ScienceLogic

Maps

Skylar One version 12.5.1

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Chapter 1

Introduction to Maps

Overview

This manual describes how to view, create, and manage relationship maps for the various elements, also called ***nodes***, in Skylar One (formerly SL1).

Use the following menu options to navigate the Skylar One 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 ( ).

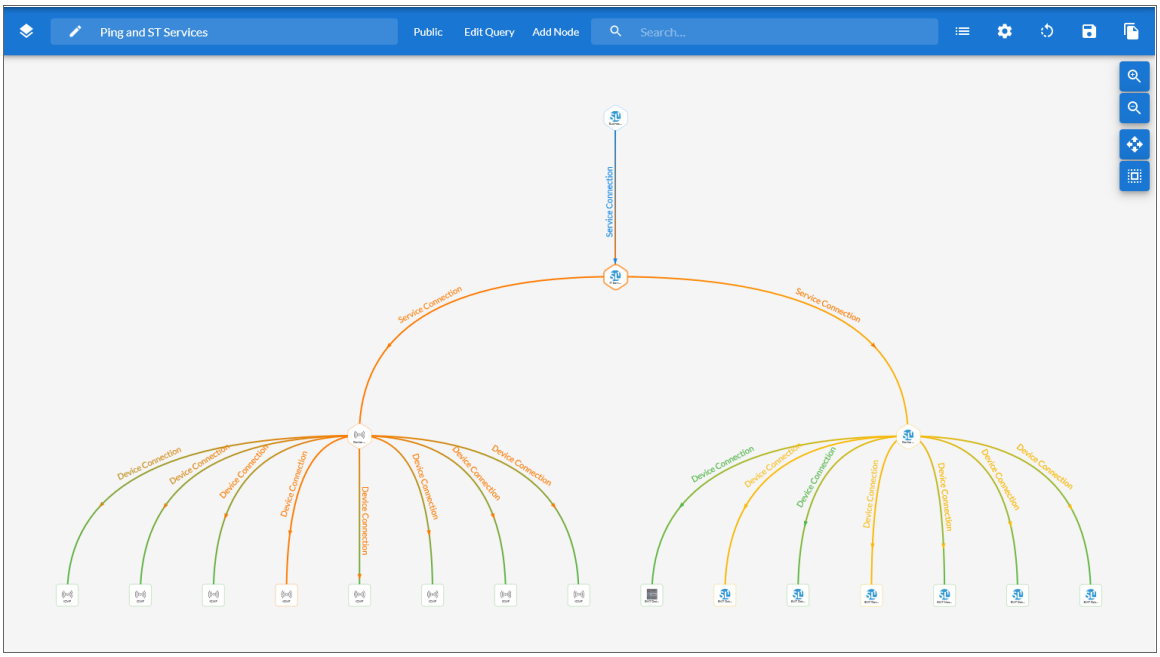
This chapter covers the following topics:

What is a Map?

A ***map*** is a visual representation of the various devices and related elements, also called ***nodes***, in your environment that have been discovered by Skylar One. A map displays the important details about the nodes, their hierarchy, and the relationships associated with those nodes. In Skylar One, maps are rendered using HTML5.

Maps can display business services, component maps (DCM, DCM+R), CDP topology, LLDP topology, Layer-2 topology, Layer-3 topology, and Virtual Infrastructure (VMware and virtual machines). You can also create your own maps with your most important devices, and add images, text, and shapes to customize your maps.

To view a map, go to the **Maps** page () and click the name of the map from the **Maps** page. The following is an example of a map that displays business services:



A map includes the following graphical elements:

- ***Nodes***. Nodes are shapes that represent Devices, Topology Elements, and Business Services defined in Skylar One. The shape of a node represents its type, and the color of its outline specifies the current state of the node.
- ***Links***. Also called "edges", links are lines with or without arrows that represent the relationships and hierarchies between nodes. All device relationships are displayed as child and parent relationships. If the nodes on a map contain arrows, then the arrows represent the direction of the relationship, pointing from the child node to its parent node. If a node does not contain an arrow, then the relationship is bi-directional, or *undirected*.

For more information, see *Viewing a Map*.

What is a Classic Map?

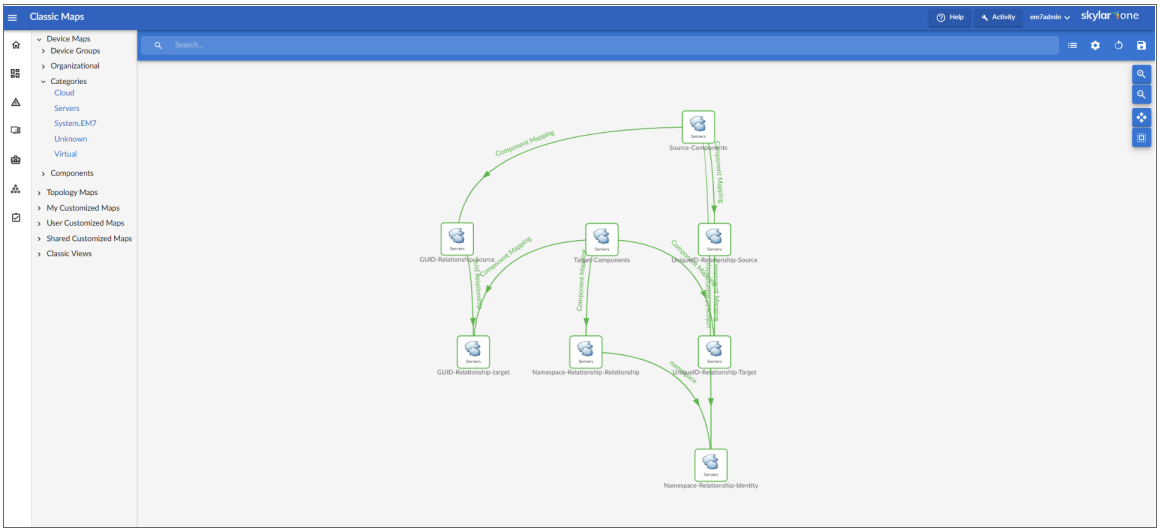
A ***Classic Map*** is the same as a **View** in the classic user interface.

A ***Classic Map (View)*** is a graphical representation of a group of devices. The **Classic Maps** page (Maps > Classic Views, formerly the **[Views]** tab in the classic user interface) allows you to view and edit maps and relationships between devices and virtual infrastructure. In Skylar One, views are organized by device group, organization, device category, component maps, Layer-2 topology, CDP topology, LLDP topology, Layer-3 topology, or Virtual Infrastructure (VMware and virtual machines).

In the classic user interface only, you can also create your own classic maps with your most important devices, and add images, text, links, and shapes to customize your maps.

To navigate to the **Classic Maps** page, go to Maps > Classic Maps (or the **[Views]** tab in the classic user interface). For more information, see *Viewing the Classic Maps Page*.

The following is an example of an HTML5-based classic map from the **Classic Maps** page in Skylar One:



For additional information about classic maps or views, see the ***Classic Maps (Views)*** manual.

Topology Maps

During discovery, Skylar One automatically discovers all networks and subnets in your infrastructure. On the **Classic Maps** page (Maps > Classic Maps), Skylar One creates graphical representations of these discovered networks and subnets to create topology maps.

Skylar One creates four types of topology maps, which are described in the following sub-topics:

- *Layer-2 Maps*
- *CDP Maps*

- *LLDP Maps*
- *Layer-3 Maps*

You can also *view* and *create* maps containing all four topology types on the **Maps** page.

TIP: To view the properties for a node on a classic map, hover over that node.

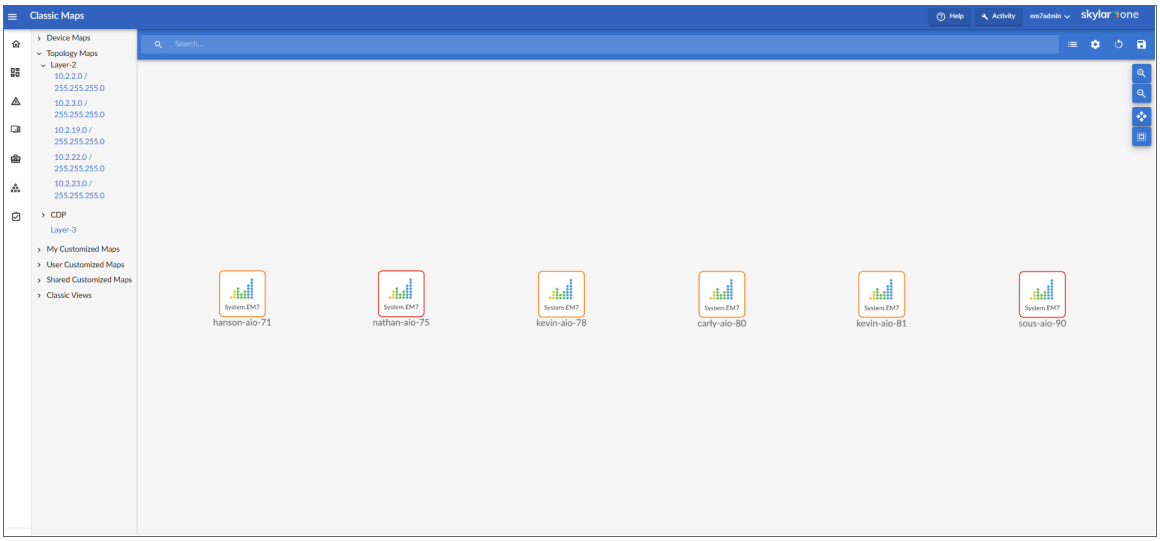
Layer-2 Maps

Layer-2 networks are unrouted subnets, where devices are identified by MAC addresses, as opposed to routed networks, where devices are identified by IP address. Layer-2 links communicate over the Data Link Layer and use Ethernet and MAC addresses to communicate with devices in the same LAN or WAN.

Standard Layer-2 processing, which is used by default in versions of Skylar One prior to 12.5.1, uses the "Enterprise Database: Topology Crunch" process to determine Layer-2 topology relationships based on device category, with the purpose of connecting network devices to each other.

Enhanced Layer-2 processing, which is available in Skylar One 12.5.1 and later, can form Layer-2 relationships between any devices that match a MAC address from the BRIDGE-MIB or sourced from Dynamic Applications, regardless of device category.

The **Layer-2 Maps** page (Maps > Classic Maps > Topology Maps > Layer-2) displays a network map, where you can view details and relationships in any layer-2 network that has been discovered by Skylar One:



A layer-2 network map can include:

- Devices of each device category defined in Skylar One.
- Unknown devices are represented with cloud icons and labeled as "unknown".
- Links between devices.
- Links between networks (created with switches or routers).

- Unknown connections are represented with cloud icons and labeled as "unknown".
- Skylar One automatically updates the map as new devices are discovered. Skylar One also updates the map with the latest status and event information.

CDP Maps

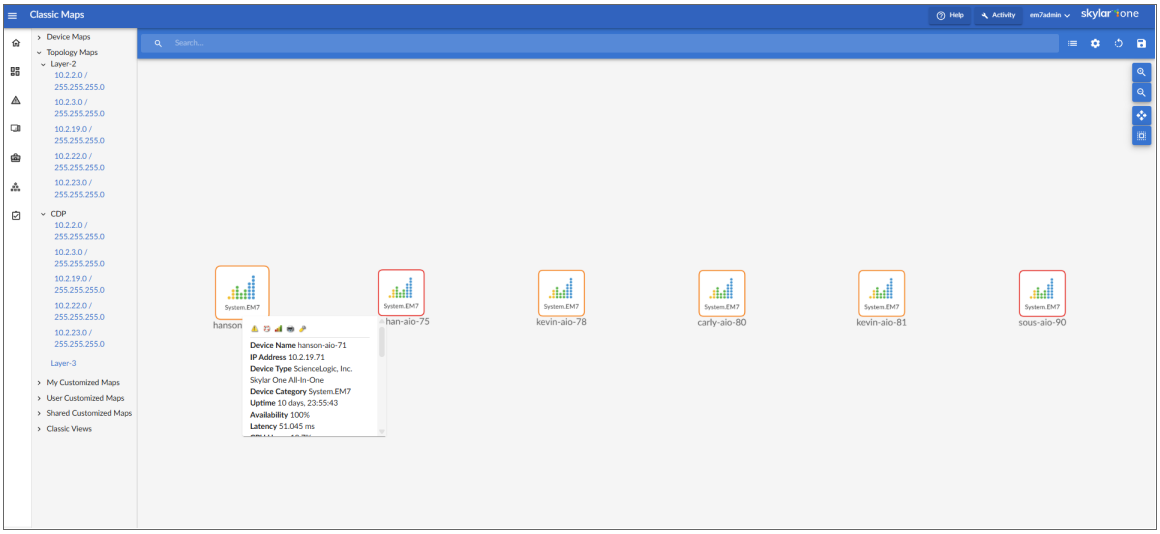
Cisco Discovery Protocol (CDP) allows discovery of Cisco hardware and allows Cisco hardware within the same LAN or WAN to share information about each other. This information includes the MAC address and IP address, the operating system, and information about the network interface. CDP is a Layer-2 protocol that uses the Data Link Layer and is unrouted. CDP can also run on legacy Hewlett Packard Hardware.

