Datacenter Automation Utilities PowerPack

Datacenter Automation Utilities PowerPack version 202

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Chapter 1

Introduction to the Datacenter Automation Utilities PowerPack

Overview

The "Datacenter Automation Utilities" PowerPack includes run book automation and action policies that collect diagnostic information when events occur and assist with general-purpose activities for other "Datacenter Advanced Enrichment" and "Automation Policies" PowerPacks.

This PowerPack also provides various enrichment utilities that validate network connectivity from SL1 to a target device, and a run book action template that you can use to make network requests (GET/POST) from SL1.

You can use this PowerPack to provide enriched events for network connectivity issues for all devices by enabling the actions in this pack. Once enabled, all poller-related events will be enriched with the actions in this pack.

IMPORTANT: Starting with version 202 of this PowerPack, the vendor-specific run book actions that were in the now-deprecated "Datacenter Advanced Enrichment Actions" PowerPack were moved to the corresponding "Datacenter Advanced Enrichment" or "Automation Policies" PowerPacks. The three "Enrichment: Util" actions were moved to this PowerPack.

This chapter covers the following topics:

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What is the Datacenter Automation Utilities PowerPack?

The "Datacenter Automation Utilities" PowerPack supplies a set of policies that assist with managing other "Datacenter Advanced Enrichment" and "Automation" PowerPacks installed on your SL1 system.

This PowerPack includes the following run book actions, which used to be included in the now-deprecated "Datacenter Advanced Enrichment Actions" PowerPack:

- **Enrichment: Util: Collect Enrichment Data**. Executes the list of commands provided by the previous action and sends the output to the next run book action in the sequence of actions.
- **Enrichment: Util: Format Command Output as HTML**. Formats the output of the "Enrichment: Util: Collect Enrichment Data" run book action in HTML format.
- **Enrichment: Util: Load Work Instructions**. If the library of work instructions included with the PowerPack contains a set of instructions for the event policy that triggered the event, the run book action will output that set of work instructions.

  For more information about how to use the "Enrichment: Util" run book actions with a run book automation, see *Creating and Customizing Run Book Automation Policies*.

This PowerPack also includes event policies, device groups, run book actions, run book automation policies, and action types from the following PowerPacks:

- **Network Connectivity Automations PowerPack**. Enriches SL1 network connectivity events, such as availability and latency issues, by automatically running common network diagnostic commands and adding the output to the SL1 event log or an associated incident. This PowerPack includes custom run book action types for running ping, traceroute, nslookup, and nmap commands with parameters that you specify. For more information, see *Configuring Network Connectivity Automations*.
- **Network Connectivity User-Initiated Automations PowerPack**. Contains automation policies that you can use to run common network diagnostic commands from the SL1 **Events** page using Event Tools. In addition to using the standard content, you can customize the automation policies, or you can create your own automation policies using any available automation actions. For more information, see *Network Connectivity User-initiated Automation Policies*.
- **HTTP Action Type PowerPack**. Contains the "HTTP Action Template" run book action template that you can use to create custom automation actions that perform HTTP requests. The PowerPack also includes action types that are used by the run book action. For more information, see *Configuring Network Request Run Book Actions*.

Upgrading from a Previous Version of the PowerPack

If you have a previous version of the "Datacenter Automation Utilities" PowerPack, you will need to execute the following SQL on your SL1 system to ensure a seamless transition to this release. These queries ensure any applicable run book actions, automation policies, and other content on the SL1 system from the previous versions of the "Network Connectivity" and "HTTP Action Type" PowerPacks can receive updates from the upgrade to this release of this PowerPack.

If you are upgrading from version 200 or 201 of this PowerPack, you can skip this step.

To upgrade from a previous release of the "Datacenter Automation Utilities" PowerPack:

1. In SL1, got to the Database Tool page (System > Tools > DB Tool).
2. Execute the following queries, one at a time:

```
UPDATE 'master'.'automation_action_types' SET 'ppguid' =
'B93FB6E9C2E5C7BC8C99A55E4DDD673F' WHERE 'ppguid' IN
('2BF43CA3E82A767F2B14756B64D6E2AE',
'1034B560B0D0DFDE390C248396F2A301');
```

```
UPDATE 'master'.'automation_action_types' SET 'ppguid' =
'B93FB6E9C2E5C7BC8C99A55E4DDD673F' WHERE 'guid' IN
('EFE2255897C1700DE6601F6CB7892C9D');
```

```
UPDATE 'master'.'policies_actions' SET 'ppguid' =
'B93FB6E9C2E5C7BC8C99A55E4DDD673F' WHERE 'ppguid' IN
('2BF43CA3E82A767F2B14756B64D6E2AE',
'1034B560B0D0DFDE390C248396F2A301');
```

```
UPDATE 'master'.'policies_automation' SET 'ppguid' =
'B93FB6E9C2E5C7BC8C99A55E4DDD673F' WHERE 'ppguid' IN
('2BF43CA3E82A767F2B14756B64D6E2AE',
'1034B560B0D0DFDE390C248396F2A301');
```

```
UPDATE 'master_dev'.'device_groups' SET 'ppguid' =
'B93FB6E9C2E5C7BC8C99A55E4DDD673F' WHERE 'ppguid' IN
('2BF43CA3E82A767F2B14756B64D6E2AE',
'1034B560B0D0DFDE390C248396F2A301');
```

Also, if you were using a version of the now-deprecated "Datacenter Advanced Enrichment Actions" PowerPack on your SL1 system, you will need to run two additional queries.

To upgrade from the "Datacenter Advanced Enrichment Actions" PowerPack:

1. In SL1, go to the Database Tool page (System > Tools > DB Tool).
2. Execute the following queries, one at a time:

```
UPDATE master.dynamic_app SET ppguid
="B93FB6E9C2E5C7BC8C99A55E4DDD673F" WHERE app_guid IN
("9E65983E6129D5B352197D171A66BB4E");
```

```
UPDATE master.policies_actions SET ppguid
="B93FB6E9C2E5C7BC8C99A55E4DDD673F" WHERE action_guid IN
("7447456C1A06B17E845DFA12DDE06C97",
"8CFB38D8D133F29F0DF67BB6ED3789AC",
"D757533AD358FAE5272DABD873238360");
```

Installing the Datacenter Automation Utilities PowerPack

Starting with version 202 of this PowerPack, the vendor-specific run book actions that were in the now-deprecated "Datacenter Advanced Enrichment Actions" PowerPack were moved to the corresponding "Datacenter Advanced Enrichment" or "Automation Policies" PowerPacks.

If you are using this PowerPack with any of the latest "Datacenter Advanced Enrichment" or "Automation Policies" PowerPacks, you will need to install version 202 or later of this PowerPack *first*, before installing the other PowerPacks.

TIP: By default, installing a new version of a PowerPack overwrites all content from a previous version of that PowerPack that has already been installed on the target system. You can use the ***Enable Selective PowerPack Field Protection*** setting in the **Behavior Settings** page (System > Settings > Behavior) to prevent new PowerPacks from overwriting local changes for some commonly customized fields. For more information, see the section on *Global Settings*.

NOTE: For details on upgrading SL1, see the relevant *SL1 Platform Release Notes*.

To download and install the PowerPack:

1. Search for and download the PowerPack from the **PowerPacks** page (Product Downloads > PowerPacks & SyncPacks) at the ScienceLogic Support Site.
2. In SL1, go to the **PowerPacks** page (System > Manage > PowerPacks).
3. Click the **[Actions]** button and choose *Import PowerPack*. The **Import PowerPack** dialog box appears.
4. Click **[Browse]** and navigate to the PowerPack file from step 1.
5. Select the PowerPack file and click **[Import]**. The **PowerPack Installer** modal displays a list of the PowerPack contents.
6. Click **[Install]**. The PowerPack is added to the **PowerPacks** page.

NOTE: If you exit the **PowerPack Installer** modal without installing the imported PowerPack, the imported PowerPack will not appear in the **PowerPacks** page. However, the imported PowerPack will appear in the **Imported PowerPacks** modal. This page appears when you click the **[Actions]** menu and select *Install PowerPack*.

Chapter 2

Configuring Automation Utilities and Datacenter Automations

Overview

This chapter describes how to configure and use the "Automation Utilities", "Datacenter Automation", and "Enrichment: Util" policies in the "Datacenter Automation Utilities" PowerPack.

These general-purpose run book actions and run book automation policies let you modify the output formatting of an enrichment action, send enrichment data to ServiceNow integrations, and supplement the execution of enrichment actions.

You can also configure run book actions and run book automations to collect additional diagnostic information when events occur and to provide instructions on how to troubleshoot issues. This additional information about an event is intended to assist the engineer responsible for troubleshooting and resolving that event.

This chapter covers the following topics:

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Automation Utilities, Datacenter Automation, and Enrichment: Util Run Book Actions 8

Sending Enrichment Output to a ServiceNow Integration 10

Removing Automation Policies from a PowerPack 11

Creating and Customizing Run Book Automation Policies 16

Automation Utilities Run Book Automation Policies

The following table lists the "Automation Utilities" run book automation policies included in the "Datacenter Automation Utilities" PowerPack:

Automation Policy Name	Aligned Events	Run Book Action
Automation Utilities: Integrate Automations with SNOW Scoped For more information, see *Sending Enrichment Output to a ServiceNow Integration*.	• Automation Utilities: Request to Migrate Datacenter Advanced Enrichment Policies to ServiceNow	• Automation Utilities: Change Enrichment Formatting to SN Scoped • Automation Utilities: Connect Enrichment Automations to SN
Automation Utilities: Remove Automation Policies from PowerPack For more information, see *Removing Automation Policies from a PowerPack*.	• Automation Utilities: Request to Remove Datacenter Advanced Enrichment Policies from PowerPack	• Automation Utilities: Remove Automation Policies from PowerPack

IMPORTANT: To use these run book automation policies, you will need to *enable each policy*, as the policies are disabled by default.

