests	Lists all records in the Exclusive Requests table (<code>ops_exclusive_order</code>) for this task instance.										
Notes	Lists all notes associated with this record.										

9.5 Running an Email Monitor Task

You can run an Email Monitor task:

- Manually, by clicking the [Launch](#) or [Launch with Variables](#) button in the Email Monitor Tasks list or Email Monitor Task Details [Action menu](#).
- As part of a [workflow](#).
- [Specify triggers](#) that run the task automatically based on times or events.

9.6 Monitoring Task Execution

You can monitor all system activity from the [Activity Monitor](#) and can view activity history from the [History list](#).

10 Universal Monitor Task

10.1 Overview

The Universal Monitor task allows you to monitor published Universal Events.

To define a Universal Monitor, you must specify either a:

- Global [Universal Event Template](#) .
- Local [Universal Template Event Template](#) .

For monitoring Universal Events, the Execution User must have read permission for the published Universal Event.

When monitoring [Pre-Defined Global Universal Events](#), the Execution User must also have read permission for the underlying record the Universal Event is associated with.

For continuous monitoring of published Universal Events, assign the Universal Monitor to a Universal Monitor Trigger, with the trigger firing each time the Universal Event match criteria has been met,

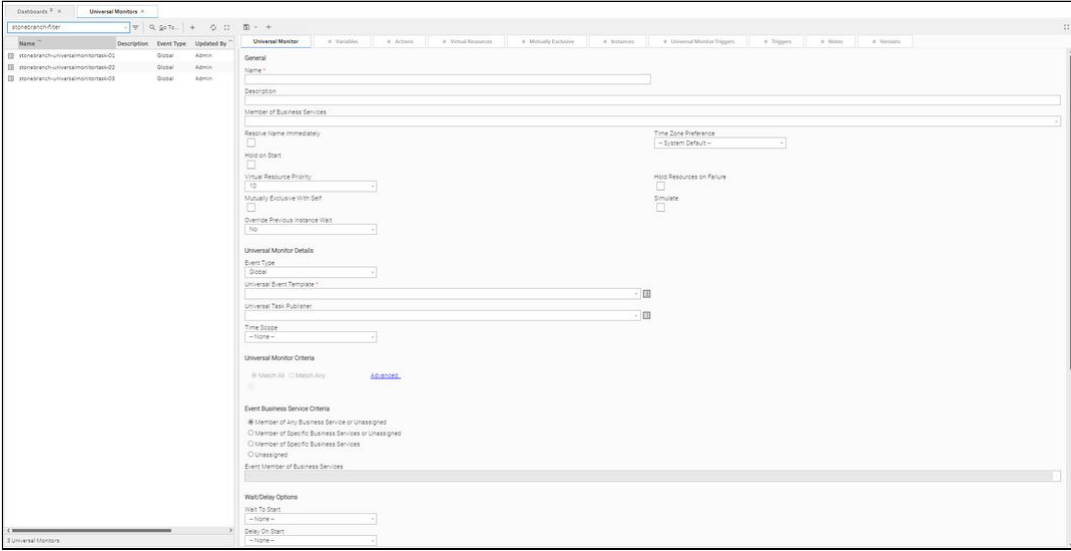


For non-continuous monitoring of published Universal Events, with Universal Monitor completing only when the Universal Event match criteria has been met, add Universal Monitor to a workflow or launch it directly (stand-alone).

10.2 Built-In Variables

The following [built-in variables](#) can be used in a Universal Monitor task to pass data where appropriate:

- [Task Instance Variables](#)
- [Universal Event Variables](#)

10.3 Creating a Universal Monitor Task

<p>Step 1</p>	<p>From the Automation Center navigation pane, select Tasks > Universal Monitors. The Universal Monitor Tasks list displays a list of all currently defined Universal Monitor tasks.</p> <p>To the right of the list, Universal Monitor Task Details for a new Universal Monitor task displays.</p> 
<p>Step 2</p>	<p>Enter/select Details for a new Universal Monitor task, using the field descriptions below as a guide.</p> <ul style="list-style-type: none"> • Required fields display an asterisk (*) after the field name. • Default values for fields, if available, display automatically. <p>To display more of the Details fields on the screen, you can either:</p> <ul style="list-style-type: none"> • Use the scroll bar. • Temporarily hide the list above the Details. • Click the  button above the list to display a pop-up version of the Details.
<p>Step 3</p>	<p>Click the  button. The task is added to the database, and all buttons and tabs in the Task Details are enabled.</p>

Note

To [open](#) an existing record on the list, either:

- Click a record in the list to display its record Details below the list. (To clear record Details below the list, click the **New** button that displays above and below the Details.)
- Clicking the [Details icon](#) next to a record name in the list, or right-click a record in the list and then click **Open** in the [Action menu](#) that displays, to display a pop-up version of the record Details.
- Right-click a record in the a list, or open a record and right-click in the record Details, and then click **Open In Tab** in the [Action menu](#) that displays, to display the record Details under a new tab on the record list page (see [Record Details as Tabs](#)).

10.3.1 Universal Monitor Task Details

The following Universal Monitor Task Details is for an existing Email Monitor task.

Depending on the values that you enter / select for these fields, and whether or not the Universal Monitor task has ever been launched, more (or less) fields may display. See the [field descriptions](#), below, for a description of all fields that may display in the Universal Monitor Task Details.

Dashboards ▾ ×
Universal Monitors ×
Universal Monitor Details: stonebranch-universalmonitortask-01 ▾ ×

Launch View Parents

Universal Monitor
Variables
Actions
Virtual Resources
Mutually Exclusive
Instances
Universal Monitor Triggers
Trigg

General

Name * Version

Description

Member of Business Services

Resolve Name Immediately

Time Zone Preference

Hold on Start

Virtual Resource Priority

Hold Resources on Failure

Mutually Exclusive With Self

Simulate

Override Previous Instance Wait

Universal Monitor Details

Event Type

Universal Event Template *

Universal Task Publisher

Time Scope

Universal Monitor Criteria

Match All Match Any [Advanced](#)

Event Business Service Criteria

Member of Any Business Service or Unassigned

Member of Specific Business Services or Unassigned

Member of Specific Business Services

Unassigned

Event Member of Business Services

Wait/Delay Options

Wait To Start

Delay On Start

Workflow Only

Time Options

Late Start

Late Finish

Early Finish

User Estimated Duration

Day	Hour	Min	Sec
<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>

Critical Path Options

CP Duration CP Duration Unit

Workflow Execution Options

Execution Restriction

Self-Service Options

Enforce Variables Lock Variables

10.3.2 Universal Monitor Task Details Field Descriptions

The following table describes the fields, buttons, and tabs that display in the Universal Monitor Task Details.

Field Name	Description
General	This section contains general information about the task.
Name	User-defined name of this task (Maximum = 255 alphanumeric characters); variables supported. It is the responsibility of the user to develop a workable naming scheme for tasks.
Version	System-supplied; version number of the current record, which is incremented by the Controller every time a user updates a record. Click the Versions tab to view previous versions. For details, see Record Versioning .
Description	Description of this record. (Maximum = 255 characters.)
Member of Business Services	User-defined; Allows you to select one or more Business Services that this record belongs to. (You also can Check All or Uncheck All Business Services for this record.) You can select up to 62 Business Services for any record type, and enter a maximum of 2048 characters for each Business Service. If the Business Service Visibility Restricted Universal Controller system property is set to true, depending on your assigned (or inherited) Permissions or Roles , Business Services available for selection may be restricted.
Resolve Name Immediately	If enabled, the Instance Name of the task instance will be resolved immediately at trigger/launch time.
Time Zone Preference	User-defined; Allows you to specify the time zone that will be applied to the task. Options: <ul style="list-style-type: none"> • – System Default – Time zone is based on the value of the Task Time Zone Preference Universal Controller system property: Server or Inherited. • Server (xxx) Where (xxx) is the time zone ID of the server; time zone is evaluated in the time zone of the server. • Inherited Time zone is evaluated in the time zone of the Parent Workflow or Trigger / Launch specification in the case there is no Parent Workflow.
Hold on Start	If enabled, when the task is launched it appears in the Activity Monitor with a status of Held . The task runs when the user releases it.
Hold Reason	Information about why the task will be put on hold when it starts.
Virtual Resource Priority	Priority for acquiring a resource when two or more tasks are waiting for the resource. This priority applies to all resources required by the task. Options: 1 (high) - 100 (low). Default is 10.
Hold Resources on Failure	If enabled, the task instance will continue to hold Renewable resources if the task instance fails. Renewable resources will be returned only if the task instance status is either Complete, Finished, or Skipped.
Mutually Exclusive With Self	If enabled, the task will not be allowed to run concurrently with itself. Task will not start until the instance that is running finishes. An instance will transition to Exclusive Wait status if it cannot start due to another instance already running.
Simulate	Specifies if the instance should execute under simulation mode .