CDP maps show layer-2, unrouted subnets, where devices are identified by MAC addresses, as opposed to routed networks, where devices are identified by IP address.

Standard CDP processing, which is used by default in versions of Skylar One prior to 12.5.1, requires that both devices respond with CDP neighbor data, show each other as a neighbor, and be managed devices in Skylar One in order to form a CDP topology relationship with each other.

Enhanced CDP processing, which is available in Skylar One 12.5.1 and later, can form CDP relationships between two devices so long as at least one of those devices responds with CDP neighbor data and is a manged device in Skylar One. This process also supports asynchronous collection, which increases the scale of CDP collection when devices are slow to respond or to load due to network latency.

The **CDP Maps** page (Maps > Classic Maps > Topology > CDP) displays a network map, where you can view details and relationships in any CDP network that has been discovered by Skylar One:



NOTE: For Skylar One to create CDP maps, you must first enable CDP collection and topology processing on the **Behavior Settings** page (System > Settings > Behavior). When you do so, Skylar One discovers CDP relationships where possible.

If you enable CDP collection and topology processing, Skylar One automatically discovers all CDP relationships in your infrastructure. Skylar One then creates graphical representations of those discovered networks and subnets. These graphical representations are called Topology Views.

A CDP map can include:

- Devices of each device category defined in Skylar One.
- Links between devices.
- Links between networks (created with switches or routers).
- Skylar One automatically updates the map as new devices are discovered. Skylar One also updates the map with the latest status and event information.

NOTE: Because CDP provides very accurate discovery details, links and relationships in CDP Maps take precedence over links and relationships in Layer-2 Maps.

TIP: To create a map that includes all CDP relationships, click **[Create Map]** on the **Maps** page and use the following advanced search criteria in the ***Search*** field: `relationship has (type = 'CDP')`

LLDP Maps

Link Layer Discovery Protocol (LLDP) allows discovery of Cisco hardware and allows Cisco hardware within the same LAN or WAN to share information about each other. This information includes the MAC address and IP address, the operating system, and information about the network interface. LLDP is a layer-2 protocol that uses the Data Link Layer and is unrouted.

LLDP maps show layer-2, unrouted subnets, where devices are identified by MAC addresses (as opposed to routed networks, where devices are identified by IP address).

Standard LLDP processing, which is used by default in versions of Skylar One prior to 12.5.1, requires that both devices respond with LLDP neighbor data, show each other as a neighbor, and be managed devices in Skylar One in order to form an LLDP topology relationship with each other.

Enhanced LLDP processing, which is available in Skylar One 12.5.1 and later, can form LLDP relationships between two devices so long as at least one of those devices responds with LLDP neighbor data and is a manged device in Skylar One. This new process also supports asynchronous collection, which increases the scale of LLDP collection when devices are slow to respond or to load due to network latency.

The **LLDP** page (Maps > Classic Maps > Topology Maps > LLDP [BETA]) displays a network map, where you can view details and relationships in any LLDP network that has been discovered by Skylar One.

NOTE: For Skylar One to create LLDP maps, you must first enable LLDP collection and topology processing on the **Behavior Settings** page (System > Settings > Behavior). When you do, Skylar One discovers LLDP relationships where possible.

If you enable LLDP collection and topology processing, Skylar One automatically discovers all LLDP relationships in your infrastructure. Skylar One then creates graphical representations of those discovered networks and subnets. These graphical representations are called Topology Views. The Maps > Classic Maps > Topology Maps pages allow you to view details and relationships in any network that has been discovered by Skylar One.

A LLDP map can include:

- Devices of each device category defined in Skylar One.
- Links between devices.
- Links between networks (created with switches or routers).
- Skylar One automatically updates the map as new devices are discovered. Skylar One also updates the map with the latest status and event information.

NOTE: Because LLDP provides very accurate discovery details, links and relationships in LLDP Maps take precedence over links and relationships in layer-2 Maps.

TIP: To create a map that includes all LLDP relationships, click **[Create Map]** on the **Maps** page and use the following advanced search criteria in the ***Search*** field: `relationship has (type = 'LLDP')`

Layer-3 Maps

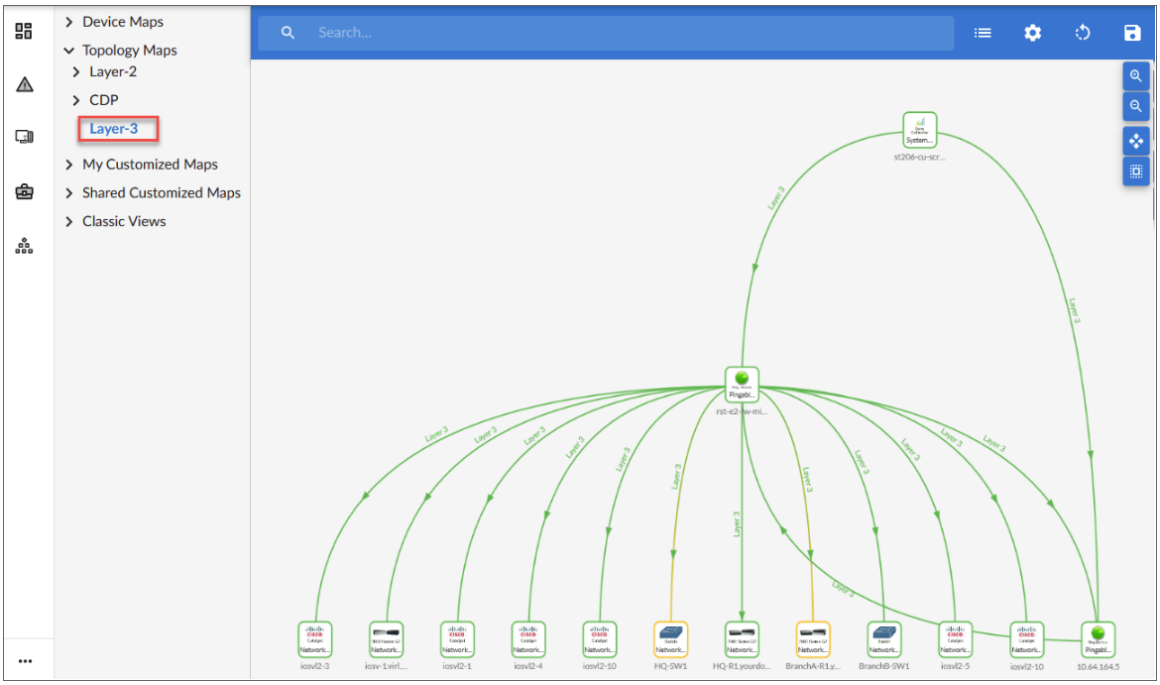
Layer-3 networks are routed subnets, where devices are identified by IP address, as opposed to unrouted networks, where devices are identified by MAC address. Layer-3 links communicate over the Network Layer and allow devices from different subnets or networks to communicate. Layer-3 links use IP addresses to identify devices and their networks and therefore are routed and can pass messages through routers.

Skylar One creates ***Layer-3*** maps by running traceroute from a Data Collector to all devices that have layer-3 collection enabled in the device class.

Standard Layer-3 processing, which is used by default in versions of Skylar One prior to 12.5.1, requires all the hops in a traceroute to respond and match devices within Skylar One. The traceroute is discarded whenever the system detects hops that fail to respond or the traceroute includes hops that do not match devices in Skylar One.

Enhanced Layer-3 processing, which is available in Skylar One 12.5.1 and later, does not discard incomplete traceroutes or results that include unmatched hops. Instead, the system will form relationships between any two hops that respond and match devices in Skylar One.

The **Layer-3 Maps** page (Maps > Classic Maps > Topology Maps > Layer-3) displays a network map, where you can view details and relationships between Data Collectors and layer-3 routers and switches, and between the layer-3 routers and switches that have been discovered by Skylar One.



A Layer-3 network map can include:

- Data Collectors, switches, and routers.
- Links between devices.
- Links between networks (created with switches or routers).
- Skylar One automatically updates the map as new devices are discovered. Skylar One also updates the map with the latest status and event information.

Chapter 2

Viewing Maps

Overview

This chapter describes how to view and work with relationship maps for the various nodes in Skylar One (formerly SL1).

> **NOTE**: For Skylar One to create CDP maps, you must first enable the ***Enable CDP Topology*** checkbox on the **Behavior Settings** page (System > Settings > Behavior). Similarly, if you want Skylar One to create LLDP maps, you must enable the ***Enable LLDP Topology*** checkbox on the **Behavior Settings** page.

Use the following menu options to navigate the Skylar One user interface:

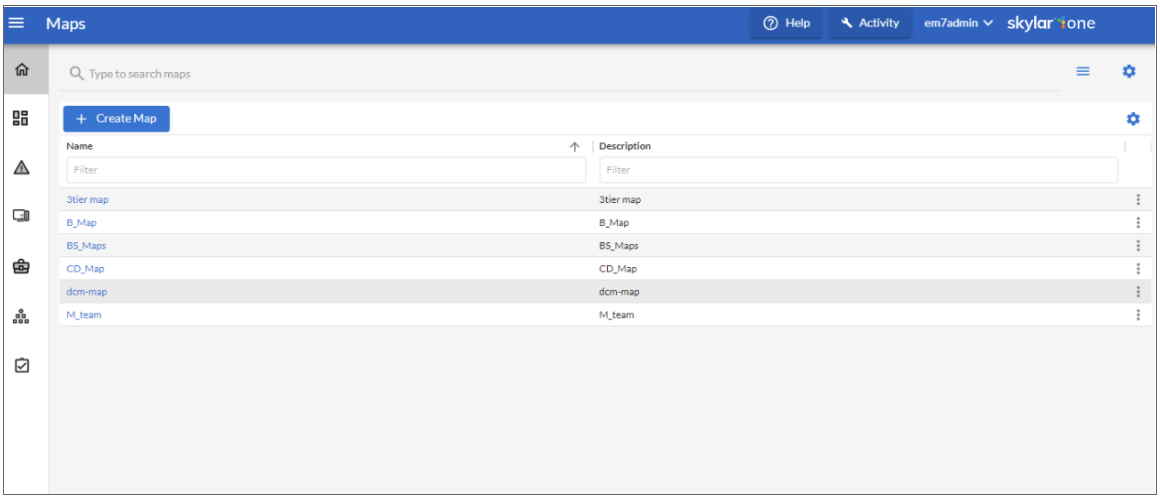
- To view a pop-out list of menu options, click the menu icon ( ).
- To view a page containing all of the menu options, click the Advanced menu icon ( ).

This chapter covers the following topics:

Viewing the List of Maps

To navigate to the **Maps** page, click the Maps icon ( ).

The Maps page displays a list of created maps. By default, the maps listed on the Maps page are sorted alphabetically by Name. If you prefer, you can change the sorting preferences and Skylar One will recall those changes the next time you return to the **Maps** page.



TIP: You can filter the items on this inventory page by typing filter text or selecting filter options in one or more of the filters found above the columns on the page. For more information, see "Filtering Inventory Pages" in the ***Introduction to Skylar One*** manual.

TIP: You can adjust the size of the rows and the size of the row text on this inventory page. For more information, see the section on "Adjusting the Row Density" in the ***Introduction to Skylar One*** manual.

TIP: You can search for one or more maps by typing search criteria in the ***Search*** field at the top of the ***Maps*** page. After you create a search, you can save that search to use later. For more information, see "Using Basic Search" and "Saving a Search" in the ***Introduction to Skylar One*** manual.

> **TIP:** To rearrange the columns in the list, click and drag the column name to a new location. You can adjust the width of a column by clicking and dragging the right edge of the column. For more information about editing and adding columns, see "Editing the Settings for an Inventory Page" in the ***Introduction to Skylar One*** manual.

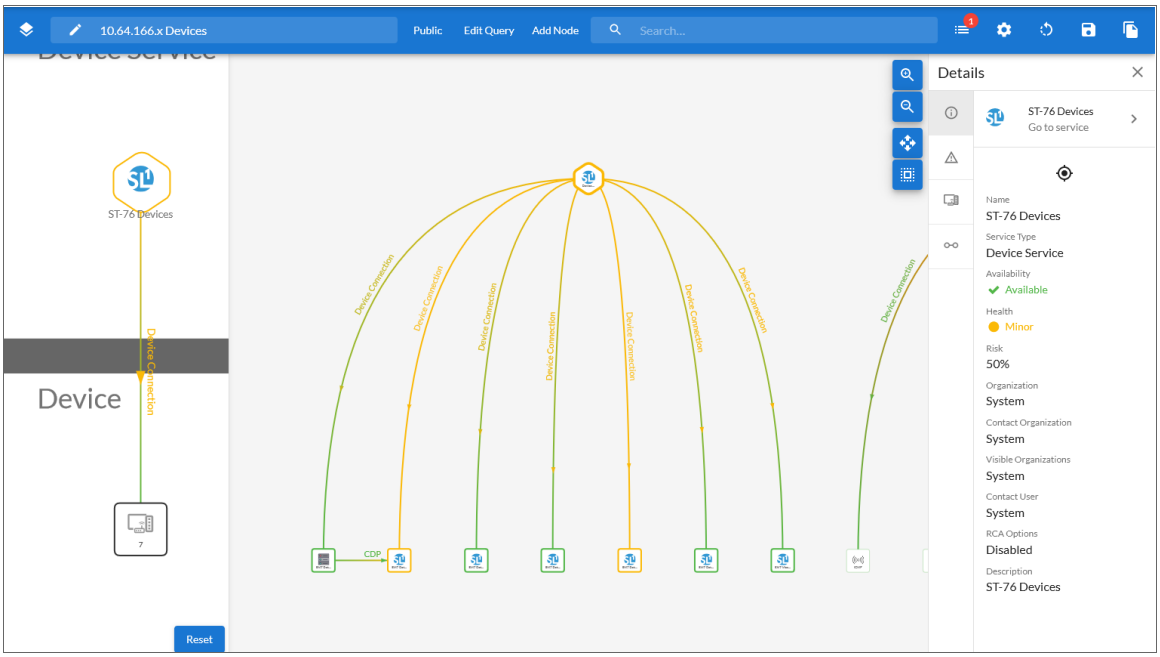
For each map, the **Maps** page displays the following information:

- ***Name***. The name of the map. Click the name hyperlink to view the map.
- ***Description***. The description of the map. This will display any text entered in the ***Map Description*** field when editing the map. For more information, see *Changing the Design of a Map*

Viewing a Map

To view a map, go to the **Maps** page () and click the name of the map from the **Maps** page. The **Map** window for that map appears:

> **TIP:** You can filter the items on this inventory page by typing filter text or selecting filter options in one or more of the filters found above the columns on the page. For more information, see "Filtering Inventory Pages" in the ***Introduction to Skylar One*** manual.



