Maps

SL1 version 10.1.0

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Chapter

1

Introduction to Maps

Overview

This manual describes how to create and manage relationship maps for the various elements, also called **nodes**, in SL1.

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 includes 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 SL1. A map displays the important details about the nodes, their hierarchy, and the relationships associated with those nodes. In SL1, 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 device components and business services:
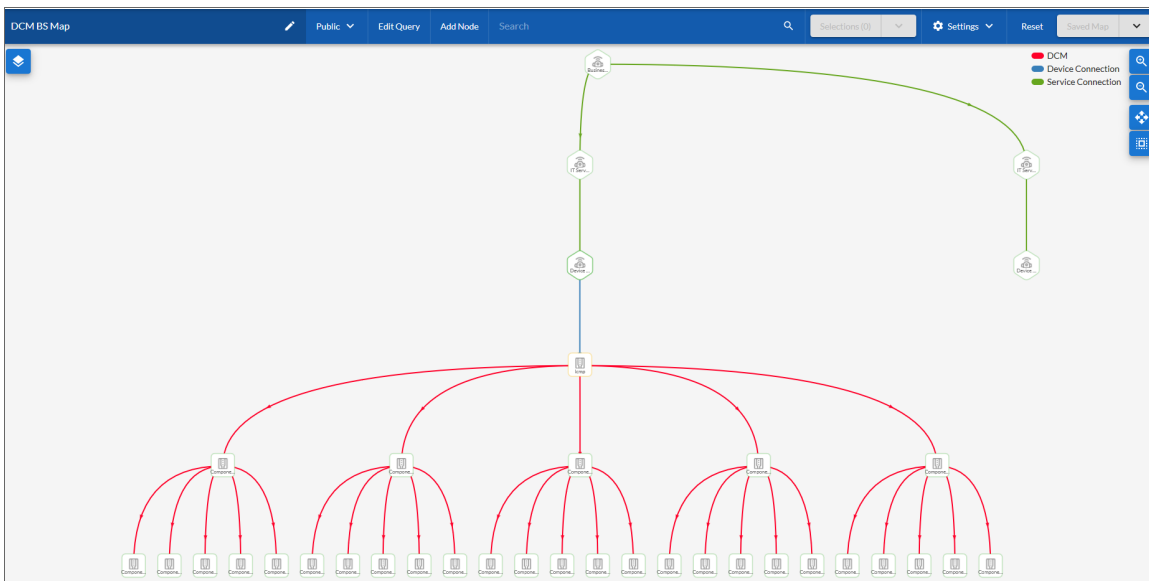
A map includes the following graphical elements:

- *Nodes*. Shapes that represent Devices, Topology Elements, and Business Services defined in SL1. The shape of a node represents its type, and the color of its outline specifies the current state of the node.
- *Edges*. 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, edit, and create maps and relationships between devices and virtual infrastructure. In SL1, 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). You can also create your own maps with your most important devices, and add images, text, links, and shapes to customize your maps.

> **NOTE:** Currently, the default setting for rendering maps and classic maps is Flash. To make HTML the default rendering engine instead of Flash for all users of SL1, go to the **Behavior Settings** page (System > Settings > Behavior) in SL1 and select *HTML5* from the **Topology Map Rendering** drop-down. To prevent issues with creating new maps, ScienceLogic recommends that if after you switch from Flash to HTML5, do not switch back to Flash again.