<p>Override Previous Instance Wait</p>	<p>Specifies whether or not to override the parent workflow's Previous Instance Wait configuration. This option only applies for an instance running within a workflow.</p> <p>Options:</p> <ul style="list-style-type: none"> • No Behavior determined by the parent workflow configuration. • Yes / – None – Regardless of the parent workflow configuration, the task instance will never wait for a previous instance to complete. • Yes / Wait for Last Regardless of the parent workflow configuration, the task instance will remain in Instance Wait until the most recent prior instance of the same task has completed. • Yes / Wait for Last / Same Workflow Regardless of the parent workflow configuration, the task instance will remain in Instance Wait until the most recent prior instance of the same task, within an instance of the same workflow, have completed. • Yes / Wait for All Regardless of the parent workflow configuration, the task instance will remain in Instance Wait until all prior instances of the same task has completed. • Yes / Wait for All / Same Workflow Regardless of the parent workflow configuration, the task instance will remain in Instance Wait until all prior instances of the same task, within an instance of the same workflow, have completed.
<p>Universal Monitor Details</p>	<p>This section contains assorted detailed information about the task.</p>
<p>Event Type</p>	<p>Type of Universal Event to monitor:</p> <ul style="list-style-type: none"> • Global • Local
<p>Universal Event Template</p>	<p>If Event Type is Global; Name of the Universal Event Template on which this Universal Monitor task is based.</p>
<p>Universal Template</p>	<p>If Event Type is Local; Name of the Universal Template on which this Universal Monitor task is based.</p>
<p>Event Template</p>	<p>If Event Type is Local; Name of the Event Template within the specified Universal Template on which this Universal Monitor task is based.</p>
<p>Universal Task Publisher</p>	<p>Optional; Universal Extension-based Universal Task that will be:</p> <ul style="list-style-type: none"> • Launched when the Universal Monitor task starts. • Force Finished/Cancelled when the Universal Monitor task ends. <p>The Running Universal Task Publisher can only publish Universal Events to this Universal Monitor, and this Universal Monitor can only match on Universal Events published by the Running Universal Task Publisher.</p> <p>The Publisher is expected to publish the events that this Universal Monitor is expecting to come in.</p> <ul style="list-style-type: none"> • If the Universal Monitor is specified by a Universal Monitor Trigger (or the Universal Monitor Trigger component of a Composite Trigger), the Publisher will run indefinitely until the Trigger is disabled. At that time, a Cancel and Force Finish will be issued to the Universal Monitor, and the Universal Monitor will propagate these commands to the associated Universal Task Publisher instance that is running. • If the Universal Monitor is run stand-alone or within a workflow, the Publisher will not run continuously, as the Universal Monitor will complete when the event coming in is matched or the Time Scope (if specified) is reached. <p>A Universal Monitor Task Instance that specifies a Publisher will show the associated Universal Task Instance representing the Publisher.</p>

<p>Universal Task Publisher Variables</p>	<p>List of task variables to override.</p> <ul style="list-style-type: none"> • Name Name of the variable to override. • Value Value of the variable to override. • Resolution Type of resolution for the override: <ul style="list-style-type: none"> • Disabled Variable is passed to the launched Universal Task Publisher unresolved and will remain unresolved in the Universal Monitor Task Instance Details. • Enabled Variable is resolved when the Universal Monitor Task Instance is started (running); therefore, it is passed to the launched Universal Task Publisher resolved and will remain resolved in the Universal Monitor Task Instance Details. If an Enabled variable cannot be resolved when the Universal Monitor Task Instance is being started, the Universal Monitor Task Instance will transition to a Start Failure with the following Status Description: Universal Task Publisher Variable "<i>variable-name</i>" with Resolution "<i>variable-resolution</i>" is unresolved. <div style="border: 2px solid orange; padding: 10px; margin-top: 10px;"> <p>The following order of precedence will apply if a variable is present in multiple scopes:</p> <ol style="list-style-type: none"> 1. Universal Monitor - Universal Task Publisher Variables 2. Universal Monitor Trigger 3. Universal Monitor – Universal Task Publisher </div>
<p>Time Scope</p>	<p>Allows monitoring of Universal Events that were published prior to the Universal Monitor task running, or limits how long the Universal Monitor task continues to monitor before becoming Failed,</p> <p>Options:</p> <ul style="list-style-type: none"> • – None – • Relative
<p>Expiration Action</p>	<p>If Time Scope is Relative; State to transition to if Relative Time Scope conditions are not met within the specific window.</p> <p>Options:</p> <ul style="list-style-type: none"> • Failed • Finished
<p>From</p>	<p>Format is (+/-)hh:mm</p> <p>If Time Scope = Relative; Together with the Time Scope To field, it allows you to specify a window of time, relative to the time the Universal Monitor task launched, during which the conditions of the Universal Monitor must be met.</p> <p>If the conditions are not met within the specified window, the Universal Monitor task instance will transition to Failed (default) or Finished status, as determined by the Expiration Action.</p> <p>hh must be a positive integer. mm must be a positive integer between 0 and 59 inclusive. For example, -124:00, -12:00, -6:00, 00:00, 6:00, 12:00, or 124:00.</p>
<p>To</p>	<p>Format is (+/-)hh:mm</p> <p>If Time Scope = Relative; Together with the Time Scope From field, it allows you to specify a window of time, relative to the time the Universal Monitor task launched, during which the conditions of the Universal Monitor must be met.</p> <p>If the conditions are not met within the specified window, the Universal Monitor task instance will transition to Failed (default) or Finished status, as determined by the Expiration Action.</p> <p>hh must be a positive integer. mm must be a positive integer between 0 and 59 inclusive. For example, -124:00, -12:00, -6:00, 00:00, 6:00, 12:00, or 124:00.</p>

Universal Monitor Criteria	This section contains criteria for selecting Universal Events to monitor.
<ul style="list-style-type: none"> • Match All • Match Any 	<p>Criteria for matching attributes of the selected Universal Event Template.</p> <ul style="list-style-type: none"> • Match All • Match Any <p>If no match criteria is specified, the Universal Monitor will match any published Universal Event of the selected Universal Event Template.</p>
Event Business Service Criteria	This section contains criteria for selecting Universal Events to monitor by their business service membership.
<ul style="list-style-type: none"> • Member of Any Business Service or Unassigned • Member of Specific Business Services or Unassigned • Member of Specific Business Services • Unassigned 	<p>Criteria for matching on Universal Events by their business service membership.</p> <ul style="list-style-type: none"> • Member of Any Business Service or Unassigned • Member of Specific Business Services or Unassigned You must specify one or more business services from an Event Member of Business Services drop-down. • Member of Specific Business Services You must specify one or more business services from an Event Member of Business Services drop-down. • Unassigned
Wait / Delay Options	This section contains specifications for waiting to start and/or delaying on start the task.
Wait To Start	<p>Amount of time to wait before starting a task from the time that it was launched.</p> <p>Options are:</p> <ul style="list-style-type: none"> • – None – • Time • Relative Time • Duration • Seconds
Wait Time	If Wait To Start = Time or Relative Time; Number of hours and minutes to wait before starting the task.

<p>Wait Day Constraint</p>	<p>If Wait Time = Time or Relative Time; Specification for whether or not to advance the wait time to another day.</p> <p>Valid values:</p> <ul style="list-style-type: none"> • -- None -- <ul style="list-style-type: none"> • If Wait To Start = Time; Advance to the next day if the specified wait time is before the time that the task instance is eligible to start; that is, all dependencies have been met. For example: it is not being held, and it is not waiting on any predecessors. • If Wait To Start = Relative Time; Advance to the next day if the specified wait time is before the task instance Trigger Time or, if there is no Trigger Time, before the task instance Launch Time. In the latter case, when a task instance is within a workflow, it will inherit the Launch Time of the top-level parent workflow task instance. • Same Day Do not advance day. • Next Day Advance to the next day. • Next Business Day Advance to the next business day. • Sunday If today is not Sunday, advance to next Sunday. • Monday If today is not Monday, advance to next Monday. • Tuesday If today is not Tuesday, advance to next Tuesday. • Wednesday If today is not Wednesday, advance to next Wednesday. • Thursday If today is not Thursday, advance to next Thursday. • Friday If today is not Friday, advance to next Friday. • Saturday If today is not Saturday, advance to next Saturday. <p>Default is -- None --.</p>
<p>Wait Duration</p>	<p>If Wait To Start = Duration; Number of days, hours, minutes, and seconds to wait before starting the task.</p>
<p>Wait Duration In Seconds</p>	<p>If Wait To Start = Seconds; Number of seconds to wait before starting the task.</p>
<p>Delay On Start</p>	<p>Amount of time to delay the start of a task, after it has been launched, from the time that it is eligible to start; that is, all dependencies have been met. For example: it is not being held, it is not waiting on any predecessors, or there is no wait time specified.</p> <p>Options are:</p> <ul style="list-style-type: none"> • -- None -- • Duration • Seconds
<p>Delay Duration</p>	<p>If Delay On Start = Duration; Number of days, hours, minutes, and seconds to delay after starting the task.</p>
<p>Delay Duration In Seconds</p>	<p>If Delay On Start = Seconds; Number of seconds to delay after starting the task.</p>