The **Map** detail window includes the following user interface features:

- A *navigation bar* navigation bar at the top, which contains a set of buttons and fields that you can use to customize a map
- An *interactive legend* interactive legend on the left, which shows a detailed view of a selected node and the immediate connections for that node
- A *viewing pane* viewing pane in the middle, which is the main viewing area for the map, on which you can view nodes and the links between nodes
- A *Details pane* on the right, which displays the properties or metadata for a specific node on a map

TIP: The interactive legend and the **Details** pane can be hidden to allow more space for the viewing pane.

NOTE: Maps support custom Skylar One themes, and the theme colors will be reflected in the maps, including dark mode themes.

Navigation Bar

The blue navigation bar at the top of a **Map** window includes the following:

- **Interactive Legend** button (). Opens the *Interactive Legend* for this map.
- ***Map Name***. The name of the current map. You can change the name by clicking the current name or the pencil icon () and typing a new name.
- ***Private/Public/Share***. Select the visibility for a map that you created. The default for a new map is *Private*. Your options include:
  - ***Private***. The map is viewable only to you.
  - ***Public***. The map can be shared with users in all organizations that are using Skylar One.
  - ***Specific Organizations***. The map can be viewed only by the organizations that you search for and select from this menu.
- **[Edit Query]**. Click this button to edit the "seed query" (the initial search that the map creator used to find nodes for the map). For more information, see *Editing a Query for a Map*.
- **[Add Node]**. Click this button to add another node to the map. Nodes can represent Devices, Topology Elements, and Services. For more information, see *Adding a Node to a Map*.
- ***Search***. Type some or all of a node name in this field to search for specific nodes on the current map. Nodes that match the search criteria are highlighted in the map. Delete the search text to clear the search.
- **Selections** (). After you select one or more nodes, you can click this button to show the details of that node or nodes in a **Details** pane to the right of the map. If you have more than one node selected, click the down arrow icon to select the node for which you want to view the **Details** pane. You can view the status for that node and the events associated with that node on the **Details** pane. For more information, see *Viewing Node Details*.

NOTE: The number in the red circle on **Selections** shows how many items are currently selected. If you selected more than one node, use the **[Previous]** and **[Next]** buttons at the bottom of the **Details** pane to view properties for the other nodes.

NOTE: If you select two device nodes, you can click **[Selections]** () and select *Create Relationship* to create a relationship between those two device nodes in the map. For more information, see *Creating a Relationship Between Two Devices*.

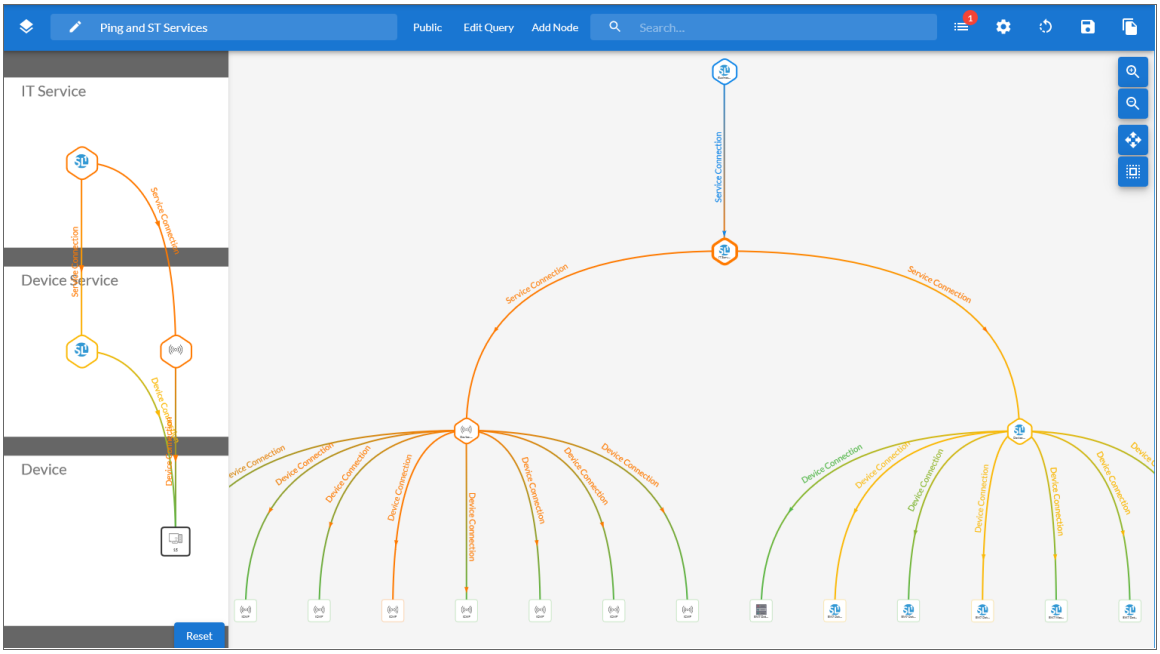
- **Settings** (). Click this drop-down to select from the following options:
    - *Design*. Opens the **Design** pane, where you can edit the appearance of the map. For more information, see *Changing the Design of a Map*.
    - *Filters*. Opens the **Filters** pane, which lets you select and deselect filters that affect which nodes (devices and services) and links appear in your map. For more information, see *Changing the Filters for a Map*.
    - *Selection*. Opens the **Details** pane for a selected node.
- **Reset** (). Click to revert any unsaved changes you have made to your map.
- **Save** (). Click to save any changes you have made to your map.
- **Save Copy** (). Click to make a copy of the current map with a new name.

Interactive Legend

The ***interactive legend*** appears on the left-hand side of a **Map** window when you click the **[Interactive Legend]** button () at top left. By default the interactive legend is hidden.

When you select a node on the viewing pane of the map with the interactive legend open, the legend shows a detailed view of that node and the immediate connections for that node. The legend gives you a quick close-up of the hierarchy and context for the selected node.

In the example below, the selected IT Service is connected to a parent Business Service and two device services, which are monitoring 15 Devices:



NOTE: If you click and drag the map to move it, when you drag the mouse over the interactive legend, the map will stop moving.

To view details about a *different* node in the same map, select that node in the viewing pane, or select a different node to focus on in the interactive legend. The interactive legend updates with the details for the selected node.

TIP: If you moved the nodes on the interactive legend, you can click the **[Reset]** button to return the nodes to their original grouping. To close the interactive legend, click the **[Interactive Legend]** button ( ) again.

Viewing Pane

Under the blue navigation bar is the ***viewing pane***, which is the main viewing area for the map. Use the following buttons to manipulate the map on the viewing pane:

: Zoom in on the map.

: Zoom out on the map.

: Fit all elements of a map into the viewing pane.

: Center all selected elements of a map in the viewing pane.

TIP: If you selected ***Show Legends*** on the **[Links]** tab ( ) of the **Design** pane, you will also see a colored legend to the left of the buttons that show either the status colors for the nodes, or the link types for the map. For more information, see *Changing the Design of a Map*.

The viewing pane displays the following two types of graphical elements:

1. ***Nodes*** that represent Devices, Topology Elements, and Business Services defined in Skylar One. The shape of the node represents its type, and the color of the outline specifies the current state of the node:

    - *Devices* are represented by squares:

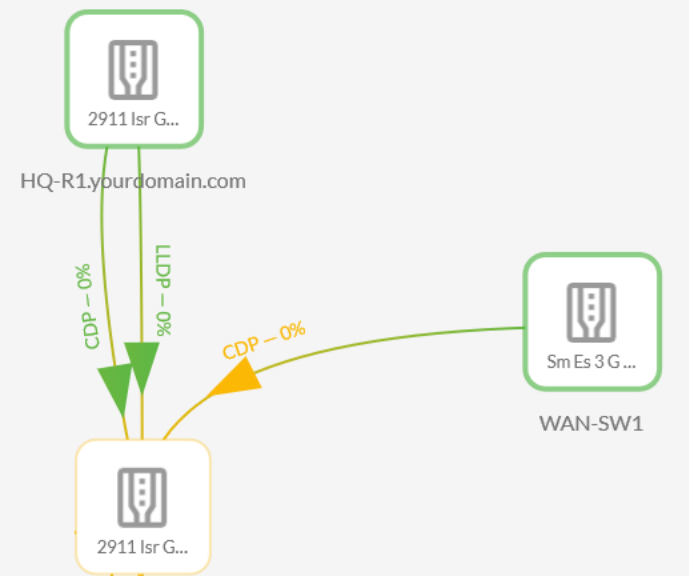
    

    - *Services*, such as business services, IT services, or device services, are represented by hexagons:

NOTE: When you select a node, the border for the node icon thickens and brightens, and any nodes directly connected to that node are also highlighted. Any nodes *not* directly connected to the selected node appear in a less bright color than their usual color. Also, if you enable history tracking, any nodes that you previously selected will also have a slightly brighter border. For more information about history tracking, see *Changing the Design of a Map*.

2. ***Links*** are lines that represent the relationships and hierarchies between nodes:



For LLDP and CDP relationships, the links can include a label describing the relationship as well as a percentage that represents the network usage for the network interfaces on the devices.

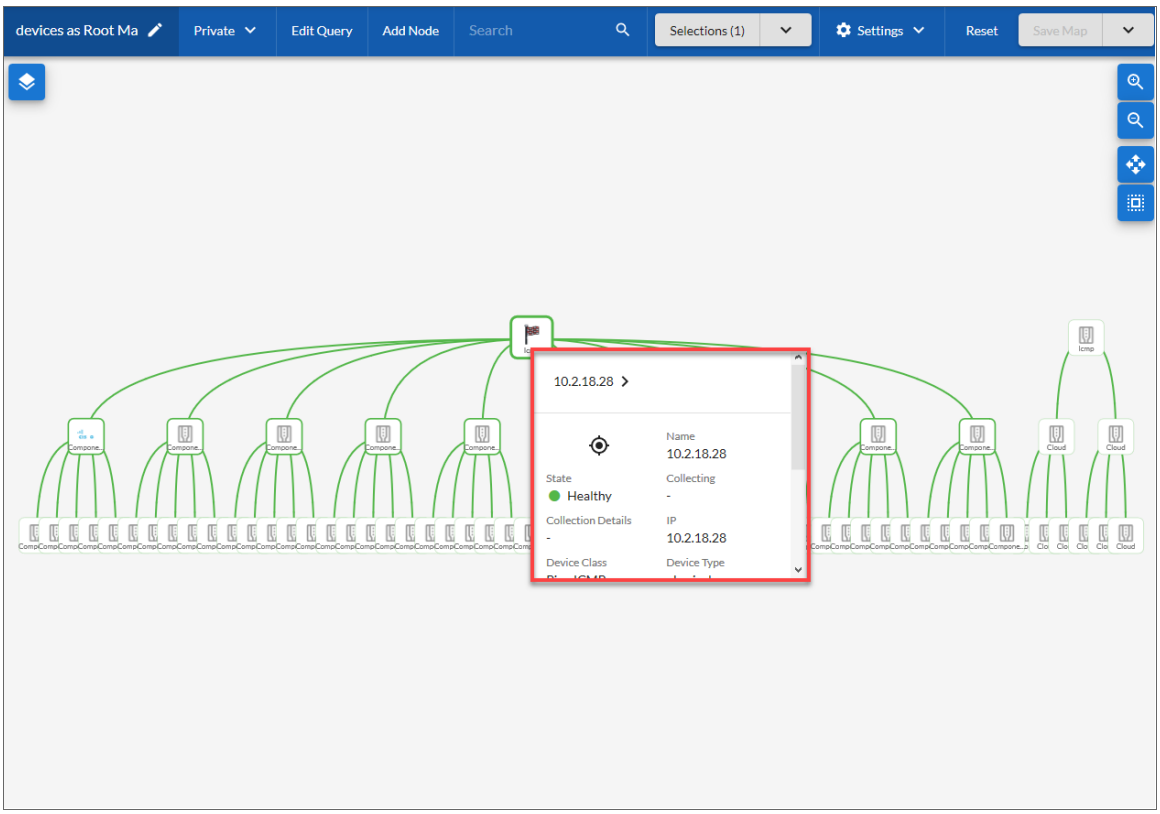
NOTE: Skylar One automatically updates the map as new nodes are discovered. Skylar One also updates the map with the latest status and event information.