Automation Utilities, Datacenter Automation, and Enrichment: Util Run Book Actions

The general-purpose run book actions and run book automation policies in the "Datacenter Automation Utilities" PowerPack help with modifying the output formatting of an enrichment action, sending enrichment data to ServiceNow integrations, or otherwise supplementing the execution of enrichment actions.

You can use the following run book action policies to perform specific actions as part of the run book automations in the "Datacenter Automation Utilities" PowerPack.

- **Automation Utilities: Calculate Memory Size for Each Action**. Manages memory allocation for other run book actions that are included in the automation policy aligned with this action. This action should be at the start of a run book automation policy that includes multiple run book actions that collect data.

  This run book action manages memory allocation for the following actions and PowerPacks:

  - "Network Connectivity" run book actions from this PowerPack; for more information, see *Configuring Network Connectivity Automations.*
  - "Linux SSH Automations" PowerPack
  - "VMware Automation" PowerPack
  - "Windows PowerShell Automations" PowerPack

- **Automation Utilities: Change Enrichment Formatting to SN Scoped**. Where applicable, changes all of the run book automation policies in the specified Automation PowerPack to use the "Datacenter Automation: Format Output for ServiceNow Scoped" run book action instead of the "Datacenter Automation: Format Output as HTML" action. You can specify the target PowerPack with the ***powerpack_guid*** field. For more information, see *Sending Enrichment Output to a ServiceNow Integration*.

- **Automation Utilities: Connect Enrichment Automations to SN**. Where applicable, changes all the run book automation policies in the specified Automation PowerPack to use the "Datacenter Automations: Update ServiceNow Incident" run book action in place of the "Enrichment: Util: Load HTML Work Instructions" action. You can specify the target PowerPack with the ***powerpack_guid*** field. For more information, see *Sending Enrichment Output to a ServiceNow Integration*.

- **Automation Utilities: Remove Automation Policies from PowerPack**. Unaligns all of the automation policies from the specified Automation PowerPack to prevent any changes made to the automation policy from being overwritten when the PowerPack is updated on that SL1 system. You can specify the target PowerPack with the ***powerpack_guid*** field. For more information, see *Removing Automation Policies from a PowerPack*.

- **Datacenter Automation: Add Commands to Device Log**. Adds a device log entry that includes a list of commands for any run book action that executed a command on a device. This run book action must come *after* the command execution action in the associated run book automation policy.

  For example, you should add this run book action *after* the "Linux CPU Diagnostic Commands" run book action in ***Aligned Actions*** field of the automation policy.

- **Datacenter Automation: Format HTML Output for ServiceNow Scoped**. Formats the command-list execution output into a human-readable format, and then formats the output into a dictionary for ServiceNow to accept for a scoped integration. You should add this run book action *after* the command execution action in the associated run book automation policy.

  This action is intended to be used with the "Datacenter Automations: Update ServiceNow Incident" run book action.

- **Datacenter Automation: Format JSON as simple HTML**. Formats the HTTP JSON response from the previous run book action into a human-readable HTML-based format and presents the output in the standard SL1 run book automation output. You should add this action *after* an HTTP request run book action in the associated automation policy. For more information, see *Configuring Network Request Run Book Actions*.

- **Datacenter Automation: Format Output as HTML**. Formats the command-list execution output into a human-readable HTML-based format and presents the output in the standard SL1 run book automation output. You should add this action *after* the command execution action in the associated automation policy.
- **Datacenter: Automation Format Output for ServiceNow Non-Scoped**. Formats the command-list execution output into a dictionary for ServiceNow to accept for a non-scoped integration. You should add this action *after* the command execution action in the associated automation policy.

  This action is intended to be used with the "Datacenter Automations: Update ServiceNow Incident" run book action.
- **Datacenter Automation: Format Output for ServiceNow Scoped**. Formats the command-list execution output into a dictionary for ServiceNow to accept for a scoped integration. This action should come after the command execution action in the associated automation policy.

  This action is intended to be used with the "Datacenter Automations: Update ServiceNow Incident" run book action.
- **Datacenter Automations: Update ServiceNow Incident**. Updates a ServiceNow incident with enrichment data collected by an enrichment automation action.

This PowerPack also includes the following run book actions:

- **Enrichment: Util: Collect Enrichment Data**. Executes the list of commands provided by the previous action and sends the output to the next run book action in the sequence of actions.
- **Enrichment: Util: Format Command Output as HTML**. Formats the output of the "Enrichment: Util: Collect Enrichment Data" run book action in HTML format.
- **Enrichment: Util: Load Work Instructions**. If the library of work instructions included with the PowerPack contains a set of instructions for the event policy that triggered the event, the run book action will output that set of work instructions.

The following configurations are not supported by this PowerPack:

- Customer-created run book actions that build command lists to be executed by the "Enrichment: Util: Collect Enrichment Data" run book action are not supported without prior authorization from ScienceLogic.
- Modifications of any kind to the code supplied in this PowerPack are not supported without prior authorization from ScienceLogic.

For more information about how to use the "Enrichment: Util" run book actions with a run book automation, see *Creating and Customizing Run Book Automation Policies*.

Sending Enrichment Output to a ServiceNow Integration

The "Automation Utilities: Integrate Automations with SNOW Scoped" run book automation policy updates the run book actions for a specified PowerPack so that PowerPack sends enrichment output to a ServiceNow integration.

This release includes the following event policy and run book action policies to support this automation policy:

- "Automation Utilities: Request to Migrate Datacenter Advanced Enrichment Policies to ServiceNow" event policy
- "Automation Utilities: Change Enrichment Formatting to SN Scoped" run book action policy
- "Automation Utilities: Connect Enrichment Automations to SN" run book action policy

This automation policy modifies the policies in the target Automation PowerPack in the following ways:

1. In all run book automation policies in the target PowerPack, this policy uses "Automation Utilities: Change Enrichment Formatting to SN Scoped" run book action to replace all instances of the "Datacenter Automation: Format Output as HTML" run book action with the "Datacenter Automation: Format Output for ServiceNow Scoped" run book action. This run book action prepares the output to be used in the enrichment of a ServiceNow incident.
2. In all automation policies in the target PowerPack, the "Automation Utilities: Connect Enrichment Automations to SN" run book action replaces instances of the "Enrichment: Util: Load HTML Work Instructions" run book action with the "Datacenter Automations: Update ServiceNow Incident" run book action.
3. For both run book actions, you will need to ***add the PowerPack ID to the run book action***.

NOTE: Not all Automation PowerPacks have the "Enrichment: Util: Load HTML Work Instructions" action aligned to their automation policies by default. If you would like to send the enrichment information from the target PowerPack to a ServiceNow incident, you can manually align the "Datacenter Automations: Update ServiceNow Incident" run book action to the automation policies in the target PowerPack after running the "Automation Utilities: Integrate Automations with SNOW Scoped" automation policy.

Removing Automation Policies from a PowerPack

The "Automation Utilities: Remove Automation Policies from PowerPack" automation action removes all automation policies from a specific Automation PowerPack. After you have customized an automation policy from an Automation PowerPack, you might want to remove that policy from that PowerPack to prevent your changes from being overwritten if you update the PowerPack later on that SL1 system.

This release includes the following event policy and run book action policy to support this automation policy:

- "Automation Utilities: Request to Remove Datacenter Advanced Enrichment Policies from PowerPack" event policy
- "Automation Utilities: Remove Automation Policies from PowerPack" run book action policy

The following topics cover how to configure these automation policies.

Adding the PowerPack Global ID ("guid") to the Run Book Action

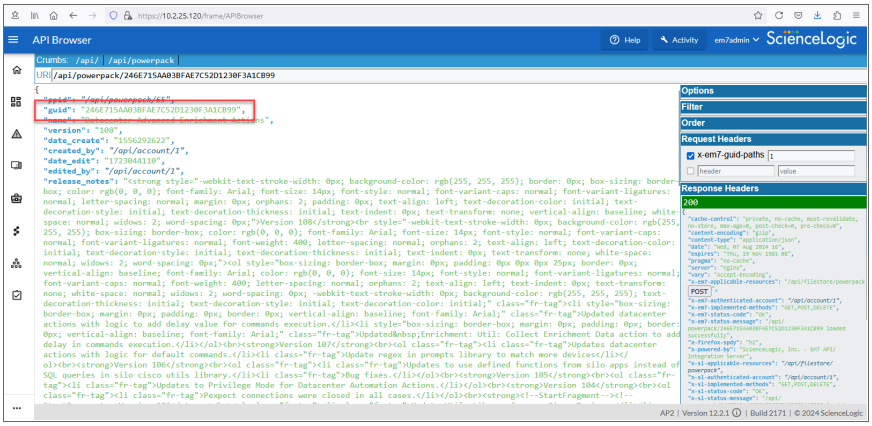
To use these automation policies, you will need to locate the global ID ("guid") of the Automation PowerPack you want to update. You then add the "guid" to the run book actions used by the automation policies so that SL1 knows which PowerPack to update.