Workflow Only	<p>Specification for whether or not to apply the Wait To Start and Delay On Start specifications only if the task is in a Workflow.</p> <p>Options are:</p> <ul style="list-style-type: none"> • -- System Default -- Apply the Wait To Start and Delay On Start specifications as defined by the System Default Wait/Delay Workflow Only system property. (Default is yes.) • Yes Apply the Wait To Start and Delay On Start specifications only if the task is in a Workflow. • No Apply the Wait To Start and Delay On Start specifications whether or not the task is in a Workflow.
Time Options	This section contains time-related statistics for task instances of the task.
Late Start	If enabled, and if the task instance starts after the time or period specified, the task instance is flagged as late. You can specify a time or duration to determine a late start (see Late Start Type). To determine whether a task instance started late, open the task instance and locate the Started Late field; the field is checked if the instance started after the specified time. The Started Late field displays in the task instance Details only if the user specified a Late Start in the task Details.
Late Start Type	<p>Required if Late Start is enabled.</p> <p>Options:</p> <ul style="list-style-type: none"> • Time - Flag the task if it starts after the specified time. • Duration - Flag the task if it starts a certain amount of time after the programmed start time. The task must have a specific start time.
Late Start Time	If Late Start Type = Time; Time after which the task start time is considered late. Use HH:MM, 24-hour time.
Late Start Day Constraint	<p>If Late Start Type = Time; Specification for whether or not to advance the late start time to another day.</p> <p>Valid values:</p> <ul style="list-style-type: none"> • -- None -- Advance to the next day if the specified late start time is before the Created time of the task instance. • Same Day Do not advance day. • Next Day Advance to the next day. • Next Business Day Advance to the next business day. • Sunday If today is not Sunday, advance to next Sunday. • Monday If today is not Monday, advance to next Monday. • Tuesday If today is not Tuesday, advance to next Tuesday. • Wednesday If today is not Wednesday, advance to next Wednesday. • Thursday If today is not Thursday, advance to next Thursday. • Friday If today is not Friday, advance to next Friday. • Saturday If today is not Saturday, advance to next Saturday. • Nth Day Advance to a specific number of days in the future. <p>Default is -- None --.</p>
Late Start Nth Amount	If Late Start Day Constraint = Nth Day; Number of days to advance.

<p>Late Start Duration</p>	<p>If Late Start Type = Duration; Duration (amount of relative time) after which the task is considered to have started late.</p> <p>For a task within a workflow, the duration is the period between the time the workflow starts and the time the task itself starts. For example, a task might have a Late Start Duration of 60 minutes. If the workflow starts at 9:00 a.m. but the task itself does not start until 10:30, the task has started late.</p> <p>For a task that is not within a workflow, Late Start Duration has meaning only if the task has been held upon starting. For example, if a task has a Late Start Duration of 60 minutes and the Hold on Start field is enabled, if the task is not released from hold within the amount of time specified in the Late Start Duration field, the task has started late.</p>
<p>Late Finish</p>	<p>If enabled, and if the task instance finishes after the time or period specified, the task instance is flagged as late. You can specify a time or duration to determine a late finish (see Late Finish Type). To determine whether a task instance finished late, open the task instance and locate the Finished Late field; the field is checked if the instance finished after the specified time or lasted longer than expected. This field only appears on the task instance if the user specified a Late Finish in the task definition.</p>
<p>Late Finish Type</p>	<p>Required if Late Finish is enabled.</p> <p>Options:</p> <ul style="list-style-type: none"> • Time - Flag the task if it finishes after the specified time (see Late Finish Time). • Duration - Flag the task if it finishes a certain amount of time after the programmed finish time (see Late Finish Duration). The task must have a specific finish time. • Average Duration - Flag the task if it finishes before the average duration (see Average Instance Time) for the task, less an offset (see Late Finish Offset Type), if specified.
<p>Late Finish Offset Type</p>	<p>If Late Finish Type = Average Duration;</p> <p>Options:</p> <ul style="list-style-type: none"> • Percentage • Duration
<p>Late Finish Percentage Offset (+)</p>	<p>Required if Late Finish Offset Type = <i>Percentage</i>; Percentage of Average Duration to use as an offset. The late finish time is calculated by adding the offset to the Average Duration.</p>
<p>Late Finish Duration Offset (+)</p>	<p>Required if Late Finish Offset Type = <i>Duration</i>; Duration to use as an offset. The late finish time is calculated by adding the offset to the Average Duration.</p>
<p>Late Finish Duration Offset Unit</p>	<p>If Late Finish Offset Type = Duration;</p> <p>Options:</p> <ul style="list-style-type: none"> • Seconds • Minutes • Hours
<p>Late Finish Time</p>	<p>If Late Finish Type = Time; Time after which the task finish time is considered late. Use HH:MM, 24-hour time.</p>

<p>Late Finish Day Constraint</p>	<p>If Late Finish Type = Time; Specification for whether or not to advance the late finish time to another day.</p> <p>Valid values:</p> <ul style="list-style-type: none"> • -- None -- Advance to the next day if the specified late finish time is before the Created time of the task instance. • Same Day Do not advance day. • Next Day Advance to the next day. • Next Business Day Advance to the next business day. • Sunday If today is not Sunday, advance to next Sunday. • Monday If today is not Monday, advance to next Monday. • Tuesday If today is not Tuesday, advance to next Tuesday. • Wednesday If today is not Wednesday, advance to next Wednesday. • Thursday If today is not Thursday, advance to next Thursday. • Friday If today is not Friday, advance to next Friday. • Saturday If today is not Saturday, advance to next Saturday. • Nth Day Advance to a specific number of days in the future. <p>Default is -- None --.</p>
<p>Late Finish Nth Amount</p>	<p>If Late Finish Day Constraint = Nth Day; Number of days to advance.</p>
<p>Late Finish Duration</p>	<p>If Late Finish Type = Duration; Longest amount of time this task instance should take to run.</p>
<p>Early Finish</p>	<p>If enabled, and if the task instance finishes before the time or period specified, the task instance is flagged as early. You can specify a time or duration to determine an early finish (see Early Finish Type). To determine whether a task instance finished early, open the task instance and locate the Finished Early field; the field is checked if the instance finished before the specified time or did not last as long as expected. This field only appears on the task instance if the user added Early Finish specifications to the task definition.</p>
<p>Early Finish Type</p>	<p>Required if Early Finish is enabled.</p> <p>Options:</p> <ul style="list-style-type: none"> • Time - Flag the task if it finishes before the specified time (see Early Finish Time). • Duration - Flag the task if it finishes a certain amount of time before the programmed finish time (see Early Finish Duration). The task must have a specific finish time. • Average Duration - Flag the task if it finishes before the average duration (see Average Instance Time) for the task, less an offset (see Early Finish Offset Type), if specified.
<p>Early Finish Offset Type</p>	<p>If Early Finish Type = Average Duration;</p> <p>Options:</p> <ul style="list-style-type: none"> • Percentage • Duration
<p>Early Finish Percentage Offset (-)</p>	<p>Required if Early Finish Offset Type = <i>Percentage</i>; Percentage of Average Duration to use as an offset. The early finish time is calculated by subtracting the offset from the Average Duration.</p>
<p>Early Finish Duration Offset (-)</p>	<p>Required if Early Finish Offset Type = <i>Duration</i>; Duration to use as an offset. The early finish time is calculated by subtracting the offset from the Average Duration.</p>