The Details Pane

There are a variety of ways you can view the properties or ***metadata*** for a specific node on a map.

To enable the ability to hover over a node in a map to view metadata:

1. From a **Map** window, click **Settings** (⚙) and select *Design*.
2. On the **Nodes** menu, enable the ***Show Details on Hover*** option. When you hover over a node in the viewing pane of a Map window, a pop-up **Details** pane appears with the metadata for that node:



NOTE: If you do not have edit rights for maps, or if the map is in a dashboard or a **Device Investigator** page, hover is on by default. Also, if you select this option, it is *not* retained on the **Map** window when you save or close this map.

To view metadata in the **Details** pane if the hover option is not enabled:

1. Double-click a node on a map. You can also select the node, click **Settings** (), and select *Selection*. The metadata displays in a new **Details** pane to the right of the map:

2. To close the **Details** pane, click the Close icon ( ) to the right of the node name at the top of the pane.

The following items appear in the **Details** pane to the right of the map:

- ***Name***. Displays the name of the node. You can click the name of the node to open the **Investigator** page for that node in a new browser tab.

> **WARNING:** To avoid losing any edits you made to the map, click the **[Save Map]** button before clicking the device name and leaving the **Map** window.

- ***Target* icon** (). Select a device or service and then click the Target icon to create a targeted map for the selected node. A new **Map** window opens, and the map has a default ***Expansion Depth*** of 1. This feature is useful if you want to focus on a small portion of a very large or detailed map. To customize the new map, see *Changing the Appearance of a Map*.

- **[Properties]** ***tab*** ( ). Displays the name, state, organization, and other "metadata" for the selected node, including any Custom Attributes you created for the node. For a Service node, the latest Availability, Health, and Risk values appear on this tab. The pop-up **Properties** pane displays a similar set of metadata.

> **NOTE:** When a Service node has a Risk of 0%, the value displays as a hyphen ("-") instead of a "0" on the **Properties** pane.

- **[Events]** ***tab*** ( ). Displays a list of events associated with the node.
- **[Processes]** ***tab*** ( ). Displays processes for a device on the map, where available. Select a device to see the process information for that device.
- **[Links]** ***tab*** ( ). Displays link information when you select a link on the map.

> **NOTE:** If you selected more than one node, use the **[Previous]** and **[Next]** buttons at the bottom of the **Details** pane to view properties for the other selected node or nodes.

Repositioning Nodes on a Map

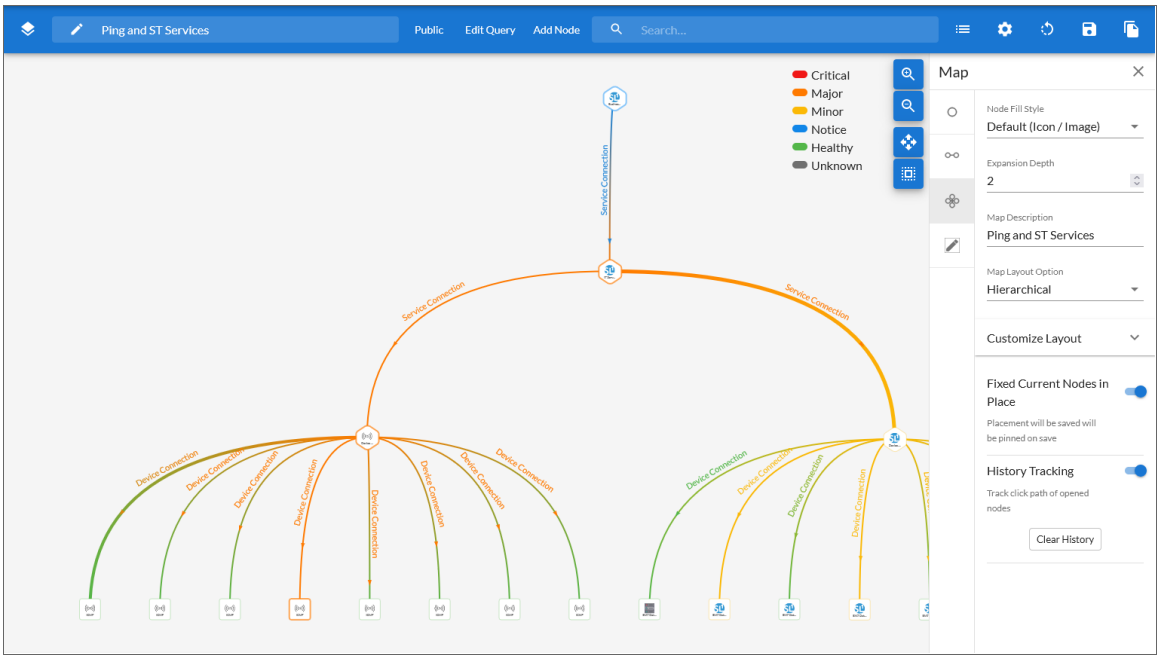
You can drag and drop nodes to reposition them on the map to make viewing and managing them easier. When you reposition a node, it retains its links to other nodes.

You can also rearrange a map in the following ways:

- ***To move the entire map***, click in any spot in the background, click and hold down the mouse button, and drag the mouse to the new location.
- ***To zoom in and out***, use the wheel of your mouse or two fingers on a Trackpad. You can also click the Zoom In ( ) and Zoom Out ( ) icons.
- ***To move a node***, drag and drop the node to the new location.

To save the new layout:

1. From the Map page, click **Settings** ( ) and select *Design*. The **Design** pane appears:



2. Click the **[Map]** tab ( ) on the **Design** pane and enable the ***Fixed Current Nodes in Place*** toggle to save the layout when your are done moving the nodes.
3. After you finish moving the map and its nodes, or zooming in or out, click **Save** ( ) to save the map. The next time you open the map, the nodes will display in the same layout.

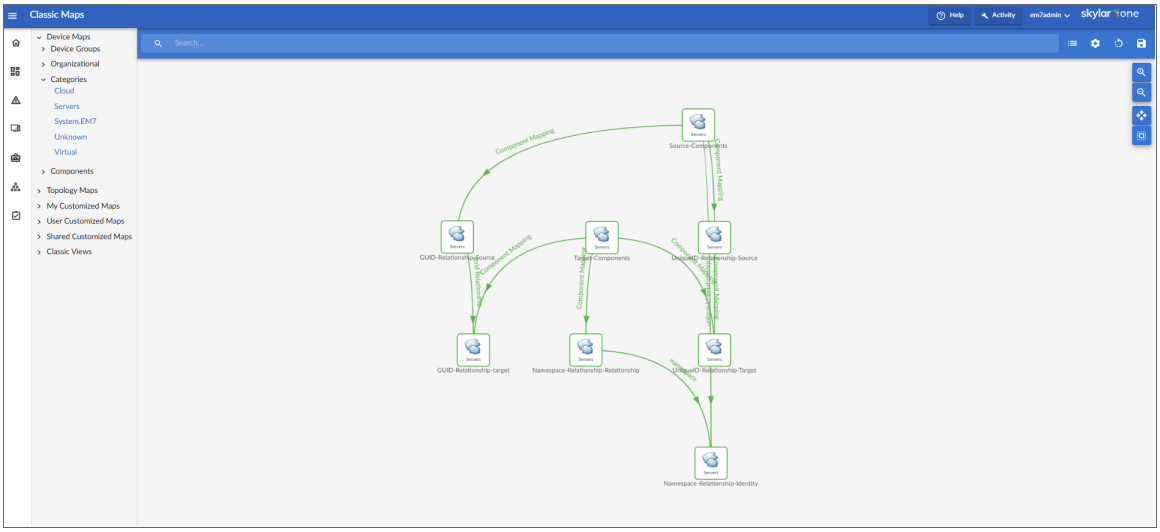
Viewing the Classic Maps Page

In previous versions of Skylar One, the maps on the **Classic Maps** page (Maps > Classic Views, formerly the **[Views]** tab in the classic user interface) were rendered using Flash. Because Flash was deprecated at the end of 2020, the maps on the **Maps** and **Classic Maps** pages in Skylar One are rendered using HTML5 instead of Flash.

Viewing Classic Maps in Skylar One

1. Go to the **Classic Maps** page (Maps > Classic Maps).

2. Expand the section for the classic map you want to view, and select a map. The navigation on this page is the same as the **[Views]** tab in the classic user interface. The following is an example of an HTML5-based classic map:



3. To view the properties for a node on a classic map, hover over that node.
4. By default, the state of a node is based on device state, not interface state. To specify whether relationships between devices should use the status color of the device on each end or the status color of the network interface on each end, select the link between the devices, click **Settings** (), select *Design*, click the **[Links]** tab, and edit the options for ***Edge Status Color***.
5. To customize the classic map, see *Changing the Appearance of a Map*.

> **NOTE:** Some features that you can use with the "new" maps on the **Maps** page might not be available for a classic map. The same restrictions that belonged to classic maps on the **[Views]** tab of the classic user interface are enforced on the **Classic Maps** page.

Viewing Maps in the Classic User Interface

The following types of classic maps are available in HTML5:

- All relationship types
- All existing map layouts
- All previously created map images, icons, and shapes
- Support for device groups

In addition, the classic maps also display in HTML5 in the following locations in the classic user interface:

- Classic Dashboards (contextual and non-contextual)
- Device Dashboards
- Device Topology

For additional information about working with classic maps in the classic user interface, see the ***Classic Maps (Views)***manual.

Chapter 3

Creating and Editing Maps

Overview

This manual describes how to create and edit relationship maps for the various nodes in Skylar One (formerly SL1).

Use the following menu options to navigate the Skylar One 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 Map

Depending on the permissions assigned to users, some users will be able to create and edit maps and select the default layout. Meanwhile, other users will only be able to view and filter existing maps and update the layout of existing maps. If you do not see the **[Create Map]** button at the top right of the **Maps** page, then you do not have the permissions needed to create a map.

Map permissions include the following:

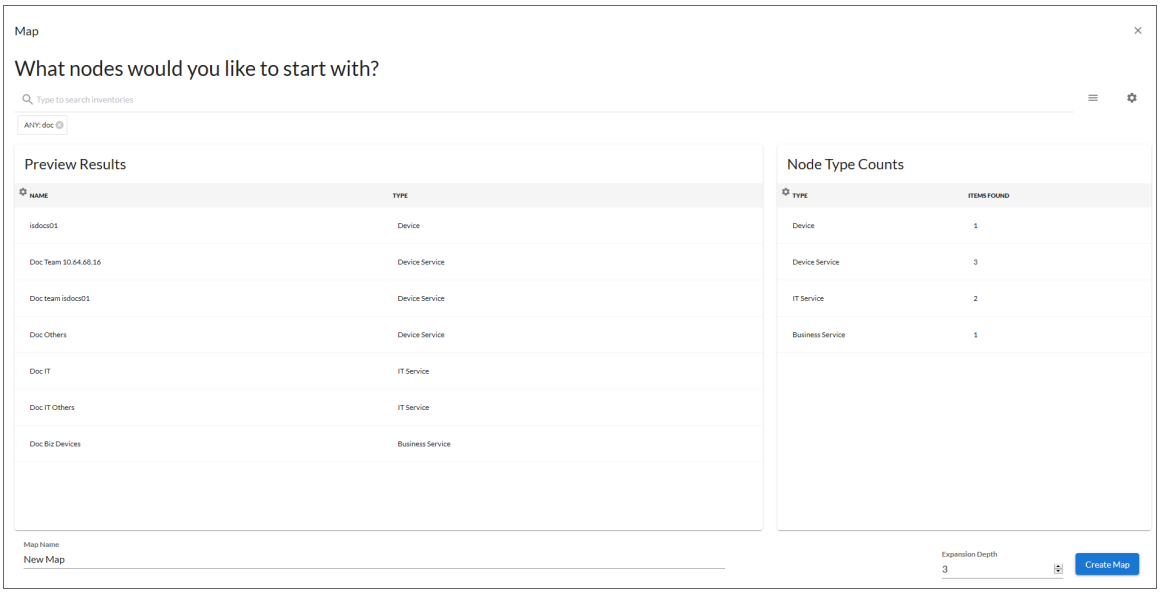
- To edit or create a shared map, you must have the VIEWS_SHARED_EDIT hook.
- When creating a map, if it is shared, you must have permissions to see all of the organizations it is shared with.
- If the map is private, only the owner can edit the map.
- If the map is shared, you can only edit the map if you can see all of the organizations that can see the map.

NOTE: While Classic Maps (Views) used Device Groups when generating maps, the maps on the **Maps** page use a query that searches for relevant devices as well as services.

TIP: To create a copy of an existing map, select the map you want to copy from the **Maps** page, click the **[Actions]** button (···), and select *Duplicate*. If you are already in a **Map** window for a map, you can click the ***Save Map*** drop-down and select *Save As Copy*.