These instructions are for both of the following run book automation policies:

- Automation Utilities: Integrate Automations with SNOW Scoped
- Automation Utilities: Remove Automation Policies from PowerPack

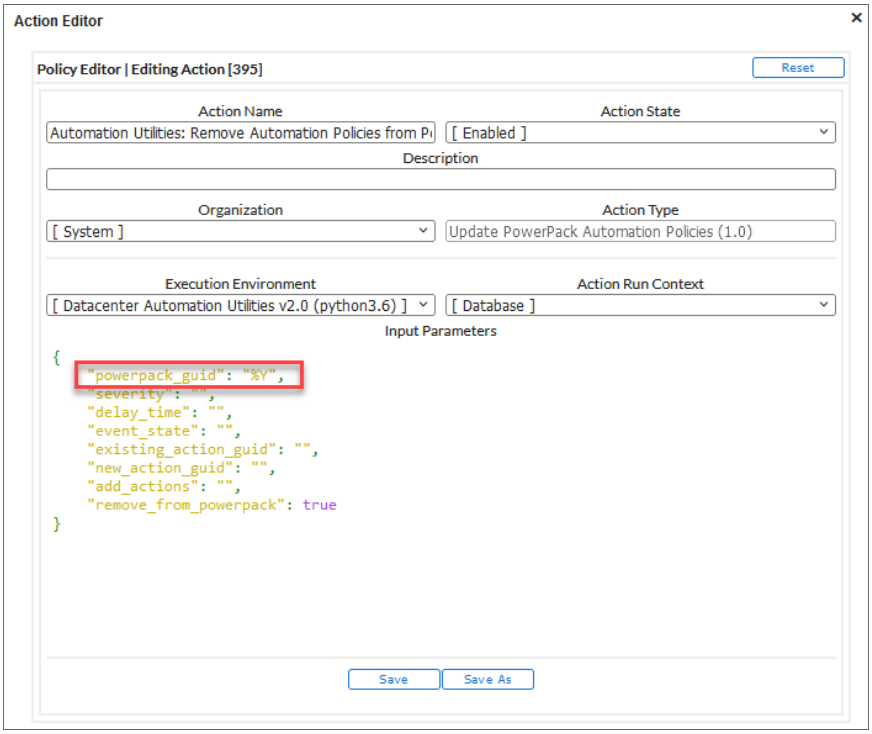
To locate and add the PowerPack ID to the run book actions:

1. In SL1, go to the **API Browser** page (System > Tools > API Browser).
2. Update the ***URI*** field so it displays **/api/powerpack**, and then press **Enter**. A list of the installed PowerPacks appears.
3. Search for the PowerPack you want to update and click the "***URI***" value for that PowerPack. The detail page for that PowerPack appears:



4. Copy the value that displays in the "***guid***" row.

5. Go to the **Actions** page (Registry > Run Book > Actions) and open the corresponding run book action or actions for that automation policy. The **Action Editor** modal appears:



6. Paste the "guid" value from step 4 into the `"powerpack_guid": "%Y",` parameter in the **Input Parameters** section, replacing the `%Y` with the "guid" value.

   For example: `"powerpack_guid": "246E715AA03BFAE7C52D1230F3A1CB99",`

> IMPORTANT: Other than modifying the target PowerPack "guid", you should not customize the run book actions in the "Datacenter Automation Utilities" PowerPack.

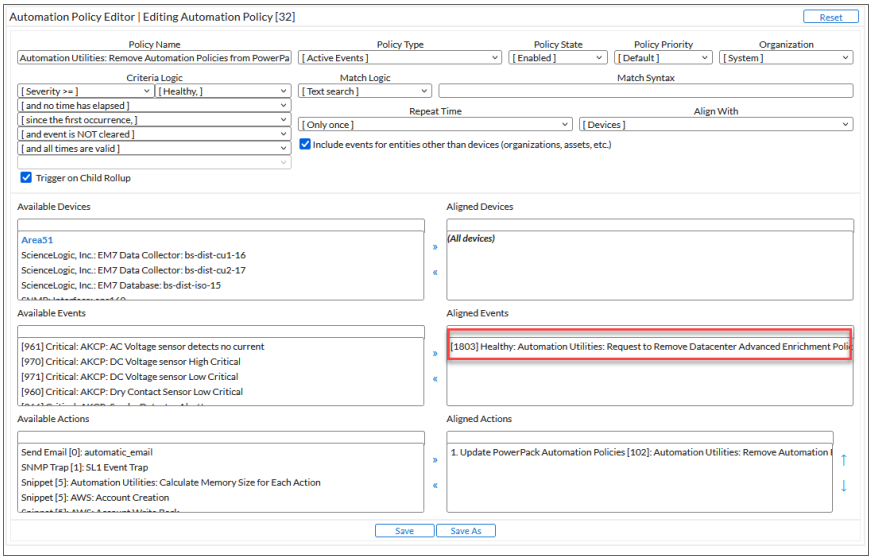
7. Click **[Save]** and continue with the next procedure to test the automation policy.

Triggering the Automation Policy

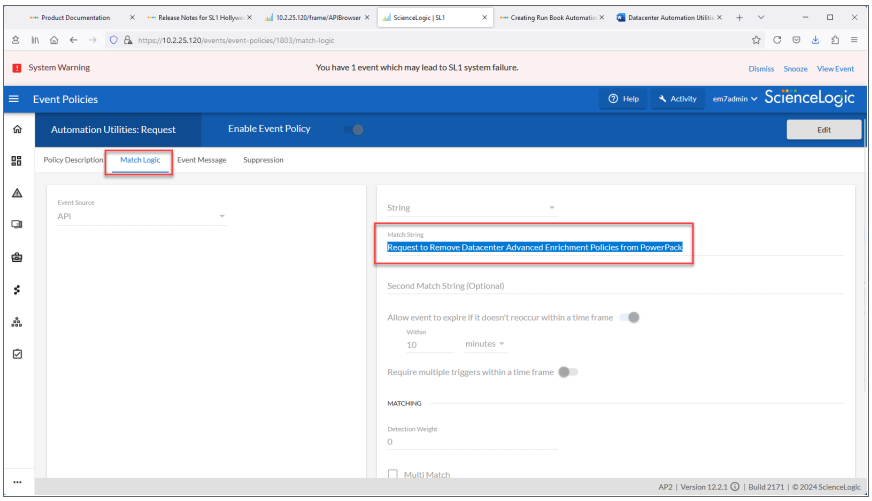
If you want to test the configuration of an automation policy, you can use the SL1 **API Browser** page to create a test API event based on that automation policy. You will need the device ID (DID) for one of your existing devices to use as the target device for the automation policy. The device ID displays in the **ID** column on the **Devices** page.

To trigger an automation policy:

1. In SL1, go to the **Automation** page (Registry > Run Book > Automation) and open the run book automation policy that you want to run. The Automation Policy Editor page appears:

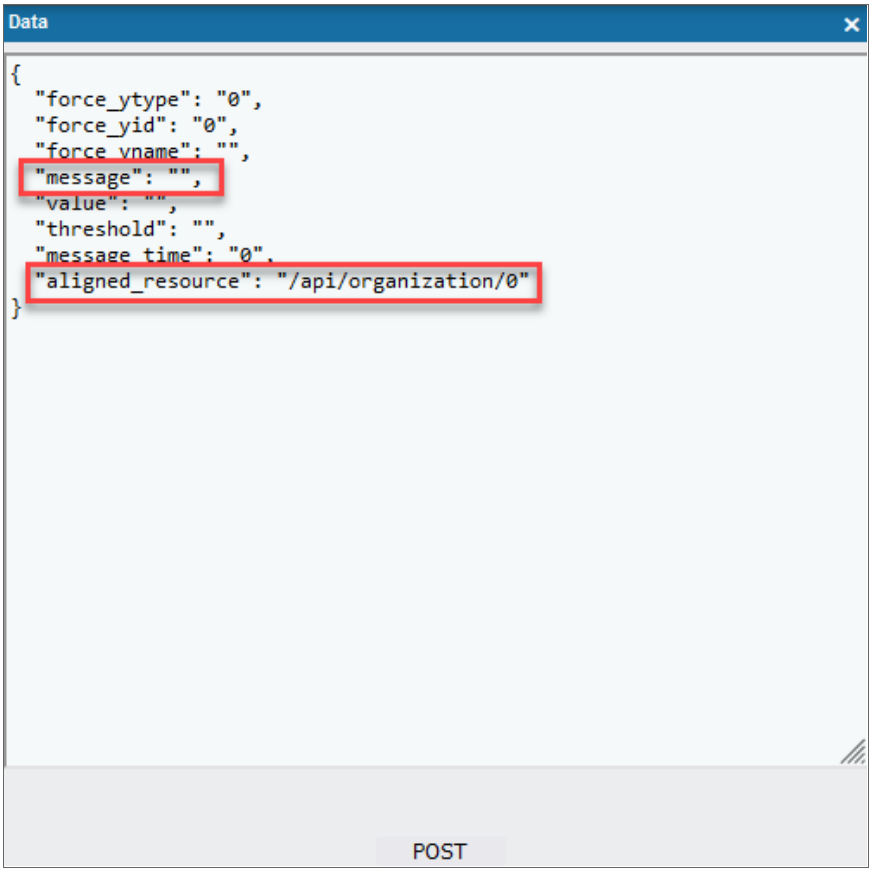


2. In the **Aligned Events** section, make a note of the aligned event. In this example, the aligned event is "Automation Utilities: Request to Remove Datacenter Advanced Enrichment Policies from PowerPack".
3. Go to the **Event Policies** page (Events > Event Policies) and open the event policy from step 2.
4. On the **[Match Logic]** tab, copy the value from the ***Match String*** field:



5. Next, you will POST an alert with the event's Match String to kick off the automation. Go to the **API Browser** page (System > Tools > API Browser) and update the ***URI*** field so it displays **/api/alert**.