Early Finish Duration Offset Unit	<p>If Early Finish Offset Type = Duration;</p> <p>Options:</p> <ul style="list-style-type: none"> • Seconds • Minutes • Hours
Early Finish Time	<p>If Early Finish Type = Time; Time before which the task finish time is considered early. That is, enter a time at which the task should still be running. Use HH:MM, 24-hour time.</p>
Early Finish Day Constraint	<p>If Early Finish Type = Time; Specification for whether or not to advance the early finish time to another day.</p> <p>Valid values:</p> <ul style="list-style-type: none"> • – None – Advance to the next day if the specified early finish time is before the Created time of the task instance. • Same Day Do not advance day. • Next Day Advance to the next day. • Next Business Day Advance to the next business day. • Sunday If today is not Sunday, advance to next Sunday. • Monday If today is not Monday, advance to next Monday. • Tuesday If today is not Tuesday, advance to next Tuesday. • Wednesday If today is not Wednesday, advance to next Wednesday. • Thursday If today is not Thursday, advance to next Thursday. • Friday If today is not Friday, advance to next Friday. • Saturday If today is not Saturday, advance to next Saturday. • Nth Day Advance to a specific number of days in the future. <p>Default is – None –.</p>
Early Finish Nth Amount	<p>If Early Finish Day Constraint = Nth Day; Number of days to advance.</p>
Early Finish Duration	<p>If Early Finish Type = Duration; Shortest amount of time this task instance should take to run.</p>
User Estimated Duration	<p>Required if Early Finish Type or Late Finish Type = Average Duration; Estimated amount of time it should normally take to run this task. The Controller uses this information to calculate the User Estimated End Time on a task instance record.</p> <p>User Estimated Duration is used when the Average Duration is not available; for example, on the first launch of a task.</p>
Critical Path Options	<p>This section contains Critical Path-related specifications for the task.</p>
CP Duration	<p>Optional; Allows you to override the estimated Critical Path Duration of the task when running in a Workflow; used in conjunction with the CP Duration Unit field. In most cases, this field should be left blank, which implies that the Controller will estimate the Critical Path Duration based on historical executions. Valid values are any integer equal to or greater than 0. Variables and Functions are supported.</p>
CP Duration (Resolved)	<p>Displays the current resolved value of the CP Duration field, which may contain variables or functions that will be displayed as unresolved until the task instance starts. The CP Duration (Resolved) field can continue to change value until the task instance starts, at which time CP Duration will display as resolved and CP Duration (Resolved) will no longer be visible unless there was an issue resolving the variables and/or functions contained within CP Duration. If the Controller is unable to resolve CP Duration or it resolves to an invalid value, CP Duration will be ignored and the Controller will estimate the Critical Path Duration based on historical executions.</p>

CP Duration Unit	<p>Type of CP Duration; used in conjunction with the CP Duration field. For example, for a CP Duration of two minutes, specify 2 in the CP Duration field and select Minutes in this field.</p> <p>Options:</p> <ul style="list-style-type: none"> • Seconds • Minutes • Hours <p>Default is Minutes.</p>
Workflow Execution Options	This section contains Execution Restriction specifications for the task if it is within a Workflow.
Execution Restriction	<p>Specification for whether or not there is a restriction for this task to be run, skipped, or held.</p> <p>Options are:</p> <ul style="list-style-type: none"> • – None – No restriction for this task. • Run Restriction for when this task will be run. • Skip Restriction for when this task will be skipped. • Hold Restriction for when this task will be held. <p>If Execution Restriction on a task is Run or Skip, then when it is part of a Workflow that is being launched, the Restriction Period is evaluated. The task instance will be skipped if Execution Restriction is Skip and the date is within the Restriction Period or Execution Restriction is Run and the date is not within the Restriction Period. Execution Restriction can be set to Skip with a Restriction Period of - None -, meaning the restriction is always active and the task will be skipped when it is part of a Workflow.</p>
Restriction Period	<p>If Execution Restriction = Run, Skip, or Hold; Period of time when the task is restricted.</p> <p>Options are:</p> <ul style="list-style-type: none"> • – None – No period of restriction for this task. • Before Restriction is valid if the date is before the Before Date value. • After Restriction is valid if the date is after the After Date value. • Span Restriction is valid if the date is before the Before Date value and after After Date value. • On Restriction is valid if the date is one of the Date List values.
Before Date	If Restriction Period = Before or Span; Date before which the restriction is valid.
Before Time	If Restriction Period = Before or Span; Time on the selected date before which the restriction is valid.
After Date	If Restriction Period = After or Span; Date after which the restriction is valid.
After Time	If Restriction Period = After or Span; Time on the selected date after which the restriction is valid.
Date List	If Restriction Period = On; Date(s) on which the restriction is valid.
Self-Service Options	This section contains Self-Service specifications for the task.
Enforce Variables	Specifies whether or not to enforce Launch with Variables... when launching a task using the User Interface.
Lock Variables	Specifies whether or not to prevent editing variables when using Launch with Variables... from the User Interface.
Statistics	This section contains time-related statistics for task instances of the task.
First Execution	System-supplied; End Time of the first instance of this task to complete.

Last Execution	System-supplied; End Time of the last instance of this task to complete.
Last Instance Duration	System-supplied; Amount of time the task took to run the last time it ran.
Lowest Instance Time	System-supplied; Lowest amount of time this task has taken to run.
Average Instance Time	System-supplied; Average amount of time this task takes to run.
Highest Instance Time	System-supplied; Highest amount of time this task has taken to run.
Number of Instances	System-supplied; Number of instances in the database for this task.
Metadata	This section contains Metadata information about this record.
UUID	Universally Unique Identifier of this record.
Updated By	Name of the user that last updated this record.
Updated	Date and time that this record was last updated.
Created By	Name of the user that created this record.
Created	Date and time that this record was created.
Buttons	This section identifies the buttons displayed above and below the Task Details that let you perform various actions.
Save	Saves a new task record in the Controller database.
Save & New	Saves a new record in the Controller database and redisplay empty Details so that you can create another new record.
Save & View	Saves a new record in the Controller database and continues to display that record.
New	Displays empty (except for default values) Details for creating a new task.
Update	Saves updates to the record.
Launch	Manually launches the task.
View Parents	Displays a list of any parent Workflow tasks for this task.
Copy	Creates a copy of this task, which you are prompted to rename.
Delete	<p>Deletes the current record.</p> <div style="border: 2px solid orange; padding: 10px; margin-top: 10px;"> <p>Note</p> <p>You cannot delete a task if it is either:</p> <ul style="list-style-type: none"> • Specified in an enabled Trigger. • The only task specified in a disabled Trigger. </div>
Refresh	Refreshes any dynamic data displayed in the Details.
Close	For pop-up view only; closes the pop-up view of this task.

Tabs	This section identifies the tabs across the top of the Task Details that provide access to additional information about the task.										
Variables	Lists all user-defined variables associated with this record; that is, variables that have been defined for this specific record.										
Actions	<p>Allows you to specify actions that the Controller will take automatically based on events that occur during the execution of this task.</p> <p>Events are:</p> <ul style="list-style-type: none"> • Task instance status • Exit codes • Late start • Late finish • Early finish <p>Actions are:</p> <table border="1" data-bbox="539 719 1543 1200"> <tr> <td data-bbox="539 719 922 804">Abort Action</td> <td data-bbox="922 719 1543 804">Abort the task if certain events occur. For details, see Abort Actions.</td> </tr> <tr> <td data-bbox="539 804 922 889">Email Notification</td> <td data-bbox="922 804 1543 889">Send an email if certain events occur. For details, see Email Notification Actions.</td> </tr> <tr> <td data-bbox="539 889 922 1003">Set Variable</td> <td data-bbox="922 889 1543 1003">Used in tasks and workflows to set a variable based on the occurrence of certain events. For details, see Creating a Set Variable Action within a Task or Workflow.</td> </tr> <tr> <td data-bbox="539 1003 922 1088">SNMP Notification</td> <td data-bbox="922 1003 1543 1088">Send an email if certain events occur. For details, see SNMP Notification Actions.</td> </tr> <tr> <td data-bbox="539 1088 922 1200">System Operation</td> <td data-bbox="922 1088 1543 1200">Run an Universal Controller system operation based on specified conditions. For details, see System Operation Actions.</td> </tr> </table>	Abort Action	Abort the task if certain events occur. For details, see Abort Actions .	Email Notification	Send an email if certain events occur. For details, see Email Notification Actions .	Set Variable	Used in tasks and workflows to set a variable based on the occurrence of certain events. For details, see Creating a Set Variable Action within a Task or Workflow .	SNMP Notification	Send an email if certain events occur. For details, see SNMP Notification Actions .	System Operation	Run an Universal Controller system operation based on specified conditions. For details, see System Operation Actions .
Abort Action	Abort the task if certain events occur. For details, see Abort Actions .										
Email Notification	Send an email if certain events occur. For details, see Email Notification Actions .										
Set Variable	Used in tasks and workflows to set a variable based on the occurrence of certain events. For details, see Creating a Set Variable Action within a Task or Workflow .										
SNMP Notification	Send an email if certain events occur. For details, see SNMP Notification Actions .										
System Operation	Run an Universal Controller system operation based on specified conditions. For details, see System Operation Actions .										
Virtual Resources	<p>Lists all Virtual Resources to which this task is assigned.</p> <p>If you want to create a Task Virtual Resource for this task, you can select an existing Virtual Resource (or, optionally, first create a new Virtual Resource and then select it as the Task Virtual Resource) or enter a Virtual Resource variable. The variable must be a supported type as described in Variables and Functions.</p>										
Mutually Exclusive	Lists all tasks that have been set to be mutually exclusive of this task.										
Instances	Lists all instances of the task.										
Universal Monitor Triggers	Lists all Universal Monitor triggers that reference this task in the Universal Monitor field of the trigger Details; that is, a list of all Email Monitor triggers that execute this task. For instructions on creating triggers, see Triggers .										
Triggers	List of all triggers that reference this task in the Task(s) field of the trigger Details; that is, a list of all triggers that have been defined to launch this task. Also allows you to add new triggers. If you add a new trigger from this location, the Controller automatically constructs a default trigger name as follows: <current task name>#TRIGGER#. You can change the default name if desired. For instructions on creating triggers, see Triggers .										
Notes	Lists all notes associated with this record.										
Versions	Stores copies of all previous versions of the current record. See Record Versioning .										