To create a map:

1. On the **Maps** page (), click **[Create Map]**. A **New Map** window appears:



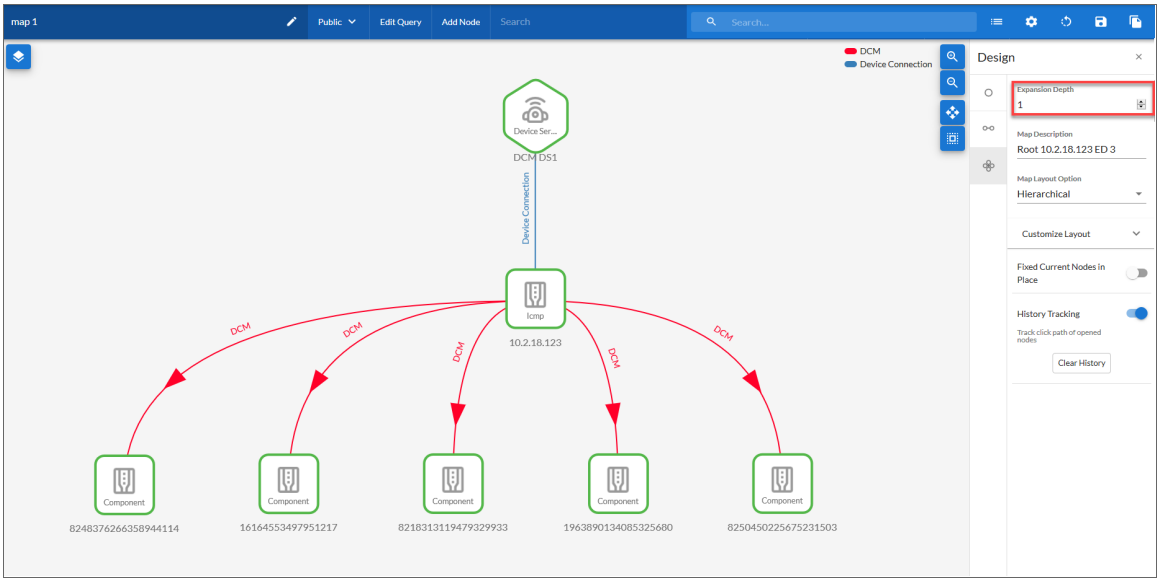
2. In the ***Search*** field, type search criteria for nodes in Basic or Advanced Search mode. You can search for Devices, Topology Elements, Relationship Types, and Business Services. The nodes that fit your search display in the **Preview Results** pane, and the number of each type of node displays in the **Node Type Counts** pane.

> **TIP:** If you are looking for a very specific set of nodes, click the gear icon () to the right of the ***Search*** field and select *Advanced*. In this mode you can create an advanced search using "AND" or "OR" for multiple search criteria. For more information, see the "Performing an Advanced Search" topic in the ***Introduction to Skylar One*** manual.

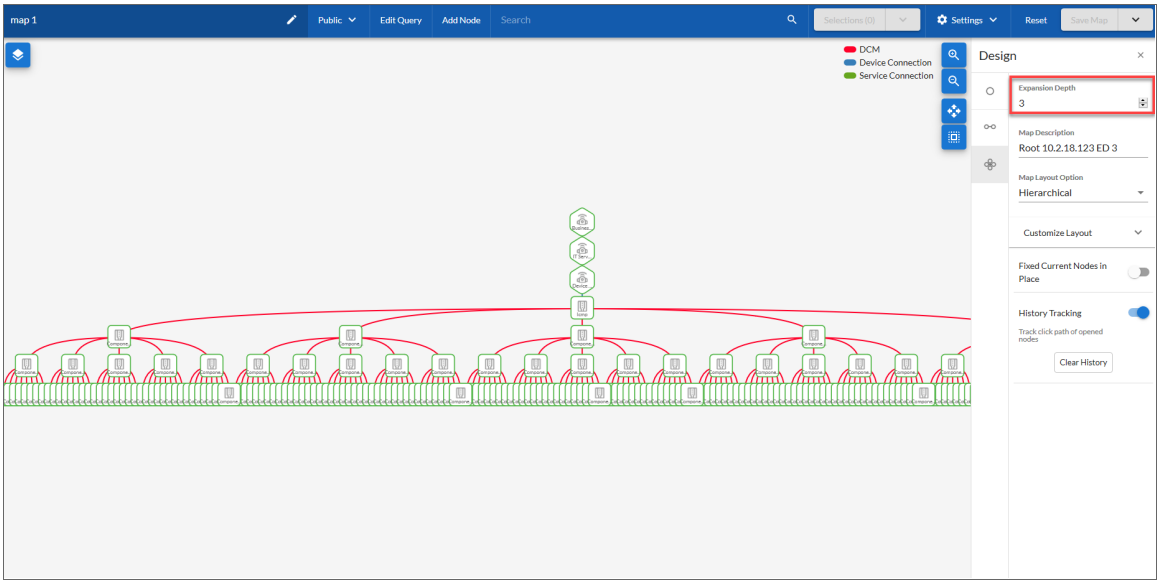
3. In the ***Map Name*** field, type a name for the new map.

4. In the ***Expansion Depth*** field, specify the number of tiers or "hops" that you want the selected nodes to expand and display by default. For example, the default value of "1" would expand the selected nodes to show just nodes that are one step away from those nodes. A larger ***Expansion Depth*** value expands the selected nodes by that number of tiers or "hops", which can reduce the loading time for a complicated map. If you set this value to "0", only the selected nodes from your search appear in the map, without any relationships displaying.

   For example, the following map has an ***Expansion Depth*** value of 1:



   The following map is the same map with an ***Expansion Depth*** value of 3:



5. Click **[Create Map]**. The nodes that match your query appear in the map.

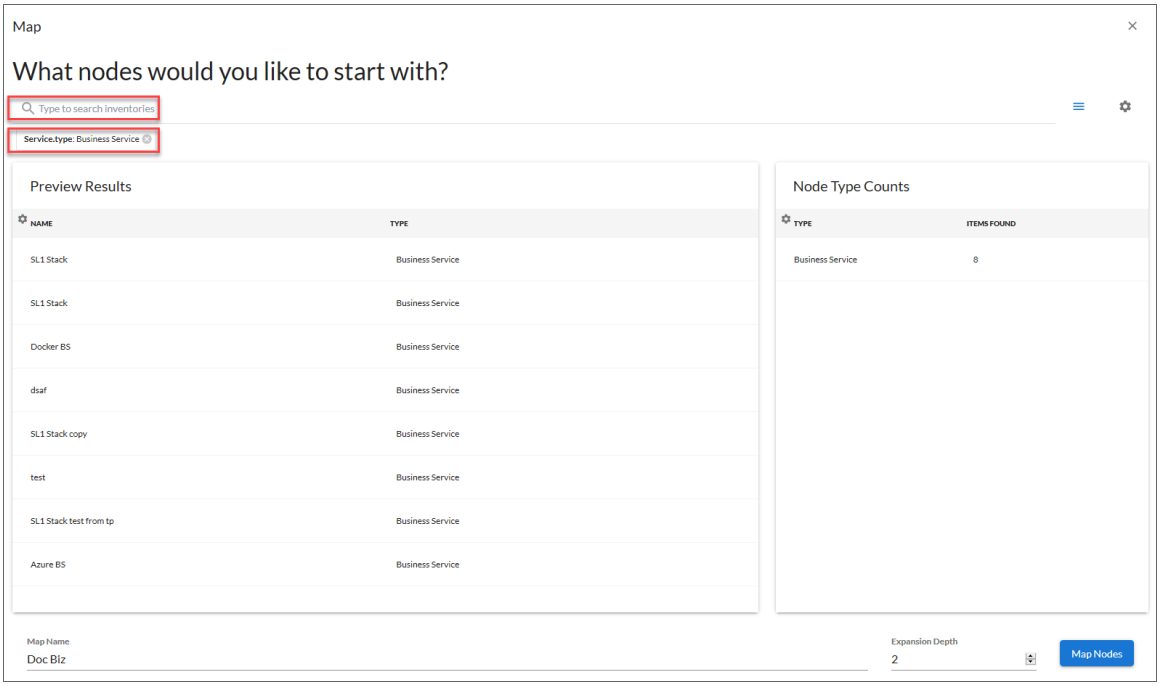
6. If you did not give your map a name already, click the *Untitled Map* in the upper-left corner and type a new name.
7. The default visibility for the new map is *Private*, which means only you can view it. You can change the visibility by clicking the ***Private*** drop-down and selecting *Public* or *Specific Organizations*.
8. Update the appearance of the map by clicking **Settings** ( ) and selecting *Design*. For more information, see *Changing the Appearance of a Map*.
9. Click **Save** ( ) to save the map.

Editing a Map

If a map does not display the nodes and relationships you need, you can edit the search query for a map by changing the nodes used by the map.

To edit a search query for a map:

1. On the **Maps** page (), select the map you want to edit and click **[Edit Query]** on the **Map** window. The **Edit Map** window appears:



2. To remove the current search criteria, click the Close icon ( ) on the criteria button that appears under the ***Search*** field.
3. In the ***Search*** field, type new search criteria for nodes in Basic or Advanced Search mode. You can search for Devices, Topology Elements, Relationship Types, and Business Services. The nodes that fit your search display in the **Preview Results** pane, and the number of each type of node displays in the **Node Type Counts** pane.

> **TIP:** If you are looking for a very specific set of nodes, click the gear icon () to the right of the ***Search*** field and select *Advanced*. In this mode you can create an advanced search using "AND" or "OR" for multiple search criteria. For more information, see the "Performing an Advanced Search" topic in the ***Introduction to Skylar One*** manual.

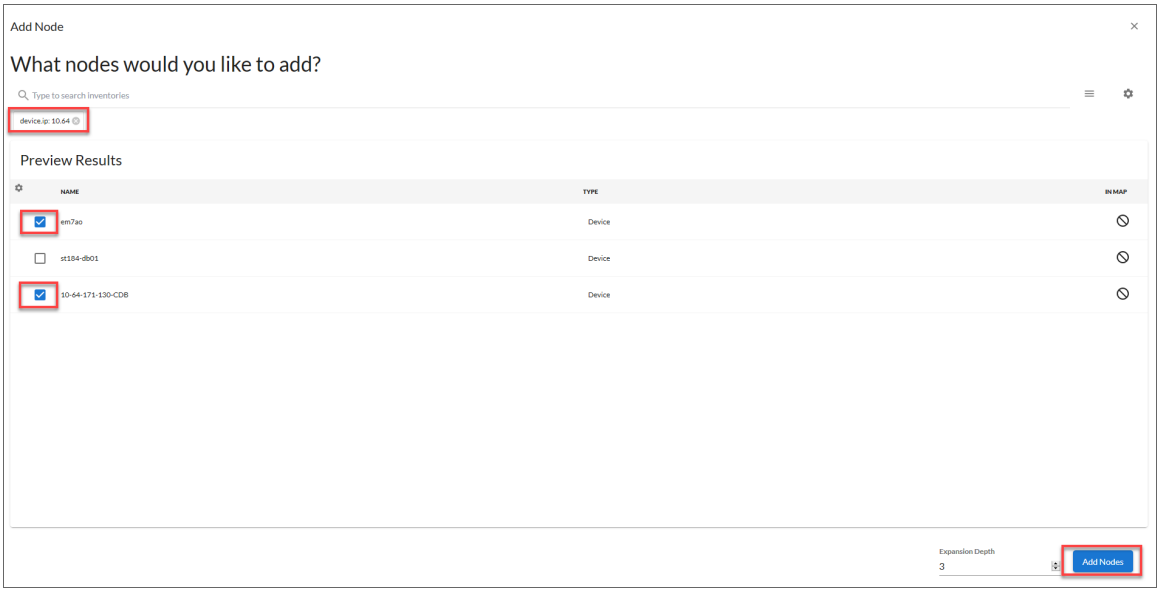
4. If needed, edit the ***Expansion Depth*** field to change the number of tiers or "hops" that you want the selected nodes to expand and display by default.
5. Click **[Map Nodes]**. The nodes that match your search query appear in the **Map** window.
6. Update the appearance of the map by clicking **Settings** () and selecting *Design*. For more information, see *Changing the Appearance of a Map*.
7. Click **Save** () to save the map.

Adding a Node to a Map

If you want to quickly add one or more nodes to map without *editing the query* for the map, you can simply click the **[Add Node]** button on a **Map** window.

To add a node to a map:

1. On the **Maps** page (), select the map you want to edit and then click **[Add Node]** on the **Map** window. The **Add Node** window appears:



2. In the ***Search*** field, type new search criteria for nodes in Basic or Advanced Search mode. You can search for Devices, Topology Elements, Relationship Types, and Business Services. The nodes that fit your search display in the **Preview Results** pane, and the number of each type of node displays in the **Node Type Counts** pane.

> **TIP:** If you are looking for a very specific set of nodes, click the gear icon () to the right of the ***Search*** field and select *Advanced*. In this mode you can create an advanced search using "AND" or "OR" for multiple search criteria. For more information, see the "Performing an Advanced Search" topic in the ***Introduction to Skylar One*** manual.

3. From the **Preview Results** pane, select one or more nodes to add to the map.

> **TIP:** A node in the **Preview Results** pane that contains a null icon () in the **In Map** column does *not* currently appear in this map.