6. Scroll down to the **Actions** section on the right and click **[POST]**. A **Data** modal appears.



7. Paste the Match String from step 4 into the `"message"` parameter.

   For example: `"message": "Request to Remove Datacenter Advanced Enrichment Policies from PowerPack",`

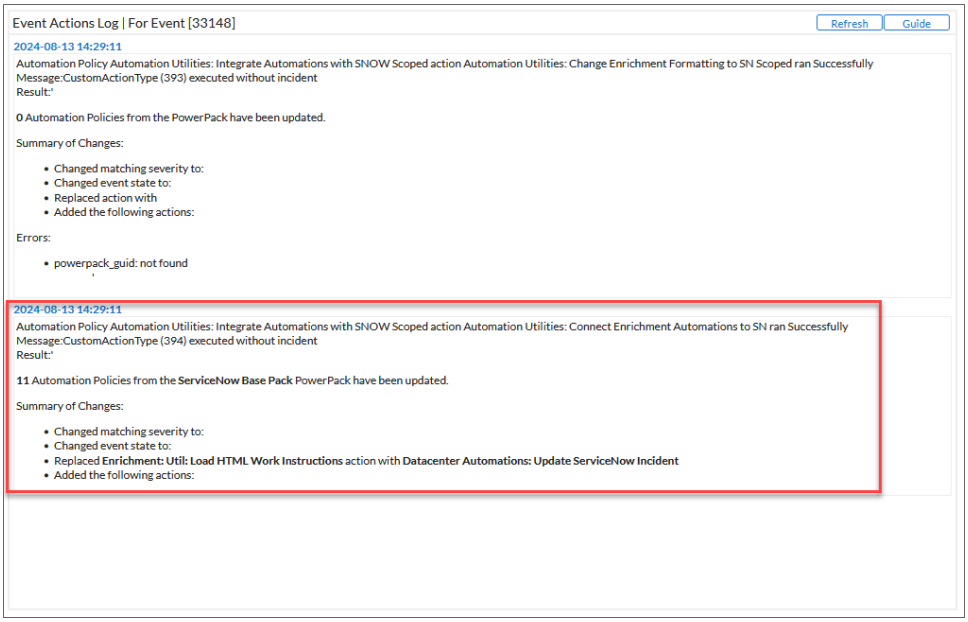
8. Type `/api/device/<target_device_id>` in the `"aligned_resource"` field, where `<target_device_id>` is the device ID for the target device. The device ID displays in the **ID** column on the **Devices** page.

   For example: `"aligned_resource": "/api/device/1"`

9. Click **[POST]** to kick off the automation.

10. You can view the event generated by the automation on the **Events** page (⚠) or the **Classic Events** page (Events > Classic Events).

11. If a wrench icon (1) appears in the **Automated Actions** column on the **Events** page, you can click the Actions button ( ) and select *View Automation Actions* to see more information about the automation that just ran. The **Event Actions Log** modal appears for that event:



Creating and Customizing Run Book Automation Policies

Before you create an automation policy using the run book actions in this PowerPack or one of the "Datacenter Advanced Enrichment" or "Automation Policies" PowerPacks, you will need to make the following decisions:

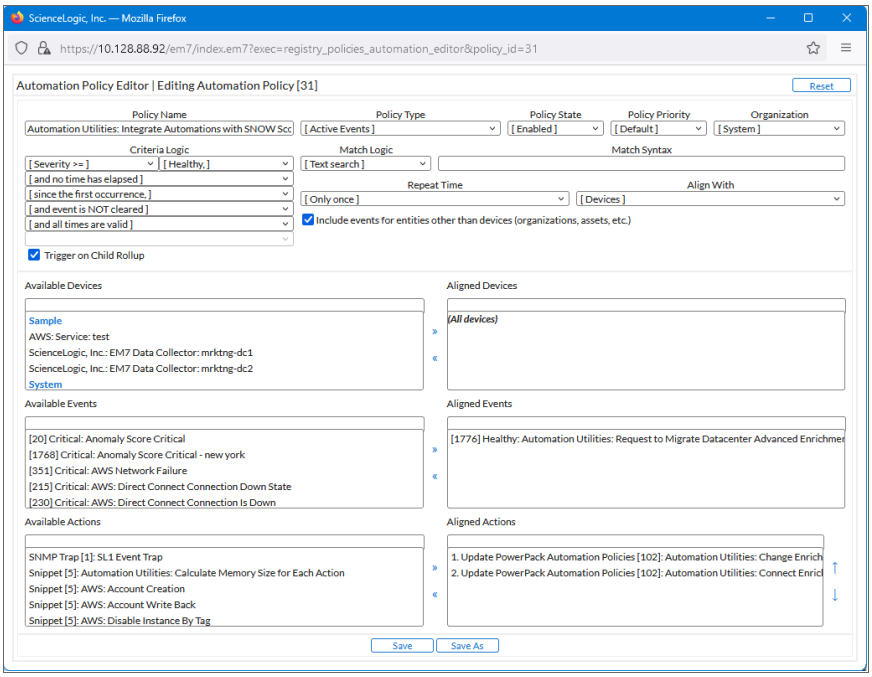
- **Which set of commands you want to run on a monitored device when an event occurs**. There are multiple run book actions in this PowerPack or one of the "Datacenter Advanced Enrichment" or "Automation Policies" PowerPacks that build a list of commands to execute on the monitored device; each run book action builds a different list of commands. This set of run book actions includes all actions that do not have the prefix "Enrichment: Util:".
- **What event criteria you want to use to determine when the run book actions will trigger, or the set of rules that an event must match before the automation is executed**. This can include matching only specific event policies, event severity, associated devices, and so on. For a description of all the options that are available in automation policies, see the ***Run Book Automation*** manual.
- **Where the output of the run book actions will be viewed by a user**. The output is always available in the **Event Actions Log** modal accessed through the **Events** page ( ) or the **Event Console** (Events > Classic Events). Optionally, you can include an additional run book action in your automation policy to send the output of the automation to an additional location. Typically, the additional location is the ticket that was generated for the event in your ticketing system. If you want to configure an automation policy that sends the output of the run book actions to a ticketing system, you must create or have access to the following additional content in SL1:
    - A *process*, either automated or manual, where SL1 events are associated with tickets. Examples of this process include:

- A user clicking the life ring icon (🛟) on the **Tickets** page to create a ticket in the SL1 ticketing system.
- If your system has been configured so that the **Events** page (⚠) or the **Event Console** (Events > Classic Events) integrates with an external ticketing system, a user clicking the Actions button (⋮) and selecting *Create Ticket*, or clicking the life ring icon (🛟) to request a ticket in your external ticketing system.
- An run book automation policy that is configured to automatically create tickets for events, either in SL1 or an external ticketing system.

- A *run book action* that sends the output from the previous run book action to the ticketing system. This action should specify that the ticket associated with the triggering event will be updated with this information.

To create or customize a run book automation policy:

1. Go to the **Automation Policy Manager** page (Registry > Run Book > Automation).
2. Click the **[Create]** button to create an automation policy, or search for an existing automation policy that you want to edit and click the wrench icon (🔧) for that policy . The **Automation Policy Editor** page appears.



3. Complete the following fields as needed:
   - ***Policy Name***. Type a new name for the automation policy to avoid overwriting the default policy.
   - ***Policy Type***. Select whether the automation policy will match events that are active, match when events are cleared, or run on a scheduled basis. Typically, you would select *Active Events* in this field.

- ***Policy State***. Specifies whether the policy will be evaluated against the events in the system. If you want this policy to begin matching events immediately, select *Enabled*.
- ***Policy Priority***. Specifies whether the policy is high-priority or default priority. These options determine how the policy is queued.
- ***Organization***. Select the organization that will use this policy. You must use System for the organization for all policies in this PowerPack. The automation policy will execute for all devices regardless of their specific organization.
- ***Aligned Actions*** (bottom right). To create a valid automation policy that uses the run book actions in this PowerPack or one of the "Datacenter Advanced Enrichment" or "Automation Policy" PowerPacks, you must configure the ***Aligned Actions*** field on this page to include multiple actions in a specific sequence. To add an action to the ***Aligned Actions*** field, select the action in the ***Available Actions*** field and click the right arrow (>>). To re-order the actions in the ***Aligned Actions*** field, select an action and use the up arrow or down arrow buttons to change that action's position in the sequence.

  If you are not configuring the automation policy to send the output of the run book actions to a ticketing system, if users will view the output in the **Event Actions Log** modal accessed through the **Events** page (⚠) or the **Event Console** (Events > Classic Events), the automation must include four actions in the following sequence:

  i. A run book action from this PowerPack or one of the "Datacenter Advanced Enrichment" or "Automation Policy" PowerPacks that builds a list of commands to execute on the monitored device. This set of actions includes all actions in the PowerPack that do not have the prefix "Enrichment: Util:".

  ii. The "Enrichment: Util: Collect Enrichment Data" run book action. This action executes the list of commands provided by the previous action and sends the output to the next run book action in the sequence of actions.

  iii. The "Datacenter Automation: Format Output as HTML" run book action. This action formats the output of the "Enrichment: Util: Collect Enrichment Data" run book action in HTML format. This formatting action is included in this PowerPack.

  iv. The "Enrichment: Util: Load HTML Work Instructions" run book action. If the library of work instructions included with the PowerPack contains a set of instructions for the event policy that triggered the event, this run book action will output that set of work instructions to HTML.

  If you are configuring the automation policy to send the output of the run book actions to a ticketing system, the automation must include six actions in a specific sequence:

  i. A run book action from this PowerPack or one of the "Datacenter Advanced Enrichment " PowerPacks that builds a list of commands to execute on the monitored device. This set of actions includes all actions in the PowerPack that do not have the prefix "Enrichment: Util".

  ii. The "Enrichment: Util: Collect Enrichment Data" run book action. This action executes the list of commands provided by the previous action and sends the output to the next run book action in the sequence of actions.

  iii. The "Enrichment: Util: Format Command Output as HTML" run book action, which formats the output of the "Enrichment: Util: Collect Enrichment Data" run book action in HTML format.

iv. A run book action that performs a request to add the output of the previous action as a work note in your ticketing system. This run book action is not supplied in the "Datacenter Automation Utilities" PowerPack. See the ***top of this section*** for more information about the requirements for this action.

v. The "Enrichment: Util: Load Work Instructions" run book action. If the library of work instructions included with the PowerPack contains a set of instructions for the event policy that triggered the event, the run book action will output that set of work instructions. Select the HTML or Plaintext action, depending on the format accepted by your ticketing system.

vi. A run book action that performs a request to add the output of the previous action as a work note in your ticketing system. This should be the same run book action you added in the 4th position in the sequence of run book actions. This run book action is not supplied in the "Datacenter Automation Utilities" PowerPack. See the ***top of this section*** for more information about the requirements for this action.