10.4 Viewing a Universal Monitor Task Instance

When a Universal Monitor task is launched, the Controller creates a task instance record of that task.

A task instance contains detailed information about a single execution of that task.

You can access a task instance from:

- **Instances tab** on the [Universal Monitor Task Details](#) for that task
- [Activity Monitor](#)
- [Task Instances list](#)

10.4.1 Universal Monitor Task Instance Details

The following Universal Monitor Task Instance Details contains information on the execution of the task shown in the [Universal Monitor Task Details](#).

Dashboards x Universal Monitors x Universal Monitor Details: stonebranch-universalmonitortask-01 x Universal Monitor Instance Details: stonebranch-universalmonitortask-01 x

Re-run

Universal Monitor Instance Actions Virtual Resources Exclusive Requests Notes

General

Instance Name: stonebranch-universalmonitortask-01 Instance Number: 1

Description:

Member of Business Services:

Task: stonebranch-universalmonitortask-01 Source Version: 1

Launch Source: Launch Task / User Interface

Invoked By: Manually Launched Execution User: Admin

Calendar: System Default Time Zone Preference: -- System Default --

Virtual Resource Priority: 10 Hold Resources on Failure:

Mutually Exclusive With Self: Simulate:

Previous Instance Wait Resolved: -- None --

Status

Status: Finished

Status Description: State was forced from RUNNING to FINISHED

Operational Memo:

Trigger Time: Launch Time: 2023-09-19 15:55:17 -0400

Wait Until Time:

Start Time: 2023-09-19 15:55:18 -0400 End Time: 2023-09-19 15:55:23 -0400

Duration: 5 Seconds

Universal Monitor Details

Event Type: Global

Universal Event Template *: UAC - Property Changed

Universal Task Publisher:

Universal Task Publisher Status:

Time Scope: -- None --

Universal Monitor Criteria

Match All Match Any [Advanced](#)

Event Business Service Criteria

Member of Any Business Service or Unassigned

Member of Specific Business Services or Unassigned

Member of Specific Business Services

Unassigned

Event Member of Business Services:

Wait/Delay Options

Wait To Start: -- None --

Delay On Start: -- None --

Statistics

User Estimated End Time: Average Estimated End Time: 2023-09-19 15:55:18 -0400

10.4.2 Universal Monitor Task Instance Details Field Descriptions

The following table describes the fields, buttons, and tabs that display in Universal Monitor Task Instance Details.

Field Name	Description
General	This section contains general information about the task instance.
Instance Name	Name of this task instance.
Instance Number	System-supplied; Sequentially assigned number, maintained per task, representing the creation order of the instance.
Description	Description of this record. (Maximum = 255 characters.)
Member of Business Services	<p>User-defined; Allows you to select one or more Business Services that this record belongs to. (You also can Check All or Uncheck All Business Services for this record.)</p> <p>You can select up to 62 Business Services for any record type, and enter a maximum of 2048 characters for each Business Service.</p> <p>If the Business Service Visibility Restricted Universal Controller system property is set to true, depending on your assigned (or inherited) Permissions or Roles, Business Services available for selection may be restricted.</p>
Task	Name of the task that was run to create this task instance. Click the icon to display Task Details for the task.
Source Version	Version of the task that was run to create this task instance.

<p>Launch Source</p>	<p>System-supplied; Source from which this task was launched.</p> <p>Options:</p> <ul style="list-style-type: none"> • Scheduled Trigger If the instance was directly launched by a scheduled trigger, the Trigger (trigger_id) column is assigned the UUID of the scheduled trigger. • Trigger Monitor If the instance is a monitor associated with monitor trigger, the Trigger (trigger_id) column is assigned the UUID of the monitor trigger. • Trigger Now / User Interface If the instance was directly launched by a Trigger Now command, the Trigger (trigger_id) column is assigned the UUID of the trigger. • Trigger Now / System Operation If the instance was directly launched by a Trigger Now command, the Trigger (trigger_id) column is assigned the UUID of the trigger and the Source Instance (source_instance) column will be assigned the UUID of the instance invoking the System Operation. • Trigger Now / Web Service If the instance was directly launched by a Trigger Now command, the Trigger (trigger_id) column is assigned the UUID of the trigger. • Trigger Now / Command Line If the instance was directly launched by a Trigger Now command, the Trigger (trigger_id) column is assigned the UUID of the trigger. • Workflow If the instance was launched by a workflow, the Workflow (workflow_id) column is assigned the UUID of the workflow instance. Likewise, the Source Instance (source_instance) column will also be assigned the UUID of the workflow instance. • Launch Task / User Interface If the instance was directly launched by the Launch Task command, the Source Instance (source_instance) column will be null. • Launch Task / System Operation If the instance was directly launched by the Launch Task command, the Source Instance (source_instance) column will be assigned the UUID of the instance invoking the System Operation. • Launch Task / Web Service If the instance was directly launched by the Launch Task command, the Source Instance (source_instance) column will be null. • Launch Task / Command Line If the instance was directly launched by the Launch Task command, the Source Instance (source_instance) column will be null. • Recurring If the instance was directly launched by a Recurring Task Instance, the Source Instance (source_instance) column will be assigned the UUID of the Recurring Task Instance.
<p>Source Instance</p>	<p>System-supplied; UUID of the source instance.</p> <ul style="list-style-type: none"> • If the instance was directly launched by a Trigger Now command; the UUID of the instance invoking the System Operation. • If the instance was launched by a workflow; the UUID of the workflow instance. • If the instance was directly launched by the Launch Task command; the UUID of the instance invoking the System Operation. • If the instance was directly launched by a Recurring Task Instance; the UUID of the Recurring Task Instance.
<p>Invoked by</p>	<p>System-supplied; how the task instance was launched.</p> <p>Options:</p> <ul style="list-style-type: none"> • Trigger: (Trigger Name) Instance was launched by the named trigger. • Workflow: (Workflow Name) Instance was launched by the named workflow. • Manually Launched Instance was launched by a user. To identify the user, check the Execution User column for that task instance on the Task Instances screen or, on most task instance screens, the Execution User field.

Execution User	System-supplied; If the task was launched manually; ID of the user who launched it.
Calendar	Calendar associated with the task instance.
Time Zone Preference	User-defined; Allows you to specify the time zone that will be applied to the task. Options: <ul style="list-style-type: none"> – System Default – Time zone is based on the value of the Task Time Zone Preference Universal Controller system property: Server or Inherited. Server (xxx) Where (xxx) is the time zone ID of the server; time zone is evaluated in the time zone of the server. Inherited Time zone is evaluated in the time zone of the Parent Workflow or Trigger / Launch specification in the case there is no Parent Workflow.
Virtual Resource Priority	Priority for acquiring a resource when two or more tasks are waiting for the resource. This priority applies to all resources required by the task. Options: 1 (high) - 100 (low). Default is 10.
Hold Resources on Failure	If enabled, the task instance will continue to hold Renewable resources if the task instance fails. Renewable resources will be returned only if the task instance status is either Complete, Finished, or Skipped.
Mutually Exclusive With Self	If enabled, the task will not be allowed to run concurrently with itself. Task will not start until the instance that is running finishes. An instance will transition to Exclusive Wait status if it cannot start due to another instance already running.
Simulate	Specifies if the instance should execute under simulation mode .
Previous Instance Wait Resolved	System-supplied; If the Override Previous Instance Wait field for the task is set to No, the Previous Instance Wait Resolved field will be set to the value of the Previous Instance Wait field of the parent workflow. Otherwise, it will be set to the value specified by the Override Previous Instance Wait . Options: <ul style="list-style-type: none"> -- None -- Wait for Last Every task instance directly within the workflow instance will remain in Instance Wait until the most recent prior instance of the same task has completed. Wait for Last / Same Workflow Every task instance directly within the workflow instance will remain in Instance Wait until the most recent prior instance of the same task, within an instance of the same workflow, have completed. Wait for All Every task instance directly within the workflow instance will remain in Instance Wait until all prior instances of the same task has completed. Wait for All / Same Workflow Every task instance directly within the workflow instance will remain in Instance Wait until all prior instances of the same task, within an instance of the same workflow, have completed.
Status	This section contains information about the current status of the task instance.
Status	System-supplied; see Task Instance Statuses .
Exit Code	System-supplied; the exit code captured by the Agent when executing the task (for example, a command or script).
Status Description	System-supplied; additional information, if any, about the status of the task instance.
Operational Memo	User-defined operational memo.