4. If needed, edit the ***Expansion Depth*** field to change the number of tiers or "hops" that you want the selected nodes to expand and display by default.
5. Click **[Add Nodes]**. The node or nodes are added to the **Map** window.
6. Update the appearance of the map by clicking **Settings** (⚙) and selecting *Design*. For more information, see *Changing the Appearance of a Map*.
7. Click **Save** (💾) to save your updates to this map.

Creating a Relationship Between Two Devices on a Map

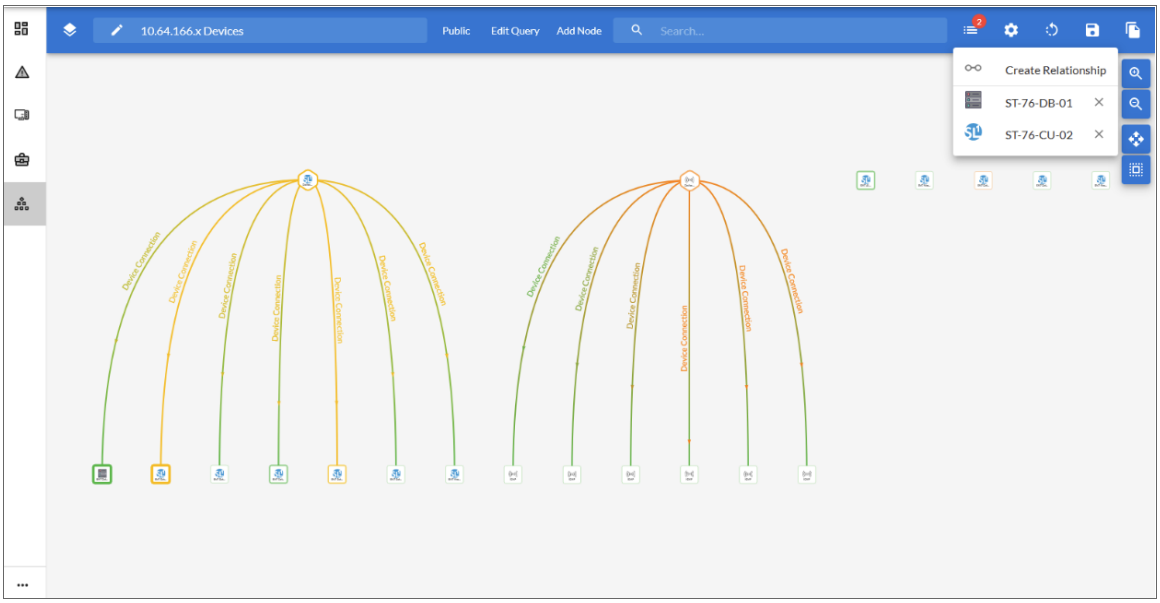
You can create a link between any two devices in a map to represent a new relationship. After you create a relationship, you can decide if the relationship will *only* exist in that map, or if that relationship will persist on all maps in Skylar One after you save the map.

When creating a relationship between two devices, keep in mind the following aspects of relationships:

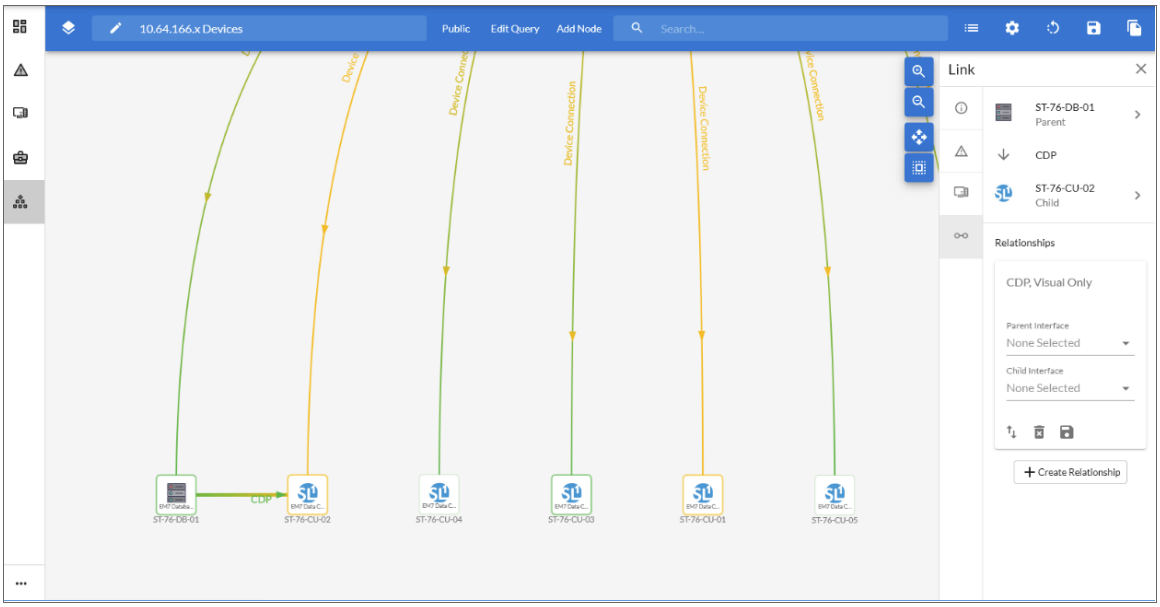
- If you want to create two different relationships between the same two nodes, the relationships must go in separate directions.
- If a relationship already exists, you cannot create that same relationship again between the two devices.
- You cannot change the direction of a relationship that was discovered by Skylar One.

To connect two devices in a map:

1. On the **Maps** page (🗺), select the map you want to edit. The **Map** window appears.
2. Press **[Shift]** and click to select two device nodes. The outlines of the node are thickened when you select the node, and the **Selections** (☰) changes to display the number of nodes selected:



3. Click **Selections** () and select *Create Relationship*. The **Select a relationship type** window appears.
4. In the ***Relationship Type*** drop-down, select the type of relationship you want to create for these two devices. Your options include: Ad Hoc, CDP, LLDP, Layer-2, and Layer-3.
5. Click **[OK]**. The **Relationship** pane appears, with the two devices arranged from top to bottom based on the relationship:



6. If you selected *Ad Hoc* for the type, you can edit the name of the link in the ***Relationship Title*** field on the **Relationship** pane.
7. If you selected *CDP* or *LDP* as the type, select parent and child interfaces as needed.
8. To change the direction of the arrow on the edge representing the relationship, click the Change Direction icon ( ).
9. To remove the relationship from the map, click the Delete icon ( ).
10. To make the relationship persist on all maps in Skylar One after you save the map, click the Override icon ( ).
11. To add another relationship for the two devices, click **[Create Relationship]** and add a new ***Relationship Title***.
12. To close the **Relationship** pane, click the Close icon ( ) at the top right of the pane.

> **TIP:** To open the **Relationship** pane to edit this relationship again, or to edit any other relationship in a map, double-click the edge that connects the two device nodes.

13. Click **Save** ( ) to save the map.

Changing the Appearance of a Map

After clicking **Settings** (), you can use the **Design** pane and the **Filters** pane on a **Map** window to change the appearance of the selected map.

On the **Design** pane, you can configure the appearance of a map by editing the following settings:

- The node details and labels you want to display in the map
- The edge details you want to show in the map, including labels for the type of relationship, arrowheads, and curved edges.
- The "expansion depth" of the map and the various ways to display the nodes in the map
- Rectangles, circles, and other shapes and text you might want to include in the map

  For more information, see *Changing the Design of a Map*.

On the **Filter** pane, you can control the amount of data that is displayed in a map by editing the following settings:

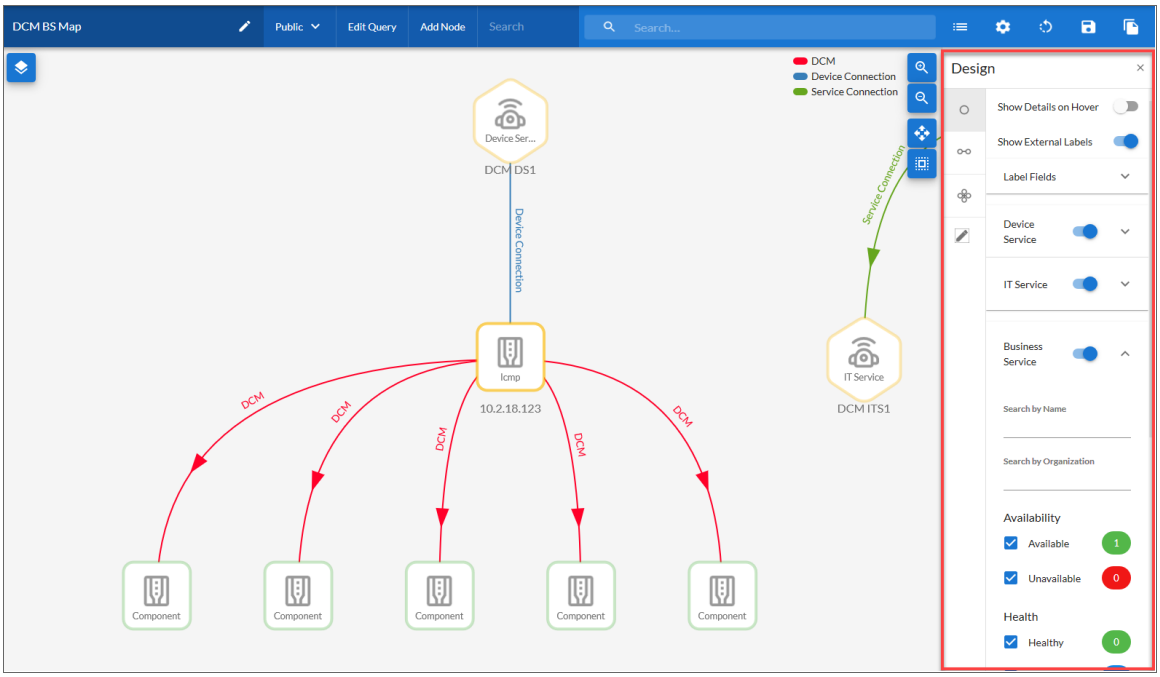
- The number and types of devices and services that you want to display in the map as nodes
- The number and types of relationships that you want to display in the map as edges

  For more information, see *Changing the Filters for a Map*.

Changing the Design of a Map

To use the **Design** pane for a map:

1. On the **Maps** page (), select the map you want to edit. The **Map** window appears.
2. Click **Settings** () and select *Design*. The **Design** pane appears to the right of the viewing pane for the map:



The **Design** pane contains four vertical tabs: **[Nodes]**, **[Link]**, **[Map]**, and **[Edit]**.

3. On the **[Nodes]** tab (○), you can edit the following options:

   - ***Show Details on Hover***. Enables or disables the pop-up **Properties** pane that appears when you hover over a node in the map. This option is not enabled by default, and if you select this option, it is *not* retained when you save or close this map.
   - ***Show External Labels***. Shows or hides a user-defined label field for the node. You define the labels that will display in the **Label Fields** section, below. If you enable this option, the external label appears *under* the node icon in the map.
   - ***Label Fields***. If you selected the ***Show External Labels*** toggle, you can expand this section and edit the type of label that displays under each node type: devices, services, and topology elements. For example, you could edit the external labels to display the device class or organization name under each device node.

     - ***Devices***. You can toggle off devices to hide devices in the map. You can also expand this section to filter the map by device Category, Class, Sub Class, Status, Name, and Organization.

     - ***Services***. You can toggle off some or all services to hide those services on the map. You can also expand this section to filter the map by Name or Organization, and by specific Availability, Health, and Risk values.

4. On the **[Links]** tab (⚯), you can edit the following options:

   - ***Labels***. Shows or hides the labels for the type of relation next to the link.
   - ***Arrowheads***. Shows or hides arrows to represent the direction of the relationships, such as a parent node pointing to a child node.

- ***Arrow Spacing Ratio***. If you selected the ***Arrowheads*** toggle, you can use this option to set where you want the arrows to appear on the links. For example, a ratio setting of ".5" would place the arrow at the halfway point between two connected nodes. A ratio setting of ".7" (or 70%) is the maximum, and ".2" is the minimum.
- ***Curved Edges***. Toggles between curved lines or straight lines connecting nodes.
- ***Show Legends***. Shows or hides a small, color-coded legend for the map next to the four blue viewing buttons.
- ***Color edges by***. If you enabled the ***Show Legends*** toggle, you can change the color of the links in the map based on one of the following options:
    - *Status*. Colors the links based on the status of the device or service, such as Critical or Healthy, that the link is connecting.
    - *Type*. Colors the links based on the type of relationship, such as DCM (Dynamic Component Map) or Service Connection, represented by the link.

> **TIP:** The various options in the bottom portion of this tab let you view the number of various node types along with a toggle button you can use to show or hide that specific node type. These options are the same as the options on the **[Links]** tab of the **Filters** pane.

5. On the **[Maps]** tab (), you can edit the following options:
    - ***Node Fill Style***. Specify how you want nodes to appear in the map. Your options include:
        - *Default (Icon/Image)*. Nodes in the map are represented by icons or images.
        - *Solid (Status Color*). Nodes in the map are represented by solid colors that correspond with the nodes' current status (healthy, notice, minor, major, or critical).
    - ***Expansion Depth***. Specify the number of tiers or "hops" that you want the selected nodes to expand and display by default. For example, the default value of "1" would expand the selected nodes to show just nodes that are one step away from those nodes. A larger ***Expansion Depth*** value expands the selected nodes by that number of tiers or "hops", which can reduce the loading time for a complicated map.
    - ***Map Description***. Type a description of the map. When you save this map, this description appears in the ***Description*** column of the **Maps** page.
    - ***Map Layout Option***. Select the layout for your map from the following options:
        - *Hierarchical*. This top-to-bottom layout works best for a map that flows in a single direction. You can further customize this layout by clicking ***Customize Layout*** to show more options. These options include:
            - ***Direction***. Select the direction in which you want your hierarchy to flow. Your options include *Top to Bottom*, *Bottom to Top*, *Left to Right*, and *Right to Left*.