4. Optionally, supply values in the other fields on this page to refine when the automation will trigger. If you are configuring the automation policy to send the output of the run book actions to a ticketing system, you should ensure that the process for associating a ticket with the SL1 event occurs before this automation policy triggers. Typically, you would use the "and ticket IS created" or "and external ticket IS created" options in the ***Criteria Logic*** fields to do this.

5. Click **[Save]** for a new policy, or click **[Save As]** if you are customizing an existing policy. If you modify one of the included automation policies and save it with the original name, any customizations you made to that policy will be overwritten when you upgrade the PowerPack.

After you have configured one or more automation policies that use the run book actions in this PowerPack, you must configure credentials for the run book actions to use. See the ***Configuring Device Credentials*** chapter for instructions on how to do this.

Chapter 3

Configuring Network Connectivity Automations

Overview

This chapter describes how to configure and use the run book automation and run book action policies for network connectivity in the "Datacenter Automation Utilities" PowerPack.

You can use these policies to enrich SL1 network connectivity events, such as availability and latency issues, by automatically running common network diagnostic commands and adding the output to the SL1 event log or an associated incident. The available policies includes Network Connectivity user-initiated automation policies.

This PowerPack includes custom run book action types for running ping, traceroute, nslookup, and nmap commands with parameters that you specify. The PowerPack also includes two dynamic device groups for IPv4 devices and IPv6 devices.

This chapter covers the following topics:

Network Connectivity Run Book Automation Policies *21*

Network Connectivity Run Book Action Policies *27*

Using the Network Connectivity Automation Policies *28*

Prerequisites for Creating a Network Connectivity Automation Policy *29*

Network Connectivity Run Book Automation Policies

The Network Connectivity run book automation policies in this PowerPack run automatically in response to network availability events.

> IMPORTANT: To use these run book automation policies, you will need to *enable each policy*, as the policies are disabled by default.

The "IPv4 Devices" and "IPv6 Devices" device groups in SL1 are aligned to all of the Network Connectivity automation policies. You will need to align your devices to those device groups for the policies to be run by default. For more information, see *Editing an Existing Device Group*.

The following table lists the Network Connectivity run book automation policies included in the "Datacenter Automation Utilities" PowerPack:

Automation Policy Name	Aligned Events	Run Book Action
Network Connectivity: Run IPv6 NMAP on Affected Port	• Poller: TCP/UDP port not responding • Poller: TCP/UDP port not responding (SMTP)	• Run IPv6 NMAP: Single Port from Event • Datacenter Automation: Format Command Output as HTML
Network Connectivity: Run IPv6 NMAP on Common Ports	• Poller: Availability and Latency checks failed • Poller: Device not responding to ping (high frequency) • Poller: Availability Check Failed • Poller: Availability Flapping • Poller: TCP/UDP port not responding • Poller: TCP/UDP port not responding (SMTP) • Transactions: Round trip mail did not arrive within threshold	• Run IPv6 NMAP: Common Port List • Datacenter Automation: Format Command Output as HTML
Network Connectivity: Run IPv6 NMAP on Monitored Ports	• Poller: Availability and Latency checks failed • Poller: Device not responding to ping (high frequency) • Poller: Availability Check Failed • Poller: Availability Flapping	• Run IPv6 NMAP: Monitored Ports • Datacenter Automation: Format Command Output as HTML

Automation Policy Name	Aligned Events	Run Book Action
	• Poller: TCP/UDP port not responding • Poller: TCP/UDP port not responding (SMTP)	
Network Connectivity: Run NMAP on Affected Port	• Poller: TCP/UDP port not responding • Poller: TCP/UDP port not responding (SMTP)	• Run NMAP: Single Port from Event • Datacenter Automation: Format Command Output as HTML
Network Connectivity: Run NMAP on Common Ports	• Poller: Availability and Latency checks failed • Poller: Device not responding to ping (high frequency) • Poller: Availability Check Failed • Poller: Availability Flapping • Poller: TCP/UDP port not responding • Poller: TCP/UDP port not responding (SMTP) • Transactions: Round trip mail did not arrive within threshold	• Run NMAP: Common Port List • Datacenter Automation: Format Command Output as HTML
Network Connectivity: Run NMAP on Monitored Ports	• Poller: Availability and Latency checks failed • Poller: Device not responding to ping (high frequency) • Poller: Availability Check Failed • Poller: Availability Flapping • Poller: TCP/UDP port not responding • Poller: TCP/UDP port not responding (SMTP)	• Run NMAP: Monitored Ports • Datacenter Automation: Format Command Output as HTML
Network Connectivity: Run Nslookup (IPv4)	• Poller: Availability and Latency checks failed • Poller: Availability Check Failed • Poller: Availability Flapping • Poller: Device not responding to ping (high frequency)	• Run Nslookup: Default Options • Datacenter Automation: Format Command Output as HTML

Automation Policy Name	Aligned Events	Run Book Action
	• Poller: DNS hostname resolution time above threshold • Poller: Failed to resolve hostname • Poller: TCP/UDP port not responding • Poller: TCP/UDP port not responding (SMTP) • Transactions: Round trip mail did not arrive within threshold	
Network Connectivity: Run Ping (IPv4)	• Poller: Availability and Latency checks failed • Poller: Availability Check Failed • Poller: Availability Flapping • Poller: Device not responding to ping (high frequency) • Poller: Network Latency Exceeded Threshold • Poller: TCP connection time above threshold • Poller: TCP/UDP port not responding • Poller: TCP/UDP port not responding (SMTP) • Transactions: Round trip mail did not arrive within threshold	• Run Ping: Default Options • Datacenter Automation: Format Command Output as HTML
Network Connectivity: Run Ping (IPv6)	• Poller: Availability and Latency checks failed • Poller: Availability Check Failed • Poller: Availability Flapping • Poller: Device not responding to ping (high frequency) • Poller: Network Latency Exceeded Threshold • Poller: TCP connection time above threshold	• Run Ping6: Default Options • Datacenter Automation: Format Command Output as HTML

Automation Policy Name	Aligned Events	Run Book Action
	• Poller: TCP/UDP port not responding • Poller: TCP/UDP port not responding (SMTP) • Transactions: Round trip mail did not arrive within threshold	
Network Connectivity: Run Traceroute (IPv4)	• Poller: Availability and Latency checks failed • Poller: Availability Check Failed • Poller: Availability Flapping • Poller: Device not responding to ping (high frequency) • Poller: Network Latency Exceeded Threshold • Poller: TCP connection time above threshold • Poller: TCP/UDP port not responding • Poller: TCP/UDP port not responding (SMTP) • Transactions: Round trip mail did not arrive within threshold	• Run Traceroute: Default Options • Datacenter Automation: Format Command Output as HTML
Network Connectivity: Run Traceroute (IPv6)	• Poller: Availability and Latency checks failed • Poller: Availability Check Failed • Poller: Availability Flapping • Poller: Device not responding to ping (high frequency) • Poller: Network Latency Exceeded Threshold • Poller: TCP connection time above threshold • Poller: TCP/UDP port not responding • Poller: TCP/UDP port not responding (SMTP) • Transactions: Round trip mail did not arrive within threshold	• Run IPv6 Traceroute: Default Options • Datacenter Automation: Format Command Output as HTML

NOTE: If your SL1 system is on version 12.1.0 or earlier, the IPv6 Network Connectivity run book actions will not work, as IPv6 is not supported on those versions. SL1 must be at version 12.1.2 or later to use IPv6 and the IPv6 Network Connectivity actions.

Enabling Automation Policies

Before you can use the Network Connectivity run book automation policies, you will need to enable the policies. The automation policies are disabled by default. You do not have to do any additional configuration after enabling the policies.

To enable the automation policies:

1. In SL1, go to the **Automation** page (Registry > Run Book > Automation) and open the run book automation policy. The Automation Policy Editor page appears.
2. Set the ***Policy State*** to *Enabled*.
3. In the ***Aligned Actions*** field, select a run book action (if needed) in the ***Available Actions*** field and click the right arrow (**>>**). Add more actions as needed. To re-order the actions in the ***Aligned Actions*** field, select an action and use the up arrow or down arrow buttons to change that action's position in the sequence.
4. Click **[Save]**.
5. For the run book action or actions you selected in step 3, go to the **Actions** page (Registry > Run Book > Actions), click the wrench icon (), and make sure the ***Action State*** for that action is set to *Enabled*. Repeat for all actions you selected in step 3.
6. Click **[Save]**. The automation policy is now enabled.