Evaluation Time	If time zone of user is different than time zone of task instance; Time at which Execution Restrictions and Run Criteria were evaluated based upon the requested time zone. (Time zone of task instance displays in parentheses.)
Critical	Indicates that this task is in the Critical Path of a workflow.
Critical Endpoint	Indicates that this task was defined as a Critical Endpoint of a Critical Path in a workflow.
Wait Until Time	Amount of time calculated to wait before the task was started, based on Wait To Start and Delay On Start times.
Queued Time	System-supplied; Date and time the task was queued for processing.
Trigger Time	System-supplied; Date and time the task instance was triggered.
Launch Time	System-supplied; Date and time the task instance was launched.
Start Time	System-supplied; Date and time the task instance started.
End Time	System-supplied; Date and time the task instance completed.
Duration	System-supplied; amount of time the task instance took to run.
Universal Monitor Details	This section contains assorted detailed information about the task.
Event Type	Type of Universal Event to monitor: <ul style="list-style-type: none"> • Global • Local
Universal Event Template	If Event Type is Global; Name of the Universal Event Template on which this Universal Monitor task is based.
Universal Template	If Event Type is Local; Name of the Universal Template on which this Universal Monitor task is based.
Event Template	If Event Type is Local; Name of the Event Template within the specified Universal Template on which this Universal Monitor task is based.
Universal Task Publisher	<p>Optional; Universal Extension-based Universal Task that will be:</p> <ul style="list-style-type: none"> • Launched when the Universal Monitor task starts. • Force Finished/Cancelled when the Universal Monitor task ends. <p>The Running Universal Task Publisher can only publish Universal Events to this Universal Monitor, and this Universal Monitor can only match on Universal Events published by the Running Universal Task Publisher.</p> <p>The Publisher is expected to publish the events that this Universal Monitor is expecting to come in.</p> <ul style="list-style-type: none"> • If the Universal Monitor is specified by a Universal Monitor Trigger (or the Universal Monitor Trigger component of a Composite Trigger), the Publisher will run indefinitely until the Trigger is disabled. At that time, a Cancel and Force Finish will be issued to the Universal Monitor, and the Universal Monitor will propagate these commands to the associated Universal Task Publisher instance that is running. • If the Universal Monitor is run stand-alone or within a workflow, the Publisher will not run continuously, as the Universal Monitor will complete when the event coming in is matched or the Time Scope (if specified) is reached. <p>A Universal Monitor Task Instance that specifies a Publisher will show the associated Universal Task Instance representing the Publisher.</p>

<p>Universal Task Publisher Variables</p>	<p>List of task variables to override.</p> <ul style="list-style-type: none"> • Name Name of the variable to override. • Value Value of the variable to override. • Resolution Type of resolution for the override: <ul style="list-style-type: none"> • Disabled Variable is passed to the launched Universal Task Publisher unresolved and will remain unresolved in the Universal Monitor Task Instance Details. • Enabled Variable is resolved when the Universal Monitor Task Instance is started (running); therefore, it is passed to the launched Universal Task Publisher resolved and will remain resolved in the Universal Monitor Task Instance Details. If an Enabled variable cannot be resolved when the Universal Monitor Task Instance is being started, the Universal Monitor Task Instance will transition to a Start Failure with the following Status Description: Universal Task Publisher Variable "<i>variable-name</i>" with Resolution "<i>variable-resolution</i>" is unresolved. <div style="border: 2px solid orange; padding: 10px; margin-top: 10px;"> <p>The following order of precedence will apply if a variable is present in multiple scopes:</p> <ol style="list-style-type: none"> 1. Universal Monitor - Universal Task Publisher Variables 2. Universal Monitor Trigger 3. Universal Monitor – Universal Task Publisher </div>
<p>Time Scope</p>	<p>Allows monitoring of Universal Events that were published prior to the Universal Monitor task running, or limits how long the Universal Monitor task continues to monitor before becoming Failed,</p> <p>Options:</p> <ul style="list-style-type: none"> • -- None -- • Relative
<p>Expiration Action</p>	<p>If Time Scope is Relative; State to transition to if Relative Time Scope conditions are not met within the specific window.</p> <p>Options:</p> <ul style="list-style-type: none"> • Failed • Finished
<p>From</p>	<p>Format is (+/-)hh:mm</p> <p>If Time Scope = Relative; Together with the Time Scope To field, it allows you to specify a window of time, relative to the time the Universal Monitor task launched, during which the conditions of the Universal Monitor must be met.</p> <p>If the conditions are not met within the specified window, the Universal Monitor task instance will transition to Failed (default) or Finished status, as determined by the Expiration Action.</p> <p>hh must be a positive integer. mm must be a positive integer between 0 and 59 inclusive. For example, -124:00, -12:00, -6:00, 00:00, 6:00, 12:00, or 124:00.</p>

<p>To</p>	<p>Format is (+/-)hh:mm</p> <p>If Time Scope = Relative; Together with the Time Scope From field, it allows you to specify a window of time, relative to the time the Universal Monitor task launched, during which the conditions of the Universal Monitor must be met.</p> <p>If the conditions are not met within the specified window, the Universal Monitor task instance will transition to Failed (default) or Finished status, as determined by the Expiration Action.</p> <p>hh must be a positive integer. mm must be a positive integer between 0 and 59 inclusive. For example, -124:00, -12:00, -6:00, 00:00, 6:00, 12:00, or 124:00.</p>
<p>Universal Monitor Criteria</p>	<p>This section contains criteria for selecting Universal Events to monitor.</p>
<ul style="list-style-type: none"> • Match All • Match Any 	<p>Criteria for matching attributes of the selected Universal Event Template.</p> <ul style="list-style-type: none"> • Match All • Match Any <p>If no match criteria is specified, the Universal Monitor will match any published Universal Event of the selected Universal Event Template.</p>
<p>Event Business Service Criteria</p>	<p>This section contains criteria for selecting Universal Events to monitor by their business service membership.</p>
<ul style="list-style-type: none"> • Member of Any Business Service or Unassigned • Member of Specific Business Services or Unassigned • Member of Specific Business Services • Unassigned 	<p>Criteria for matching on Universal Events by their business service membership.</p> <ul style="list-style-type: none"> • Member of Any Business Service or Unassigned • Member of Specific Business Services or Unassigned You must specify one or more business services from an Event Member of Business Services drop-down. • Member of Specific Business Services You must specify one or more business services from an Event Member of Business Services drop-down. • Unassigned
<p>Wait / Delay Options</p>	<p>This section contains specifications for waiting to start and/or delaying on start the task.</p>
<p>Wait To Start</p>	<p>Amount of time to wait before starting a task from the time that it was launched.</p> <p>Options are:</p> <ul style="list-style-type: none"> • – None – • Time • Relative Time • Duration • Seconds
<p>Wait Time</p>	<p>If Wait To Start = Time or Relative Time; Number of hours and minutes to wait before starting the task.</p>

<p>Wait Day Constraint</p>	<p>If Wait Time = Time or Relative Time; Specification for whether or not to advance the wait time to another day.</p> <p>Valid values:</p> <ul style="list-style-type: none"> • -- None -- <ul style="list-style-type: none"> • If Wait To Start = Time; Advance to the next day if the specified wait time is before the time that the task instance is eligible to start; that is, all dependencies have been met. For example: it is not being held, and it is not waiting on any predecessors. • If Wait To Start = Relative Time; Advance to the next day if the specified wait time is before the task instance Trigger Time or, if there is no Trigger Time, before the task instance Launch Time. In the latter case, when a task instance is within a workflow, it will inherit the Launch Time of the top-level parent workflow task instance. • Same Day Do not advance day. • Next Day Advance to the next day. • Next Business Day Advance to the next business day. • Sunday If today is not Sunday, advance to next Sunday. • Monday If today is not Monday, advance to next Monday. • Tuesday If today is not Tuesday, advance to next Tuesday. • Wednesday If today is not Wednesday, advance to next Wednesday. • Thursday If today is not Thursday, advance to next Thursday. • Friday If today is not Friday, advance to next Friday. • Saturday If today is not Saturday, advance to next Saturday. <p>Default is -- None --.</p>
<p>Wait Duration</p>	<p>If Wait To Start = Duration; Number of days, hours, minutes, and seconds to wait before starting the task.</p>
<p>Wait Duration In Seconds</p>	<p>If Wait To Start = Seconds; Number of seconds to wait before starting the task.</p>
<p>Delay On Start</p>	<p>Amount of time to delay the start of a task, after it has been launched, from the time that it is eligible to start; that is, all dependencies have been met. For example: it is not being held, it is not waiting on any predecessors, or there is no wait time specified.</p> <p>Options are:</p> <ul style="list-style-type: none"> • -- None -- • Duration • Seconds
<p>Delay Duration</p>	<p>If Delay On Start = Duration; Number of days, hours, minutes, and seconds to delay after starting the task.</p>
<p>Delay Duration In Seconds</p>	<p>If Delay On Start = Seconds; Number of seconds to delay after starting the task.</p>
<p>Time Options</p>	<p>This section contains time-related specifications for the task instance.</p>