- ***Arrange via Relationship Direction*** Select this option to arrange nodes based on the direction of the relationships of the nodes. If this option is selected, the direction of the relationships is from right to left.
- ***Space Nodes to Fit Screen***. Select this option to let Skylar One automatically space the nodes on the map. If you do *not* select this option, you can edit the following two options:
    - ***Horizontal Node Spacing***. Edit this value to create more or less white space to the left and right of each node. Use a value between 10 and 1000. The default is 100.
    - ***Vertical Node Spacing***. Edit this value to create more or less white space above and below each node. Use a value between 10 and 1000. The default is 100.

◦ *Tiered Hierarchical*. This layout explicitly calls out the different tiers of a hierarchy in a map using labels on the left of the map. You can further customize this layout by clicking ***Customize Layout*** to show more options. These options include:

- ***Show Background.*** De-select this option to his the hierarchy labels on the left of the map.
- ***Arrange via Relationship Direction*** Select this option to arrange nodes based on the direction of the relationships of the nodes. If this option is selected, the direction of the relationships is from right to left.
- ***Horizontal Node Spacing***. Edit this value to create more or less white space to the left and right of each node. Use a value between 10 and 1000. The default is 100.
- ***Vertical Node Spacing***. Edit this value to create more or less white space above and below each node. Use a value between 10 and 1000. The default is 100.

◦ *Multi-Parent Hierarchical*. This layout best displays nodes that have a large number of parent-child relationships, which get arranged by link direction. This layout is similar to the Classic Maps (Views) from the classic user interface. You can further customize this layout by clicking ***Customize Layout*** to show more options. These options include:

- ***Space Nodes to Fit Screen***. Select this option to let Skylar One automatically space the nodes on the map. If you do *not* select this option, you can edit the following two options:
    - ***Horizontal Node Spacing***. Edit this value to create more or less white space to the left and right of each node. Use a value between 10 and 1000. The default is 100.
    - ***Vertical Node Spacing***. Edit this value to create more or less white space above and below each node. Use a value between 10 and 1000. The default is 100.

◦ *Force Atlas*. This is a force-directed layout that uses gravity and repulsion to lay out the nodes. This layout places the most-connected nodes in the middle, and pushes the least-connect nodes toward the outside. Force Atlas is similar to other algorithms used for network spatialization that integrates different techniques, including the Barnes Hut simulation. You can further customize this layout by clicking ***Customize Layout***. An option is updated in the map as soon as you change that option. These options include:

        - ***Node Spacing***. Edit this value to create more or less white space around each node. Use a value between 1 and 400. The default is 10.
        - ***Force Type***: Select one of the following options to specify the type of gravitational force to apply to the nodes:
            - *Disjoint*. This layout works best with disconnected data, as it attempts to pull disconnected data together in a cluster. With highly connected data, this layout clusters groups of nodes into circles and spreads them out.
            - *Central Force*. This layout applies a central gravitational force to all the nodes, pulling them toward a unified center point.
            - *Directed Tree*. This layout works best for hierarchical or semi-hierarchical data. It attempts to fan out the nodes like branches of a tree.
    - ***Fixed Current Nodes in Place***. When this option is enabled, any changes you make by dragging and moving the nodes will be retained after you click **Save** () . You will need to click **Save** () twice to ensure this setting is saved.
    - ***History Tracking***. When this option is enabled, Skylar One tracks the click path of opened or expanded nodes. History tracking provides context for the actions that you and other users have taken in the maps in Skylar One. If you enable history tracking, any nodes that you previously selected will have a slightly brighter border than usual. Click the **[Clear History]** button to clear the click path history.
6. On the **[Edit]** tab (), enable the ***Edit*** toggle if needed to add rectangles, circles or ovals, cloud shapes, text, and images to a map to organize nodes, such as showing a specific business workflow or grouping related nodes:
    - **[Add Shape]** button. The default shape is a rectangle, which you can change from the ***Shape Type*** drop-down.
    - **[Send to Back]** button. If you added multiple shapes or text boxes to this map and the objects are overlapping, select the object you want to send behind the other object and click this button.
    - **[Delete Selected]** button. If you added a shape or text to this map and you want to remove it, select that shape or text and click this button.
    - ***Shape Type***. Select a shape type. Your options include a rectangle, a circle or oval, a cloud, text, or an image.
        - For a shape, you can click and drag to resize the shape, change the fill color and the line color of the shape, and change the width of the lines in the shape.
        - For text, you can add text in the text field, adjust the font size, change the alignment of the text, and change the color of the text. There are no character limits for the text field, but ScienceLogic recommends that you limit the text to ensure readability. Text might not appear on the map if the amount of text or the font size exceeds the available space in the text field.

- For an image, click the **[Select Image]** button that appears when you select this option. For example, you use the image of a world map or an office floor plan as a background to better illustrate how your nodes are working within the context of their physical location. From the **Select an Image** window, you can select one of the existing images, or you can click **[Add Image]** to upload an image in SVG, JPEG, or png format that is less than 10 MB and not animated.

> **TIP:** If you uploaded an image and want to prevent the image from getting stretched vertically or horizontally, select ***Maintain Aspect Ratio*** under the **[Select Image]** button.

> **NOTE:** The map of the United States that is available from the **Select an Image** window does not work with Firefox browsers.

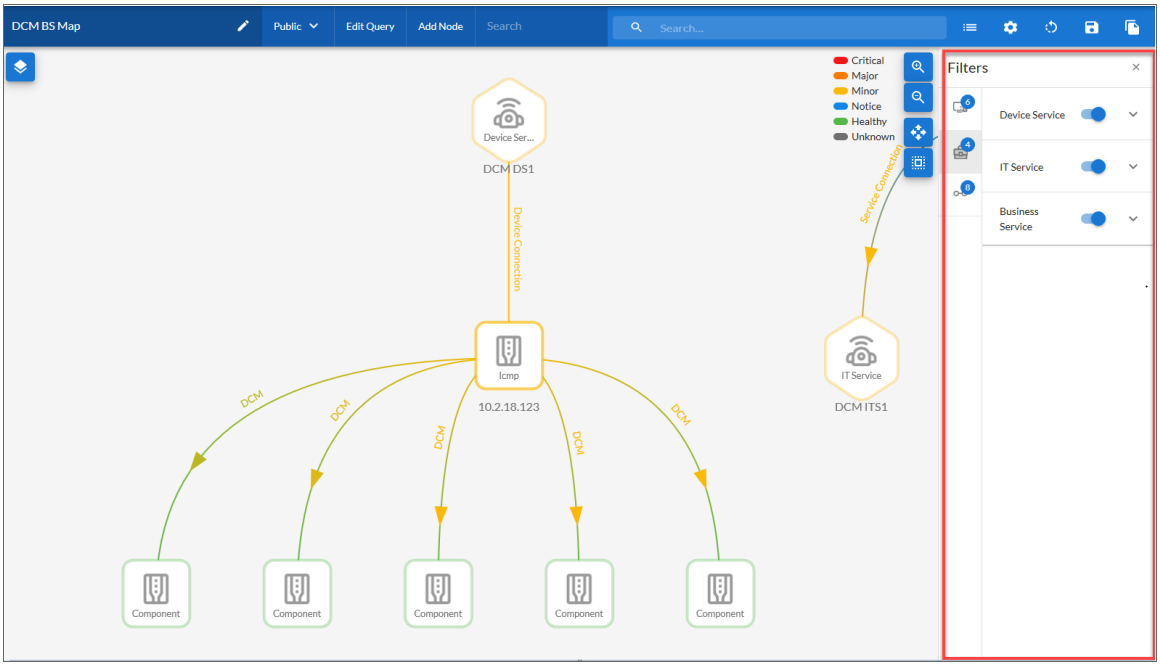
7. Click **Save** () on the top navigation bar to save the map.

> **NOTE:** For more information on map layouts, see http://visjs.org/docs/network/index.html and https://en.wikipedia.org/wiki/Force-directed_graph_drawing.

Changing the Filters for a Map

To use the **Filters** pane for a map:

1. On the **Maps** page (), select the map you want to edit. The **Map** window appears.
2. Click **Settings** () and select *Filters*. The **Filters** pane appears to the right of the map:



NOTE: The counts for each node type display in a blue badge on each tab.

3. On the **[Devices]** tab (), you can toggle off devices to hide devices in the map. You can also expand this section to filter the map by Category, Class, Sub Class, Status, Name, and Organization. This tab does not display if you do not have devices in the current map.
4. On the **[Services]** tab (), you can toggle off some or all services to hide those services on the map. You can also expand this section to filter the map by Name or Organization, and by specific Availability, Health, and Risk values. This tab does not display if you do not have services in the current map.
5. On the **[Links]** tab (), you can edit a variety of display options related to edges, along with a toggle button you can use to show or hide that specific node type. These options are the same as the options on the **[Edges]** tab of the **Design** pane.
6. Click **Save** () to save the updated filters for this map.

Exporting a Map

If you want to use maps on another Skylar One system, you can package one or maps into a PowerPack and export it to the other system. All of the settings, designs, and filters that are selected for the map or maps at the time of the export will be saved in the PowerPack.

Tips for successfully exporting maps:

- Set the map or maps you want to export to ***Shared*** by opening the map, clicking the ***Private/Public/Share*** drop-down on the top navigation bar, and selecting *Specific Organizations*. Specify the organizations with which you want share the map, and click **[Save Map]**. You will not be able to export a map if it is not set to *Shared*.
- You should only create maps for *dynamic* groups of devices, such as relationships or service types, and not static groups of devices or services. The static devices will not have the same device IDs from one Skylar One system to the next. As a result, if an exported map contains static groups, the map will fail as it searches for those static devices on the other Skylar One Systems.

To package and export maps:

1. Go to the **PowerPack Manager** page (System > Manage > PowerPacks).
2. Click the **[Actions]** button and select *Create a New PowerPack*.
3. On the **PowerPack Properties** page, type a name for the PowerPack in the ***Name*** field and click **[Save]**.
4. Select *AP Content Objects* from the left-nav on the **PowerPack Properties** page. Your maps appear in the **Available AP Content Objects** pane.
5. Click the lightning bolt icon ( ) next to the maps to add them to the PowerPack. The selected map or maps move up to the **Embedded AP Content Objects** pane.
6. Select *Build/Export* from the left-nav to open the **Compiled PowerPacks** window, and then click the *Create a new build* link.
7. In the **Configure New Export File** window, select *Administrative (including export & license)* from the ***Embedded license key*** drop-down list. Click **[Build]**.
8. When the PowerPack finishes building, you can download the build with the download icon ( ) and use that file to upload the map to a new Skylar One system.

Installing a Map from a PowerPack

1. On the Skylar One system where you want to install the maps, go to the **PowerPack Manager** page (System > Manage > PowerPacks).
2. To import the PowerPack, click the **[Actions]** button and select *Import PowerPack*.
3. After the PowerPack is done importing, click **[Install]**. After you install the PowerPack, you can access the maps on the **Maps** page.

NOTE: The map will be set to **Public** after you import it from the PowerPack.

Chapter 4

Geographic Maps

Overview

This manual describes how to view, create, and manage geographic maps for the various elements, also called ***nodes***, in Skylar One (formerly SL1).

Use the following menu options to navigate the Skylar One 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:

What is a Geographic Map?

A geographic map is an interactive visual tool that displays location-based data tied to various devices. The map shows devices as nodes based on their physical locations. Each node on the map displays the devices' health status, like whether they are online, offline, or experiencing issues. By combining data types with mapping layers, Skylar One provides intuitive insights into a system's health, connectivity, or usage trends.

Viewing Geographic Maps

The **Geographic Maps** page (Maps > Geographic Maps) lists the geographic maps aligned with your organization. A map is a visual representation of the various devices and related elements, also called nodes, within your environment that have been discovered by Skylar One. Each map displays important details about the nodes, their hierarchies, and the relationships associated with those nodes. Geographic maps display objects positioned by their longitude and latitude coordinates, and are plotted based on device's location.

To view a geographic map, go to the **Geographic Maps** page (Maps > Geographic Maps) and click the name of the map you want to view under the ***Name*** column. The geographic map view is split into two sections:

- The geographic map
- The geographic map table

Viewing Geographic Map Nodes

Geographic maps show nodes based on device locations. When zoomed out, the map uses different node types to indicate whether a location contains one device or multiple devices, or when multiple locations are within close proximity. As you zoom in, nodes representing multiple locations split into individual

location nodes.

Single location nodes are labeled with the location's name. When you hover your cursor over these nodes, a list of devices displays. Multiple location nodes are labeled with their location names. When you hover your cursor over these nodes, the list of locations displays. As you zoom in, the node separates into single location nodes.