Configuring Network Connectivity Actions to Send Output to ServiceNow

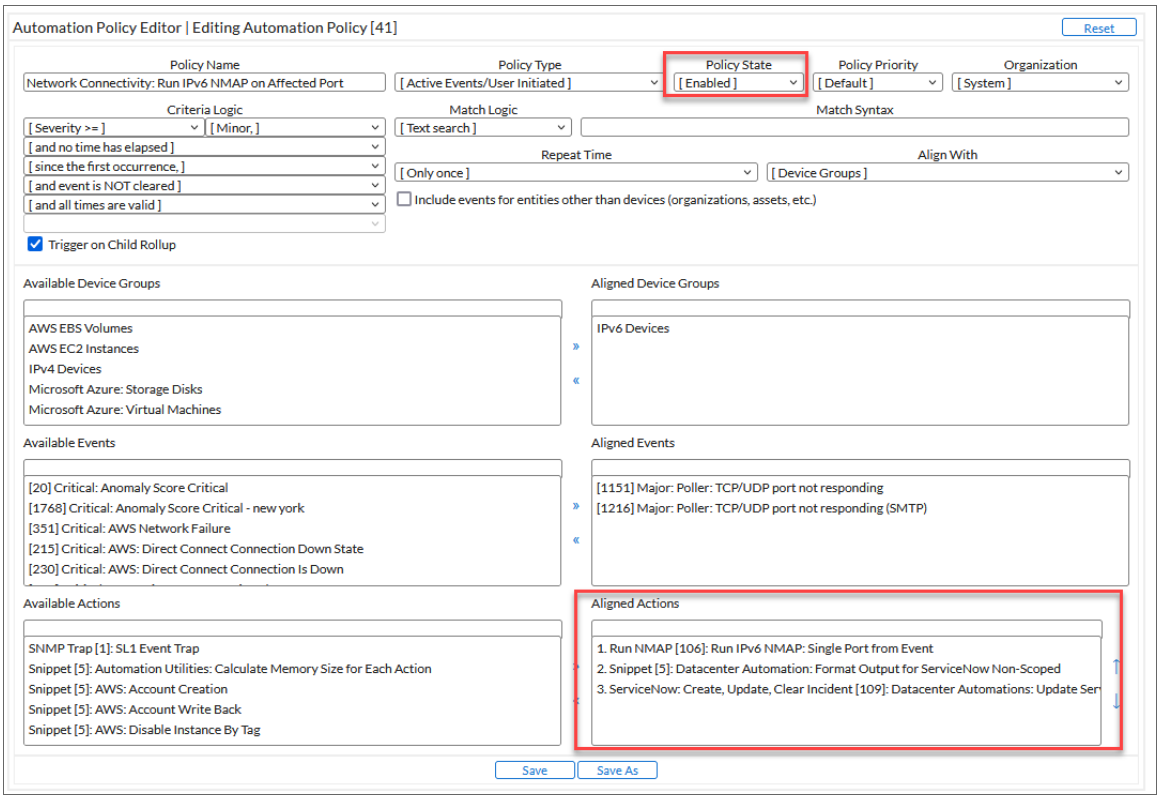
To send output to ServiceNow for the Network Connectivity automation policies, you can add one of the following run book actions in the **Aligned Actions** field for the automation policy:

- Datacenter Automation: Format HTML Output for ServiceNow Scoped
- Datacenter Automation: Format Output for ServiceNow Non-Scoped
- Datacenter Automation: Format Output for ServiceNow Scoped

The ServiceNow action should be the second action in the **Aligned Actions** field, with the "Datacenter Automations: Update ServiceNow Incident" as the last action in the automation policy.

For example, if you want to send output to ServiceNow from the "Network Connectivity: Run IPv6 NMAP on Affected Port" automation policy, you would arrange the run book actions in the automation policy in this order:

1. Run IPv6 NMAP: Single Port from Event Actions Log
2. Datacenter Automation: Format Output for ServiceNow Non-Scoped (add this action after you remove the default "Datacenter Automation: Format Output as HMTL" action)
3. Datacenter Automations: Update ServiceNow Incident (for more information about configuring this run book action, see *Configuring SL1* in the ***ServiceNow Incident SyncPack*** manual)



IMPORTANT: Be sure to select *Enabled* in the ***Policy State*** field for the automation policy before you click **[Save]** or **[Save As]**.

Network Connectivity User-initiated Automation Policies

All of the Network Connectivity run book automation policies listed above have a ***Policy Type*** of *Active Events/User Initiated*. The automation policy enables all of the features of the "Active Events" and the "User Initiated" Policy Types. As a result, this automation policy can be triggered by active events that meet the criteria in the policy, or a user can manually trigger the automation.

You can run these automation policies as needed from the **Devices** page, the **Events** page, and the **Service Investigator** page. If there is an event policy specified in the automation policy, that event must be active for the policy to be run manually, and the policy can only be run on that event type. The same applies for the device groups list.

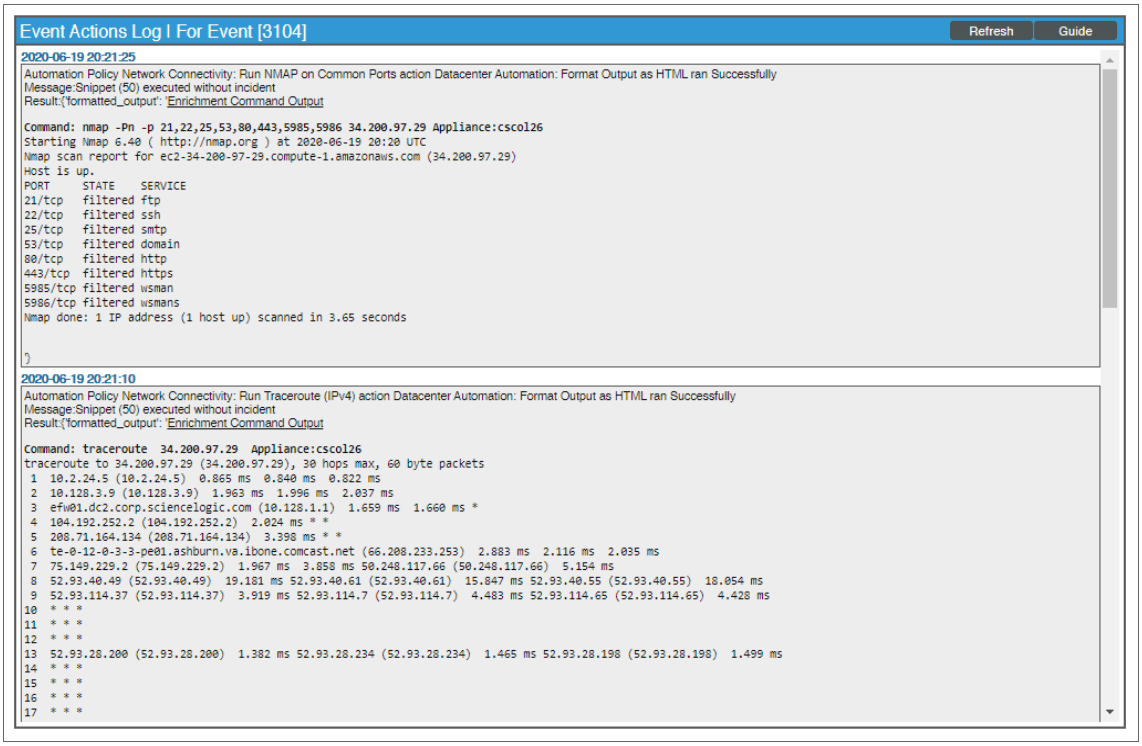
For these automation policies to be visible from the ***Tools*** panel in the **Device Summary** modal , the following three things must be true between the event and the automation policy configuration:

- ***Organization***. The organization associated with the event must match the organization configured in the automation policy. Policies in the "System" organization match all organizations.
- ***Aligned Devices***. The device for which the event is triggered must be configured as an Aligned Device in the automation policy.
- ***Aligned Event***. The event must match one of the Aligned Events configured in the automation policy.

In most situations, you would run a user-initiated automation in response to an event that just occurred. If you have Automation PowerPacks installed on your SL1 system, the **Event Actions Log** window for that event might contain diagnostic information from other automations that have already run, including information that helps you determine which user-initiated automation you should run next to address the cause of the event.

To run a user-initiated automation policy, click the open icon (↗) to open the **Device Summary** modal for the event and click in the **Tools** section. Any available user-initiated automation policy will be listed there, available to run on-demand.

To view the run book automation actions available for an event, click the **[Actions]** button (⋮) for the event and select *View Automation Actions* to see the automation actions triggered by the events. The results for the event display in the **Event Actions Log**, include the automation policy that ran, along with the collected data. The following figure shows an example of this output:



Network Connectivity Run Book Action Policies

You can use the following run book action policies to perform specific actions as part of the *run book automations* in the "Datacenter Automation Utilities" PowerPack:

- **Run IPv6 NMAP: Common Port List**. Runs a standard NMAP command on ports 21, 22, 25, 53, 80, 443, 5985, and 5986 on the monitored IPv6 device.
- **Run IPv6 NMAP: Monitored Ports**. Runs a standard NMAP command on any ports that are currently monitored with a port monitoring policy on the triggering IPv6 device.
- **Run IPv6 NMAP: Single Port from Event**. Runs a standard NMAP command on the port provided in the event triggering the associated automation policy on the monitored IPv6 device.

- **Run IPv6 Traceroute: Default Options**. Runs a standard traceroute command on the triggering IPv6 device.
- **Run NMAP: Common Port List**. Runs a standard NMAP command on ports 21, 22, 25, 53, 80, 443, 5985, and 5986 on the monitored IPv4 device.
- **Run NMAP: Monitored Ports**. Runs a standard NMAP command on any ports that are currently monitored with a port monitoring policy on the triggering IPv4 device.
- **Run NMAP: Single Port from Event**. Runs a standard NMAP command on the port provided in the event triggering the associated automation policy on the monitored IPv4 device.
- **Run Nslookup: Default Options**. Runs a standard NSLOOKUP (IPv4) command on the triggering IPv4 device.
- **Run Ping6: Default Options**. Runs a standard ping command on the triggering IPv6 device.
- **Run Ping: Default Options**. Runs a standard ping command on the triggering IPv4 device.
- **Run Traceroute: Default Options**. Runs a standard traceroute command on the triggering IPv4 device.

NOTE: If your SL1 system is on version 12.1.0 or earlier, the IPv6 Network Connectivity run book actions will not work, as IPv6 is not supported on those versions. SL1 must be at version 12.1.2 or later to use IPv6 and the IPv6 Network Connectivity actions.