Late Start	If enabled, and if the task instance starts after the time or period specified, the task instance is flagged as late. You can specify a time or duration to determine a late start (see Late Start Type). To determine whether a task instance started late, open the task instance and locate the Started Late field; the field is checked if the instance started after the specified time. The Started Late field displays in the task instance Details only if the user specified a Late Start in the task Details.
Started Late	System-supplied; this field is flagged if the task started later than the time specified in the Late Start fields.
Late Start Type	Required if Late Start is enabled. Options: <ul style="list-style-type: none"> • Time - Flag the task if it starts after the specified time. • Duration - Flag the task if it starts a certain amount of time after the programmed start time. The task must have a specific start time.
Late Start Time	If Late Start Type = Time; Time after which the task start time is considered late. Use HH:MM, 24-hour time.
Late Start Day Constraint	If Late Start Type = Time; Specification for whether or not to advance the late start time to another day. Valid values: <ul style="list-style-type: none"> • -- None -- Advance to the next day if the specified late start time is before the Created time of the task instance. • Same Day Do not advance day. • Next Day Advance to the next day. • Next Business Day Advance to the next business day. • Sunday If today is not Sunday, advance to next Sunday. • Monday If today is not Monday, advance to next Monday. • Tuesday If today is not Tuesday, advance to next Tuesday. • Wednesday If today is not Wednesday, advance to next Wednesday. • Thursday If today is not Thursday, advance to next Thursday. • Friday If today is not Friday, advance to next Friday. • Saturday If today is not Saturday, advance to next Saturday. • Nth Day Advance to a specific number of days in the future. Default is -- None --.
Late Start Nth Amount	If Late Start Day Constraint = Nth Day; Number of days to advance.
Late Start Duration	If Late Start Type = Duration; Duration (amount of relative time) after which the task is considered to have started late. For a task within a workflow, the duration is the period between the time the workflow starts and the time the task itself starts. For example, a task might have a Late Start Duration of 60 minutes. If the workflow starts at 9:00 a.m. but the task itself does not start until 10:30, the task has started late. For a task that is not within a workflow, Late Start Duration has meaning only if the task has been held upon starting. For example, if a task has a Late Start Duration of 60 minutes and the Hold on Start field is enabled, if the task is not released from hold within the amount of time specified in the Late Start Duration field, the task has started late.
Computed Late Start Time	If Late Start is enabled, the computed Date/Time for when the task instance will be Late Started.

Late Finish	If enabled, and if the task instance finishes after the time or period specified, the task instance is flagged as late. You can specify a time or duration to determine a late finish (see Late Finish Type). To determine whether a task instance finished late, open the task instance and locate the Finished Late field; the field is checked if the instance finished after the specified time or lasted longer than expected. This field only appears on the task instance if the user specified a Late Finish in the task definition.
Finished Late	System-supplied; this field is flagged if the task finished later than the time or duration specified in the Late Finish fields.
Late Finish Type	Required if Late Finish is enabled. Options: <ul style="list-style-type: none"> • Time - Flag the task if it finishes after the specified time (see Late Finish Time). • Duration - Flag the task if it finishes a certain amount of time after the programmed finish time (see Late Finish Duration). The task must have a specific finish time. • Average Duration - Flag the task if it finishes before the average duration (see Average Instance Time) for the task, less an offset (see Late Finish Offset Type), if specified.
Late Finish Offset Type	If Late Finish Type = Average Duration; Options: <ul style="list-style-type: none"> • Percentage • Duration
Late Finish Percentage Offset (+)	Required if Late Finish Offset Type = <i>Percentage</i> ; Percentage of Average Duration to use as an offset. The late finish time is calculated by adding the offset to the Average Duration .
Late Finish Duration Offset (+)	Required if Late Finish Offset Type = <i>Duration</i> ; Duration to use as an offset. The late finish time is calculated by adding the offset to the Average Duration .
Late Finish Duration Offset Unit	If Late Finish Offset Type = Duration; Options: <ul style="list-style-type: none"> • Seconds • Minutes • Hours
Late Finish Time	If Late Finish Type = Time; Time after which the task finish time is considered late. Use HH:MM, 24-hour time.

<p>Late Finish Day Constraint</p>	<p>If Late Finish Type = Time; Specification for whether or not to advance the late finish time to another day.</p> <p>Valid values:</p> <ul style="list-style-type: none"> • -- None -- Advance to the next day if the specified late finish time is before the Created time of the task instance. • Same Day Do not advance day. • Next Day Advance to the next day. • Next Business Day Advance to the next business day. • Sunday If today is not Sunday, advance to next Sunday. • Monday If today is not Monday, advance to next Monday. • Tuesday If today is not Tuesday, advance to next Tuesday. • Wednesday If today is not Wednesday, advance to next Wednesday. • Thursday If today is not Thursday, advance to next Thursday. • Friday If today is not Friday, advance to next Friday. • Saturday If today is not Saturday, advance to next Saturday. • Nth Day Advance to a specific number of days in the future. <p>Default is -- None --.</p>
<p>Late Finish Nth Amount</p>	<p>If Late Finish Day Constraint = Nth Day; Number of days to advance.</p>
<p>Late Finish Duration</p>	<p>If Late Finish Type = Duration; Longest amount of time this task instance should take to run.</p>
<p>Computed Late Finish Time</p>	<p>If Late Finish is enabled, the computed Date/Time for when the task instance will be Late Finished.</p>
<p>Early Finish</p>	<p>If enabled, and if the task instance finishes before the time or period specified, the task instance is flagged as early. You can specify a time or duration to determine an early finish (see Early Finish Type). To determine whether a task instance finished early, open the task instance and locate the Finished Early field; the field is checked if the instance finished before the specified time or did not last as long as expected. This field only appears on the task instance if the user added Early Finish specifications to the task definition.</p>
<p>Finished Early</p>	<p>System-supplied; this field is flagged if the task finished earlier than the time specified in the Early Finish fields.</p>
<p>Early Finish Type</p>	<p>Required if Early Finish is enabled.</p> <p>Options:</p> <ul style="list-style-type: none"> • Time - Flag the task if it finishes before the specified time (see Early Finish Time). • Duration - Flag the task if it finishes a certain amount of time before the programmed finish time (see Early Finish Duration). The task must have a specific finish time. • Average Duration - Flag the task if it finishes before the average duration (see Average Instance Time) for the task, less an offset (see Early Finish Offset Type), if specified.
<p>Early Finish Offset Type</p>	<p>If Early Finish Type = Average Duration;</p> <p>Options:</p> <ul style="list-style-type: none"> • Percentage • Duration
<p>Early Finish Percentage Offset (-)</p>	<p>Required if Early Finish Offset Type = <i>Percentage</i>; Percentage of Average Duration to use as an offset. The early finish time is calculated by subtracting the offset from the Average Duration.</p>

Early Finish Duration Offset (-)	Required if Early Finish Offset Type = <i>Duration</i> ; Duration to use as an offset. The early finish time is calculated by subtracting the offset from the Average Duration .
Early Finish Duration Offset Unit	If Early Finish Offset Type = <i>Duration</i> ; Options: <ul style="list-style-type: none"> • Seconds • Minutes • Hours
Early Finish Time	If Early Finish Type = <i>Time</i> ; Time before which the task finish time is considered early. That is, enter a time at which the task should still be running. Use HH:MM, 24-hour time.
Early Finish Day Constraint	If Early Finish Type = <i>Time</i> ; Specification for whether or not to advance the early finish time to another day. Valid values: <ul style="list-style-type: none"> • -- None -- Advance to the next day if the specified early finish time is before the Created time of the task instance. • Same Day Do not advance day. • Next Day Advance to the next day. • Next Business Day Advance to the next business day. • Sunday If today is not Sunday, advance to next Sunday. • Monday If today is not Monday, advance to next Monday. • Tuesday If today is not Tuesday, advance to next Tuesday. • Wednesday If today is not Wednesday, advance to next Wednesday. • Thursday If today is not Thursday, advance to next Thursday. • Friday If today is not Friday, advance to next Friday. • Saturday If today is not Saturday, advance to next Saturday. • Nth Day Advance to a specific number of days in the future. Default is -- None --.
Early Finish Nth Amount	If Early Finish Day Constraint = <i>Nth Day</i> ; Number of days to advance.
Early Finish Duration	If Early Finish Type = <i>Duration</i> ; Shortest amount of time this task instance should take to run.
Projected Late	System-provided if Late Start Time , Late Start Duration , or Late Finish Time is specified; This field is flagged if the task instance is projected to be late based on critical path projected end times (see Critical Path Projected Late Action Maximum and Critical Path Projected Late Threshold In Minutes Universal Controller system properties). .
Critical Path Options	This section contains Critical Path-related specifications for the task.
CP Duration	Optional; Allows you to override the estimated Critical Path Duration of the task when running in a Workflow; used in conjunction with the CP Duration Unit field. In most cases, this field should be left blank, which implies that the Controller will estimate the Critical Path Duration based on historical executions. Valid values are any integer equal to or greater than 0. Variables and Functions are supported.