Viewing the List of Devices Associated with the Geographic Map

A table to the right of the map displays a list of devices associated with your geographic map. The table includes the following columns:

- ***Name***. The name of a device. Clicking the name will redirect you to the **Device Investigator** page for that specific device.
- ***Location***. The location of a device based on its city name.
- ***State***. The current condition of the devices, based upon events generated by the devices. Devices can have one of the following states:
    - *Critical*. Device has a serious problem that requires immediate attention.
    - *Major*. Device has a problem that requires immediate attention.
    - *Minor*. Device has a less-serious problem.
    - *Notice*. Device has an informational event associated with it.
    - *Healthy*. Device is running with no problems.

TIP: If you do not see one of these columns, click the gear icon (⚙) and then select *Column Preferences* to add or remove columns. You can also drag columns to different locations on the page or click on a column heading to sort the list by the values in that column. Skylar One retains any changes you make to the columns that appear on the page and will automatically recall those changes the next time you visit the page. For more information, see the section on "Editing the Settings for an Inventory Page" in the ***Introduction to Skylar One*** manual.

TIP: You can filter the items on this inventory page by typing filter text or selecting filter options in one or more of the filters found above the columns on the page. For more information, see "Filtering Inventory Pages" in the ***Introduction to Skylar One*** manual.

TIP: You can adjust the size of the rows and the size of the row text on this inventory page. For more information, see the section on "Adjusting the Row Density" in the ***Introduction to Skylar One*** manual.

TIP: You can save the current list of items as a comma-separated list by clicking the gear icon ( ) and selecting *Export to CSV*.

Interacting With Geographic Maps

There are several ways to interact with a geographic map. You can zoom in and out to reveal different levels of detail about a given location. Zooming in displays more specific device information, while zooming out gives a broader overview. Additionally, when you hover your cursor over a node, it displays a list of all devices (by device name) associated with that location.

- Zoomed-out view (clustered locations): If multiple locations with devices are in close proximity, the map displays a single node showing the number of locations in that area. For example, a node marked "3" in California indicates that there are three locations nearby with devices.
- Zoomed-in view (location separation): As you zoom in, the clustered node separates into individual nodes labeled by their specific location names, such as Los Angeles, Long Beach, and Marina. You can then hover your cursor over each location-specific node to see the devices in that particular area.
- Single-location behavior: If there is only one location with devices in a region of the map, even when zoomed out, the map will display a single node marked by that location's name. Hovering over it with your cursor will show all devices in that location.

NOTE: The map is automatically zoomed out by default to show a smaller map that includes all in-filter devices.

Managing Geographic Maps

You can *create*, *edit*, and *delete* geographic maps on the **Geographic Maps** page (Maps > Geographic Maps).

Prerequisites for Creating a Geographic Map

To create geographic maps in Skylar One, you must first do the following:

- Download the latest version of the "ScienceLogic: Geographic Maps" PowerPack. To do so:
    1. Search for and download the PowerPack from the **PowerPacks** page at the ScienceLogic Support Center (Skylar One > PowerPacks, login required).
    2. In Skylar One, go to the **PowerPacks** page (System > Manage > PowerPacks).
    3. Click the **Actions** menu and choose *Import PowerPack*. The **Import PowerPack** modal appears.
    4. Click **[Browse]** and navigate to the "ScienceLogic: Geographic Maps" PowerPack.
    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 **PowerPack Manager** page.
- Download the bulk import ZIP file (**Sciencelogic-geolocation-maps-import-v10.zip**). To do so, go to the ScienceLogic Support Center and download the "GeoMapImport" ZIP file locally to your machine from the **AP2 Release Versions** page (Skylar One > Downloads > AP2 Releases). Select "GeoMapImport" from the **Release Files** table and then click the **[Download File]** button located under the **Release File Downloads** section of the page. The ZIP file includes both the bulk import script (**geo-location-device-import.v10.py**) and its configuration file (**geo_import.cfg**). You will need both files to create a geographic map. After downloading and extracting **Sciencelogic-geolocation-maps-import-v10.zip**, locate the **geo-location-device-import.v10.py** script and confirm that the target device is configured with the following:
    - Python 3
    - Python PIP
    - The following Python packages installed:
        - `requests`
        - `sys`
        - `logging`
        - `urlib3`
        - `configparser`
        - `os`
        - `csv`
        - `defaultdict`
        - `time`
        - `json`

    NOTE: All of these packages are included by default when you install the Skylar One platform.

- Optional: Align the "ScienceLogic: Geographic Maps Usage" Dynamic Application to the primary Database Server if you are on-premises, or ask a system administrator to align it to their virtual IP address if you are on a SaaS Skylar One deployment. Doing so will assist ScienceLogic with implementing future updates. After alignment, complete the steps outlined below:

    1. Align the Dynamic Application to a Skylar One Database Server. For more information, see the section on "Manually Aligning a Dynamic Application to a Device" in the *Device Management* manual.
    2. Make sure the Dynamic Application's *Poll Frequency* is set to run once every 24 hours. For more information, see the section on "Updating the Poll Frequency for a Dynamic Application Aligned to a Device" in the *Device Management* manual.
    3. Ensure the Dynamic Application runs successfully. For more information, see the section on "Running a Dynamic Application on a Device" in the *Device Management* manual.
    4. Schedule the "Geographic Maps V1 - Device location export" report to run once a week and email the resulting .xlsx file to Geo-MapsPM@sciencelogic.com. For more information, see the section on "Scheduling Custom Reports" in the *Reports* manual.

Creating a Geographic Map

Before creating a map, you must first select the devices you want to plot. Devices already exist in the Database Server, so the process involves extracting the desired devices into a spreadsheet, assigning location data to them, and then bulk uploading the devices with their location data back into the Database Server. Once uploaded, the **Geographic Maps** page recognizes the devices with their assigned location data and makes them available for selection.

A geographic map can be created from the **Geographic Maps** page (Maps > Geographic Maps) by selecting which devices to display. The list of available devices comes from the Database Server. If no devices appear as options, it means none have been extracted, updated with location data, and re-uploaded.

Device data can be managed in bulk using spreadsheets. This allows you to assign location data to multiple devices and upload them efficiently, rather than updating each device individually. The process can be repeated as needed to keep device location data current. Once uploaded, the devices will appear in the **Geographic Maps** page for selection during map creation.

You need three files to successfully create a geographic map:

- An Excel spreadsheet (.xlsx) that lists the devices you want to add to your geographic map. This file is used to assign location data to devices and import them into the Database Server. To generate the spreadsheet, run the **Extract Location data - Devices** report, which is included in the "ScienceLogic: Geographic Maps" PowerPack. The report produces a spreadsheet of the selected devices, which must be saved as an Excel file. After adding location data, save the file as a *CSV UTF-8* format.
- The bulk import script file, which uploads all of the devices listed in your spreadsheet to the Database Server. Once the devices are in the Database Server, you can add them to the geographic map through the user interface.
- The configuration script file, which is used to configure the bulk import script and control its behavior. This configuration script is included with the download package for the bulk import script.

After extracting the ZIP file (see **Prerequisites** section above), you'll have both the bulk import script and its configuration file. The next step is to generate the devices spreadsheet by running the **Extract Location data - Devices** report from the user interface. Add location data to the devices in this spreadsheet, then import it back into the Database Server. Once this process is complete, you are ready to officially create a geographic map.

1. *Generate the Excel spreadsheet* (.xlsx). You will need to generate the Excel spreadsheet used to add location data to devices.
2. *Assign location data to devices*. You will need to assign location data to the devices you want to add to your geographic map.
3. *Create a geographic map*. During this step, you will select which devices you want to plot. Only devices you have assigned location data to will display as options.

Generating the Excel Spreadsheet

To generate the Excel spreadsheet used to add location data to devices:

1. Go to the **Reports** page.
2. Select Run Report > Asset Management > Location Data Extract - Devices.
3. In the ***Select devices by*** field, choose the devices you want to include in the report. You can list devices by *Organization*, *Category*, or *Device Group*. To select specific devices instead of all devices within these groups, select the ***Select individual devices*** checkbox and then select the individual devices you want to include.

> **NOTE:** The devices you select when creating this report will be uploaded to the Database Server, from which you can then select them to include in your geographic map.

4. In the ***Output format*** field, select *Microsoft Excel 2007+ Spreadsheet (.xlsx)*.
5. Click **[Generate]**.

Assigning Location Data to Devices

To assign location data to the devices you want to add to your geographic map:

1. When the report is generated, open the report spreadsheet and edit the necessary columns:
    - Mandatory fields:
        - ***Device Name***. The name of the device.
        - ***Location Name***. The device's location name that will appear on your geographic map.

> **NOTE:** The cells under the ***Location Name*** column will be empty. This field is optional but highly recommended, as these are the location names that will appear on your geographic map.

        - ***Organization***. The organizations with which the device is aligned. These will be the names that will appear on your geographic map.
        - ***Longitude***. The measurement of the device's position north or south.
        - ***Latitude***. The measurement of the device's position east or west.

> **NOTE:** If this is your first time creating a report for geographic maps, the cells under the ***Longitude*** and ***Latitude*** columns in the spreadsheet will be empty. You must supply values for each device in these two columns.

    - Optional fields:
        - ***Global region***. The broad area where the device is located, such as North America or Asia-Pacific.
        - ***Country***. The nation where the device is located.
        - ***Domestic region***. The internal or local area within a country where the device is located, such as Northeast or West Coast.
        - ***City***. The city or town where the device is located.
        - ***Street***. The street address or road name for the device's location.
        - ***Zip code***. The postal code for the device's location.
        - ***Description***. A brief explanation of the device's purpose or details.
        - ***State.*** The state where the device is located.
        - ***Note***. Any additional information relevant to the device or its location.

> **NOTE:** Populate the optional fields in the spreadsheet depending on the level of complexity required for your search filters.

2. Once you have filled in all the required details, save the spreadsheet as a CSV file in *UTF-8* format.

3. Move the **geo-location-device-import.v10.py** bulk import script file, **geo_import.cfg** script configuration file, and the spreadsheet file you have created and updated in the previous step to the same folder.

> **NOTE:** If you are working from an environment with no access to the internet (air gapped installations), copy the bulk import script file, script configuration file, and the spreadsheet to a Skylar One appliance by using SSH to access the Skylar One appliance. Then, move all files to the same folder.

4. Update the **geo_import.cfg** script configuration file by adding the following information to the fields shown:
   - ***URL***. Enter the URL of the Skylar One stack to which you will upload the file, which is the IP address of the Database Server.
   - ***Username***. Enter the username used to connect to Skylar One.
   - ***Password***. Enter the password used to connect to Skylar One.
   - ***Excel File Path***. Enter the spreadsheet file name you have created in the **Generating the Excel Spreadsheet** section above.
5. Either go to the console of the Skylar One Database Server or use SSH to access the Database Server, then run the following Python script: `python3.11 geo-location-device-import-v10.py`. The console will display 5 different logging levels with a number assigned to them.

> **NOTE:** Alternatively, you can connect through the console of a server that has SSH access to the Database Server. In air-gapped environments, you can SSH into the Database Server itself.

6. Enter the level of information you want on your geographic map by entering the number corresponding to the desired logging level. The script will read the spreadsheet file, de-duplicate locations, add new locations to Skylar One, and associate devices with locations.
7. The script will connect with the GraphQL interface of the IP address, username, password, and Excel file path specified in the **geo_import.cfg** script configuration file. The script will also create a list of single entries for each device and their location. If devices have identical locations (longitude and latitude), the script will associate those devices to a single location, which is displayed as a single entry. This is so that the script can capture the number of unique locations in your spreadsheet report.

Creating a Geographic Map

After you have assigned location data to your devices, they will appear as options when creating the map. To create the map:

1. Go to the **Geographic Maps** page (Maps > Geographic Maps).
2. Click the **[Create Geographic Map]** button.

3. Enter information in the following fields:
    - ***Map Name***. Enter a name for your geographic map.
    - ***Organization***. Select the organization that can view this map.
4. Under the ***Search and Filter Devices To Map*** field, enter the filter expression to specify which devices will appear in the geographic map.

> **NOTE:** A filter expression, sometimes referred to as an expression match, is used to locate and filter data from a database. This can be any combination of alphanumeric and multi-byte characters, up to 64 characters in length. Skylar One's expression matching is case-sensitive. For details on the regular-expression syntax allowed by Skylar One, see http://www.python.org/doc/howto/.

> **NOTE:** You can sort and filter the column data in the table on the page by clicking the ***Filter*** field under the column names.

5. Click **[Save]**.

Editing a Geographic Map

To edit an existing geographic map:

1. Go to the **Geographic Maps** page (Maps > Geographic Maps) and find the map you want to edit.
2. Click the **Actions** icon (⋮) for the geographic map you want to edit, then select *Edit*.
3. You can make changes to the following fields:
    - ***Map Name***. The name for your geographic map.
    - ***Organization***. The organization that can view the map.
    - ***Search and Filter Devices To Map***. The filter expression to specify which devices appear in the geographic map.
4. Once you are done making your changes, click **[Save]**.

Deleting a Geographic Map

To delete a geographic map:

1. Go to the **Geographic Maps** page (Maps > Geographic Maps) and find the map you want to delete.
2. Click the **Actions** icon (⋮) for the geographic map you want to delete, then select *Delete*. The **Delete Geographic map** modal appears.
3. Click **[Delete]** to confirm.

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

International: +1-703-354-1010