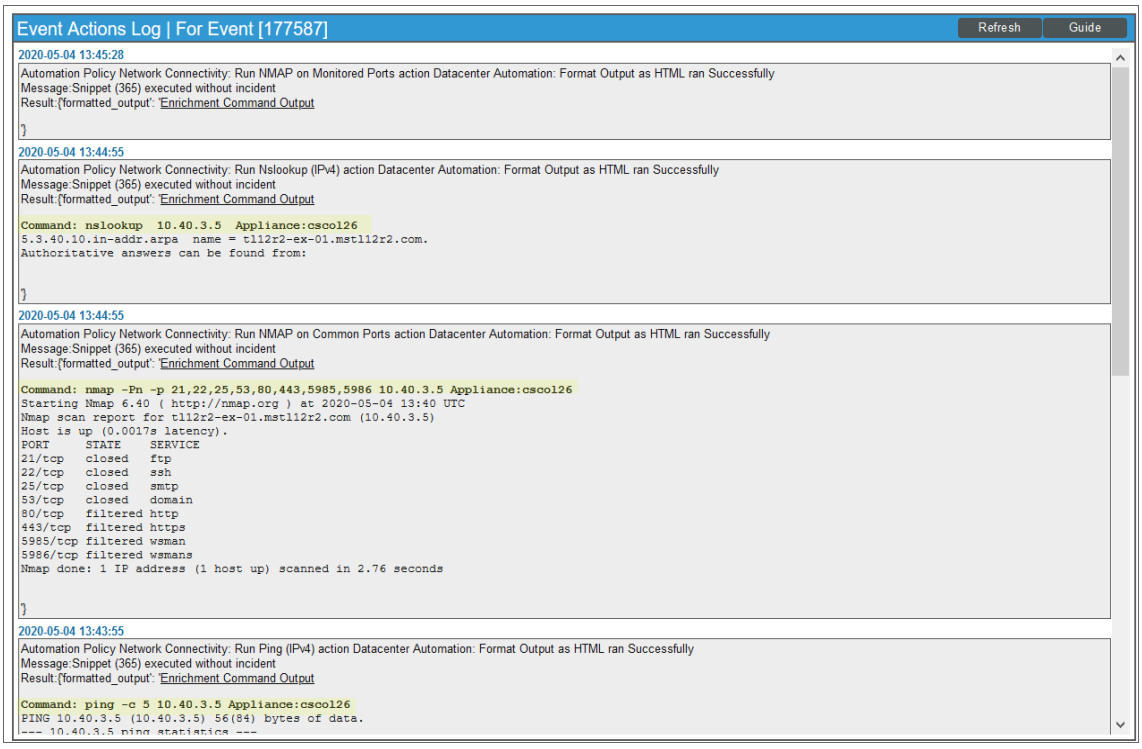
Using the Network Connectivity Automation Policies

For every device that has an IP address, SL1 monitors availability every five minutes. If you have enabled Critical Ping for a device and enabled the event "Poller: Device not responding to ping (high frequency)", you can monitor availability at a higher frequency than five minutes. The automation policies respond to events from Critical Ping as well.

To see the automation actions triggered by an event on the **Events** page, click the **[Actions]** button ( ) and select *View Automation Actions*. The **Event Actions Log** page appears.

Notice the highlighted NMAP, Ping, and Nslookup information in the following image. The log indicates that the following actions ran successfully and indicates which SL1 appliance ran the action:

- "Run Nslookup (IPv4): Default Options" and "Datacenter Automation: Format Command Output as HTML"
- "Run NMAP on Common Ports" and "Datacenter Automation: Format Command Output as HTML"
- "Run Ping (IPv4): Default Options" and "Datacenter Automation: Format Command Output as HTML"



TIP: Although you can edit the run book actions described in this section, the best practice is to "Save As" to create a new, renamed run book action.

Prerequisites for Creating a Network Connectivity Automation Policy

Before you create a run book automation policy using the Network Connectivity run book automation and action policies in this PowerPack, you must determine the following:

- Which commands (Ping, Traceroute, NSLOOKUP, or NMAP) you want to run on a device when an event occurs. There are 11 run book actions in the PowerPack that run these commands with different options. You can also create your own run book actions using the custom action types supplied in the PowerPack.
- What event criteria you want to use to determine when the automation actions will trigger, or the set of rules that an event must match before the automation is executed. This can include matching only specific event policies, event severity, associated devices, and so on. For a description of all the options that are available in automation policies, see *Run Book Automation*.

For more information about creating an automation policy, see *Creating and Customizing Run Book Automation Policies*.

Chapter 4

Configuring Network Request Run Book Actions

Overview

This chapter describes how to customize the network request run book actions included in the "Datacenter Automation Utilities" PowerPack.

The PowerPack also includes action types that are used by the automation action.

This chapter covers the following topics:

Network Request Run Book Actions *31*

Customizing the HTTP Action Type Template *31*

Example: Using the HTTP Action Template to Send an HTTP Request *34*

Network Request Run Book Actions

You can use the following run book action policies to perform specific actions as part of the run book automations in the "Datacenter Automation Utilities":

- **HTTP Action Template**. Use this template to create run book actions that use the "Make an HTTP Request" action type to make HTTP requests, such as a GET or a POST, to a third-party system.
- **HTTP Adaptive Card Action**. Use this template, which includes a pre-built Microsoft Teams Adaptive Card, with a Microsoft Teams webhook. The adaptive card will provide basic data about the device and event that triggered the automation policy including the event ID, device name, and event message.

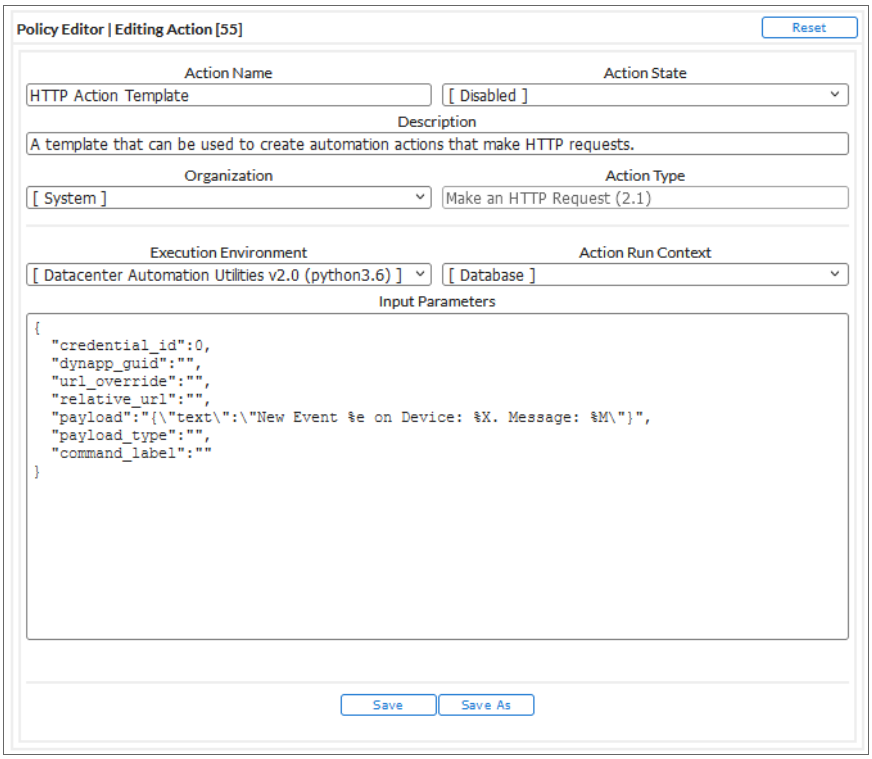
Customizing the HTTP Action Type Template

You can use the "HTTP Action Template" run book action to create run book actions that make HTTP requests, such as a GET or a POST, to a third-party system.

The most common use cases for a new run book action created by this template is to send data to Microsoft Teams and Slack webhook endpoints. However, GET and POST requests can be made to any endpoint based on the configuration of the run book action. There are multiple configuration options that can change the behavior of this request action.

To edit the "HTTP Action Template" run book action template:

1. Go to the **Action Policy Manager** page (Registry > Run Book > Actions).
2. Locate the "HTTP Action Template" automation action, and then click its wrench icon ( ). The **Editing Action** page appears.



3. In the **Action Policy Editor** page, supply a value in each field.
    - ***Action Name***. Specify a new name for the action policy.
    - ***Action State***. Select whether the policy can be executed by an automation policy (Enabled) or cannot be executed (Disabled).
    - ***Description***. Type a detailed description of the action.
    - ***Organization***. Select the organization to associate with the action policy.
    - ***Action Type***. The action type is set to *Make an HTTP Request* .
    - ***Execution Environment***. Select from the list of available Execution Environments. The default execution environment is *System*.
    - ***Action Run Context***. Select *Database* or *Collector* as the context in which the action policy will run.
4. In the ***Input Parameters*** field, you can change the values of the following parameters:

- ***credential_id***. The ID of a SOAP/XML credential from the ID column of the **Credentials** page (Manage > Credentials). The run book action policy will use this credential to make the HTTP request. If you want the credential to be determined by the ***dynapp_guid***parameter below, or if you are using the ***url_override*** option, the value of this parameter should be "0". If you use the ***dynapp_guid*** field, the SOAP/XML credential aligned to that Dynamic Application on the same device will be used for the URL and HTTP method information.

  To make a GET or POST request to an API, set the base URL in the SOAP/XML credential and use the ***relative_url*** field, below, to add the endpoint to which you are making the request. The HTTP method used (GET or POST) is based on the value set in the ***Method*** field of the SOAP/XML credential.

> **NOTE:** You will need to specify the IP address in the SOAP credential. The use of **%D** as a variable is not supported.

- ***dynapp_guid***. The Dynamic Application GUID with a credential the action policy should use to make the HTTP request. If you are using the "url_override option", do not add a value to this parameter.
- ***url_override***. The URL of the webhook created from your third-party system, or an other URL to use to make the request. This is expected to be a full URL. If you use this field, you should not use the ***relative_url*** field. Any requests made using the ***url_override*** field are made with no authentication.
- ***relative_url***. Typically, the string appended to the end of the URL in the associated credential before making the request. You can use this parameter if you do not need to use authentication or other options in a SOAP/XML credential. If you use this field, you should not use the ***url_override*** field.