<p>CP Duration (Resolved)</p>	<p>Displays the current resolved value of the CP Duration field, which may contain variables or functions that will be displayed as unresolved until the task instance starts. The CP Duration (Resolved) field can continue to change value until the task instance starts, at which time CP Duration will display as resolved and CP Duration (Resolved) will no longer be visible unless there was an issue resolving the variables and/or functions contained within CP Duration. If the Controller is unable to resolve CP Duration or it resolves to an invalid value, CP Duration will be ignored and the Controller will estimate the Critical Path Duration based on historical executions.</p>
<p>CP Duration Unit</p>	<p>Type of CP Duration; used in conjunction with the CP Duration field. For example, for a CP Duration of two minutes, specify 2 in the CP Duration field and select Minutes in this field.</p> <p>Options:</p> <ul style="list-style-type: none"> • Seconds • Minutes • Hours <p>Default is Minutes.</p>
<p>Workflow Execution Options</p>	<p>This section contains Execution Restriction specifications for the task if it is within a Workflow.</p>
<p>Execution Restriction</p>	<p>Specification for whether or not there is a restriction for this task to be run, skipped, or held.</p> <p>Options are:</p> <ul style="list-style-type: none"> • -- None -- No restriction for this task. • Run Restriction for when this task will be run. • Skip Restriction for when this task will be skipped. • Hold Restriction for when this task will be held. <p>If Execution Restriction on a task is Run or Skip, then when it is part of a Workflow that is being launched, the Restriction Period is evaluated. The task instance will be skipped if Execution Restriction is Skip and the date is within the Restriction Period or Execution Restriction is Run and the date is not within the Restriction Period. Execution Restriction can be set to Skip with a Restriction Period of - None -, meaning the restriction is always active and the task will be skipped when it is part of a Workflow.</p>
<p>Restriction Period</p>	<p>If Execution Restriction = Run, Skip, or Hold; Period of time when the task is restricted.</p> <p>Options are:</p> <ul style="list-style-type: none"> • – None – No period of restriction for this task. • Before Restriction is valid if the date is before the Before Date value. • After Restriction is valid if the date is after the After Date value. • Span Restriction is valid if the date is before the Before Date value and after After Date value. • On Restriction is valid if the date is one of the Date List values.
<p>Before Date</p>	<p>If Restriction Period = Before or Span; Date before which the restriction is valid.</p>
<p>Before Time</p>	<p>If Restriction Period = Before or Span; Time on the selected date before which the restriction is valid.</p>
<p>After Date</p>	<p>If Restriction Period = After or Span; Date after which the restriction is valid.</p>
<p>After Time</p>	<p>If Restriction Period = After or Span; Time on the selected date after which the restriction is valid.</p>
<p>Date List</p>	<p>If Restriction Period = On; Date(s) on which the restriction is valid.</p>
<p>Statistics</p>	<p>This section contains time-related statistics for the task instance.</p>

User Estimated End Time	System-supplied; If the user entered information into the User Estimated Duration field in the task Details, the Controller uses this information to calculate an end time for the task instance, based on the date/time the task instance started.
Lowest Estimated End Time	System-supplied; Lowest estimated end time of the task instance, calculated by the Controller based on the date/time the task instance started.
Average Estimated End Time	System-supplied; Average estimated end time of the task instance, calculated by the Controller based on the date/time the task instance started.
Highest Estimated End Time	System-supplied; Highest estimated end time of the task instance, calculated by the Controller based on the date/time the task instance started.
Projected Start Time	System-supplied; projected start time of the task instance, calculated by the Controller based on Projected End Time minus Projected Duration.
Projected End Time	System-supplied; projected end time of the task instance, calculated by the Controller based on the projected end time of its predecessor (or the maximum projected end time of all its predecessors, if more than one path exists to that task instance) plus its estimated critical path duration .
Metadata	This section contains Metadata information about this record.
UUID	Universally Unique Identifier of this record.
Updated By	Name of the user that last updated this record.
Updated	Date and time that this record was last updated.
Created By	Name of the user that created this record.
Created	Date and time that this record was created.
Status History	History of all statuses that the task instance has gone through.
Buttons	This section identifies the buttons displayed above and below the Task Instance Details that let you perform various actions.
Update	Saves updates to the record.
Force Finish	See Force Finishing a Task .
Hold	Places the task instance on Hold (see Putting a Task on Hold).
Skip	For tasks loaded into the schedule that have not yet run; allows you to tell the Controller to skip this task. See Skipping a Task .

<p>Re-run</p>	<p>See Re-running a Task Instance.</p> <div style="border: 1px solid orange; padding: 10px; margin: 10px 0;"> <p>Note</p> <p>If the Re-run (Suppress Intermediate Failures) Permitted Universal Controller system property is set to true, the Re-run button is a drop-down list containing the following options:</p> <ul style="list-style-type: none"> • Re-run • Re-run (Suppress Intermediate Failures) </div> <p>The Re-run button does not display if the task instance does not qualify for Re-run. If the task instance qualifies for Re-run, but already has Retry Options enabled, Re-run (Suppress Intermediate Failures) displays as disabled in the drop-down list.</p>										
<p>View Parent</p>	<p>Displays the task instance Details for the parent Workflow of this task instance.</p>										
<p>Delete</p>	<p>Deletes the current record.</p>										
<p>Refresh</p>	<p>Refreshes any dynamic data displayed in the Details.</p>										
<p>Close</p>	<p>For pop-up view only; closes the pop-up view of this task instance.</p>										
<p>Tabs</p>	<p>This section identifies the tabs across the top of the Task Instance Details that provide access to additional information about the task instance.</p>										
<p>Actions</p>	<p>Actions that the Controller took automatically based on events that occurred during the execution of this task.</p> <p>Events are:</p> <ul style="list-style-type: none"> • Task instance status • Exit codes • Late start • Late finish • Early finish <p>Actions are:</p> <table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 30%;">Abort Action</td> <td>Abort the task if certain events occur. For details, see Abort Actions.</td> </tr> <tr> <td>Email Notification</td> <td>Send an email if certain events occur. For details, see Email Notification Actions.</td> </tr> <tr> <td>Set Variable</td> <td>Used in tasks and workflows to set a variable based on the occurrence of certain events. For details, see Creating a Set Variable Action within a Task or Workflow.</td> </tr> <tr> <td>SNMP Notification</td> <td>Send an email if certain events occur. For details, see SNMP Notification Actions.</td> </tr> <tr> <td>System Operation</td> <td>Run an Universal Controller system operation based on specified conditions. For details, see System Operation Actions.</td> </tr> </table>	Abort Action	Abort the task if certain events occur. For details, see Abort Actions .	Email Notification	Send an email if certain events occur. For details, see Email Notification Actions .	Set Variable	Used in tasks and workflows to set a variable based on the occurrence of certain events. For details, see Creating a Set Variable Action within a Task or Workflow .	SNMP Notification	Send an email if certain events occur. For details, see SNMP Notification Actions .	System Operation	Run an Universal Controller system operation based on specified conditions. For details, see System Operation Actions .
Abort Action	Abort the task if certain events occur. For details, see Abort Actions .										
Email Notification	Send an email if certain events occur. For details, see Email Notification Actions .										
Set Variable	Used in tasks and workflows to set a variable based on the occurrence of certain events. For details, see Creating a Set Variable Action within a Task or Workflow .										
SNMP Notification	Send an email if certain events occur. For details, see SNMP Notification Actions .										
System Operation	Run an Universal Controller system operation based on specified conditions. For details, see System Operation Actions .										

Virtual Resources	<p>Lists all Virtual Resources to which this task is assigned.</p> <p>If you want to create a Task Virtual Resource for this task, you can select an existing Virtual Resource (or, optionally, first create a new Virtual Resource and then select it as the Task Virtual Resource) or enter a Virtual Resource variable. The variable must be a supported type as described in Variables and Functions.</p>
Exclusive Requests	<p>Lists all records in the Exclusive Requests table (<code>ops_exclusive_order</code>) for this task instance.</p>
Notes	<p>Lists all notes associated with this record.</p>

10.5 Running a Universal Monitor Task

You can run a Universal Monitor task:

- Manually, by clicking the [Launch](#) or [Launch with Variables](#) button in the Universal Monitor Tasks list or Universal Monitor Task Details [Action menu](#) .
- As part of a [workflow](#) .
- [Specify triggers](#) that run the task automatically based on times or events.

10.6 Monitoring Task Execution

You can monitor all system activity from the [Activity Monitor](#) and can view activity history from the [History list](#).