> **NOTE:** If you use the "relative_url" option and do not specify a payload, the action will perform a GET request. If you use this option and specify a payload, the action will perform a POST request.

- ***payload***. This parameter is sent in the body of the request and appears in the user interface to which the HTTP request is sent.

> **NOTE:** You can substitute this field with any Run Book Variables. For more information on Run Book Variables, see the "Run Book Variables" chapter in the ***Run Book Automation*** manual.

- ***payload_type***. The data type to send the payload as in the request. Use the value `"json"` if you are using the "HTTP Adaptive Card Action" action policy, or if you are sending payloads to webhooks directly through this action using the ***payload*** field. Otherwise, leave this field blank.

- ***command_label***. This optional parameter is used to label the response to the HTTP request in the Event Actions Log. If you leave this parameter empty, the response to a request will be labeled with the URL that was used to make the request.

5. Click **[Save As]**.

> **TIP:** When you use this run book action in a run book automation policy, add the "Datacenter Automation: Format JSON as simple HTML" run book *after* this new run book action to present the JSON response from the HTTP request in a human-readable HTML-based format.

Example: Using the HTTP Action Template to Send an HTTP Request

To send an HTTP request from SL1 to Microsoft Teams, you must create a new run book action using the "HTTP Action Template" action and align an automation policy. After you have completed the steps below, your Microsoft Teams channel should populate with SL1 event messages based on the configured criteria. You can also send authentication for the request through the URL instead of using an SL1 credential.

To send an HTTP request to Microsoft Teams using the "HTTP Action Template" action:

1. Create an incoming webhook in Microsoft Teamsusing the instrcutions here: https://docs.microsoft.com/en-us/microsoftteams/platform/webhooks-and-connectors/how-to/add-incoming-webhook.
2. Go to the **Action Policy Manager** page (Registry > Run Book > Actions), locate the "HTTP Action Template" action, and then click its wrench icon ( ).
3. Enter values in the following fields:
   - ***Action Name***. Type a new name for your automation action.
   - ***Action State***. Select *Enabled*.
   - ***Description***. Type a description for your automation action.
4. In the ***Input Parameters*** field, change the values of the following parameters:
   - ***credential_id***. Set to 0: `"credential_id":0,`
   - ***url_override***. Specify the URL of the webhook you created in step 1 for Microsoft Teams. When using the this parameter, the HTTP method used for the request is based on the presence of a value in the payload field:
     - If the field is empty, a GET request is made.
     - If there is a value in the field, a POST request is made, with the value sent as the request's payload body. In this situation, the HTTP request will be made unauthenticated.
   - ***relative_url***. Set to the default: `"relative_url":"",`
   - ***payload***. As needed, change the value in this parameter to customize the message that appears in Microsoft Teams. You can substitute this field with any run book variables. For more information on

run book variables, see *Run Book Variables*.

- ***command_label***. Type a label for your run book action that appears in the Event Actions Log.

5. Click **[Save As]**.
6. To create an automation policy for your newly created run book action, see *Creating and Customizing Run Book Automation Policies*. Be sure to add the new run book action to the ***Aligned Actions*** field.

Chapter 5

Configuring Device Credentials

Overview

This chapter describes how to configure the credentials required by the run book actions in the various "Datacenter Advanced Enrichment " PowerPacks:

Use the following menu options to navigate the SL1 user interface:

- To view a pop-out list of menu options, click the menu icon ( ).
- To view a page containing all of the menu options, click the Advanced menu icon ( ).

This chapter covers the following topics:

Creating a Credential 37

Aligning Credentials to Devices 37

Creating a Credential

To use the run book actions in the various "Datacenter Advanced Enrichment " PowerPacks to collect data from a device, you must create an SSH credential that includes the username and password for that device.

> **NOTE:** The run book actions in the "Datacenter Advanced Enrichment " PowerPacks do not support SSH key-based authentication or non-standard SSH ports. You must use the Basic/Snippet credential type when creating credentials for the PowerPack.

To create a credential:

1. Go to the **Credentials** page (Manage > Credentials).
2. Click **[Create New]** and select *Create Basic/Snippet credential*. The **Create Credential** page appears.
3. Supply values in the following fields:
    - ***Name***. Name of the credential. Can be any combination of alphanumeric characters, up to 64 characters. This field is required.
    - ***All Organizations***. Toggle on (blue) to align the credential to all organizations, or toggle off (gray) and then select one or more specific organizations from the ***What organization manages this service?*** drop-down field to align the credential with those specific organizations. This field is required.
    - ***Timeout (ms)***. Time, in milliseconds, after which SL1 will stop trying to communicate with the device from which you want to retrieve data.
    - ***Username***. Username for a user that can log in to the device using SSH and execute diagnostic commands.
    - ***Password***. Password for the user you entered in the ***Username*** field.
    - ***Hostname/IP***. Hostname or IP address of the device from which you want to retrieve data. Enter "%D" in this field.
    - ***Port***. To use SSH to connect to the device, enter "22" in this field.
4. Click **[Save]**.

Aligning Credentials to Devices

This PowerPack includes the "Automation Remote Login" Dynamic Application. When the "Enrichment: Util: Collect Enrichment Data" action executes, it uses the credential associated with the "Automation Remote Login" Dynamic Application for the device associated with the triggering event.

The following sections describe how to align the "Automation Remote Login" Dynamic Application to devices using the credentials that you created.

NOTE: For run book actions that are designed to trigger for events associated with component devices, such as the run book actions for Cisco UCS components, you will need to do the configuration on the root device. The "Automation Remote Login" Dynamic Application does not need to be associated with the component device or devices.

WARNING: During discovery, you might see a significant number of connections made to network devices, as all Dynamic Applications that accept the Basic/Snippet credential type are tested against the specified devices. This might include testing Dynamic Application types that are not appropriate for network devices. Consider aligning Dynamic Applications and credentials using a device template. For more information, see *Aligning a Credential Using a Device Template*.

Aligning a Credential Manually to a Device

To manually align the "Automation Remote Login" Dynamic Application and credential to a device:

1. Go to the **Devices** page ( ) and select a device. The **Device Investigator** page appears.
2. Click the **[Collections]** tab. The **Dynamic Application Collections** page appears.
3. Click **[Edit]** and then click **[Align Dynamic Application]**. The **Align Dynamic Application** modal appears.
4. Click *Choose Dynamic Application*. The **Choose Dynamic Application** window appears.
5. Search for "Automation Remote Login" and select **Automation Remote Login** from the list of Dynamic Applications.
6. Click **[Select]**. The name of the Dynamic Application appears in the **Align Dynamic Application** window.
7. Uncheck the box next to *Use Device SNMP Credential* and click *Choose Credential*. **The Choose Credential** window appears.
8. Search for the credential you created in the previous step and select it from the list of credentials.
9. Click **[Select]**. The name of the selected credential appears in the **Align Dynamic Application** window.
10. Click **[Align Dynamic Application]**. When the Dynamic Application is successfully aligned, it is added to the **[Collections]** tab, and a confirmation message appears at the bottom of the tab.

Aligning a Credential Using a Device Template

You can use a device template to align the "Automation Remote Login" Dynamic Application with a specified credential during discovery. This is useful when you want to limit the tests against certain devices, such as network devices, during discovery.

To align the "Automation Remote Login" Dynamic Application and credential using a device template:

1. Create the credential you want to align to the devices. In this example, we will create a Cisco IOS credential.

   NOTE: You will do this for each credential you want to apply for the Dynamic Application.

a. Go to the **Credentials** page (Manage > Credentials).

b. Click **[Create New]** and select *Create Basic/Snippet credential*. The **Create Credential** page appears.

c. Supply values in the following fields:

- ***Name***. Name of the credential. Can be any combination of alphanumeric characters, up to 64 characters. This field is required.
- ***All Organizations***. Toggle on (blue) to align the credential to all organizations, or toggle off (gray) and then select one or more specific organizations from the ***What organization manages this service?*** drop-down field to align the credential with those specific organizations. This field is required.
- ***Timeout (ms)***. Time, in milliseconds, after which SL1 will stop trying to communicate with the device from which you want to retrieve data.
- ***Username***. Username for a user that can log in to the device using SSH and execute diagnostic commands.
- ***Password***. Password for the user you entered in the ***Username*** field.
- ***Hostname/IP***. Hostname or IP address of the device from which you want to retrieve data. Enter "%D" in this field.
- ***Port***. To use SSH to connect to the device, enter "22" in this field.

d. Click **[Save]**.

2. Create a device template that aligns the "Automation Remote Login" Dynamic Application, which includes the new credential.

a. Go to the **Configuration Templates** page (Devices > Templates).

b. Click **[Create]**. The **Device Template Editor** opens.

c. Enter a **Template Name** in the field provided.

d. Click the **Dyn Apps** tab.

e. In the "Subtemplate Selections" pane, click **Add New Dynamic App Sub-Template**.

f. Select "Automation Remote Login" as the Dynamic Application.

g. Select the Credential you created in the previous step. Continuing our example, we will select "Cisco IOS".

h. Click **[Save]**.

3. Specify the device template for discovery.

a. Create a discovery session by clicking **[Add Devices]**, or edit an existing discovery session on the **Discovery Sessions** (Devices > Discovery Sessions).

b. In the **Advanced Options** section at the end of the wizard, select the device template that you just created in the ***Select Device Template*** drop-down.

c. Click **[Save and Run]**.

Aligning Credentials Automatically During Discovery

The "Automation Remote Login" Dynamic Application includes a discovery object that you can use to automatically align the Dynamic Application to devices during discovery.

To configure a discovery session to automatically align the "Automation Remote Login" Dynamic Application, select the credential you created in the previous section in the ***Other Credentials*** field in the Discovery Session Editor.

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800-SCI-LOGIC (1-800-724-5644)

International: +1-703-354-1010