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 SL1:
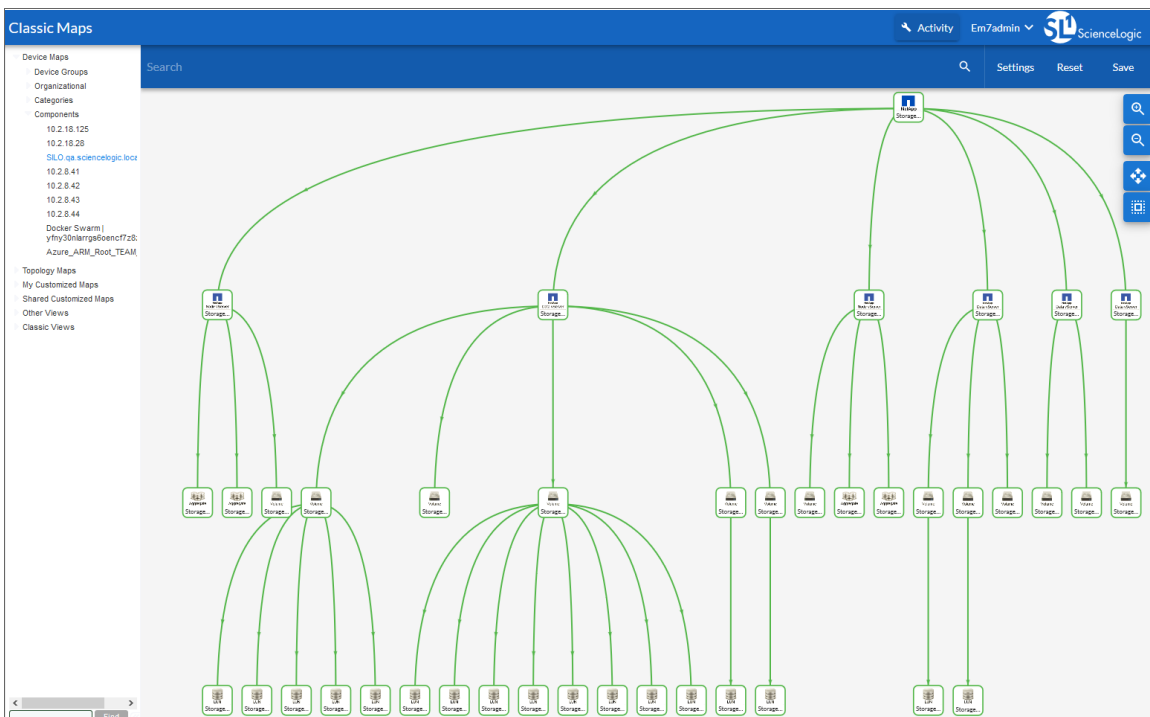
The following is an example of a Flash-based classic map (or view) from the **[Views]** tab in the classic user interface:
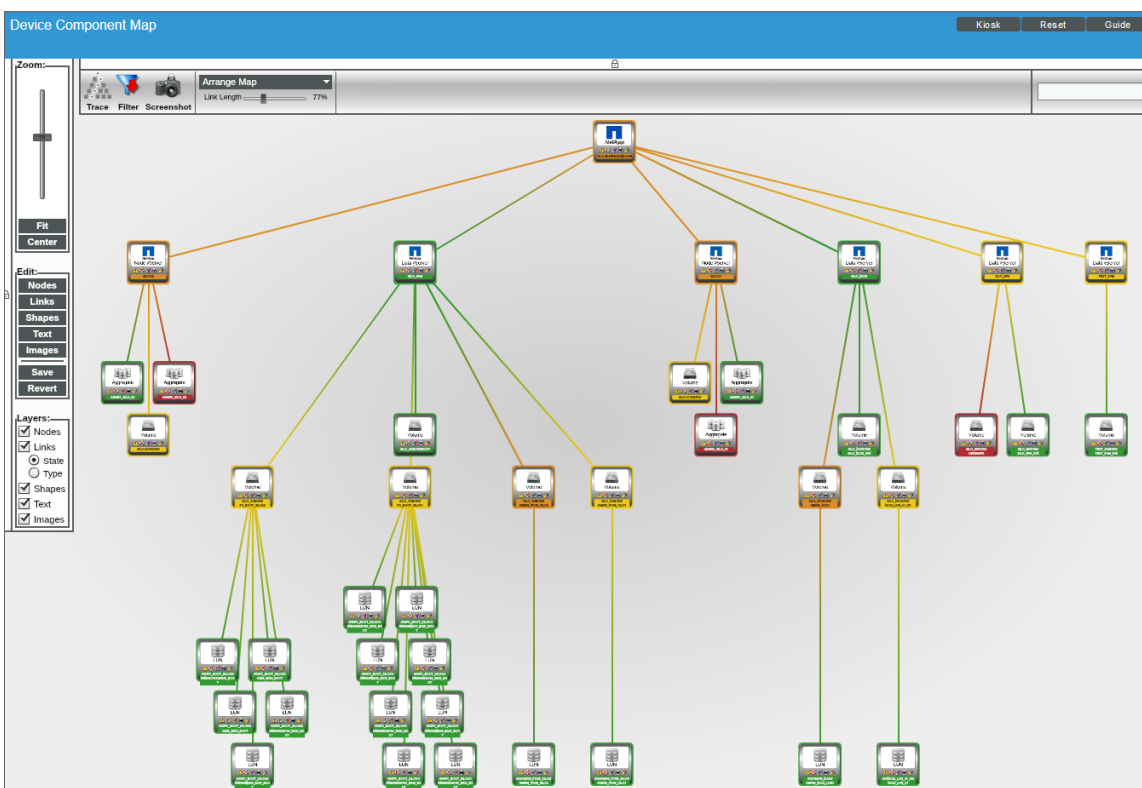
For additional information about classic maps or views, see the *Classic Maps (Views)* manual.

Topology Maps

During discovery, SL1 automatically discovers all networks and subnets in your infrastructure. On the **Classic Maps** page (Maps > Classic Maps), SL1 creates graphical representations of these discovered networks and subnets to create topology maps.

SL1 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.

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.

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 SL1:
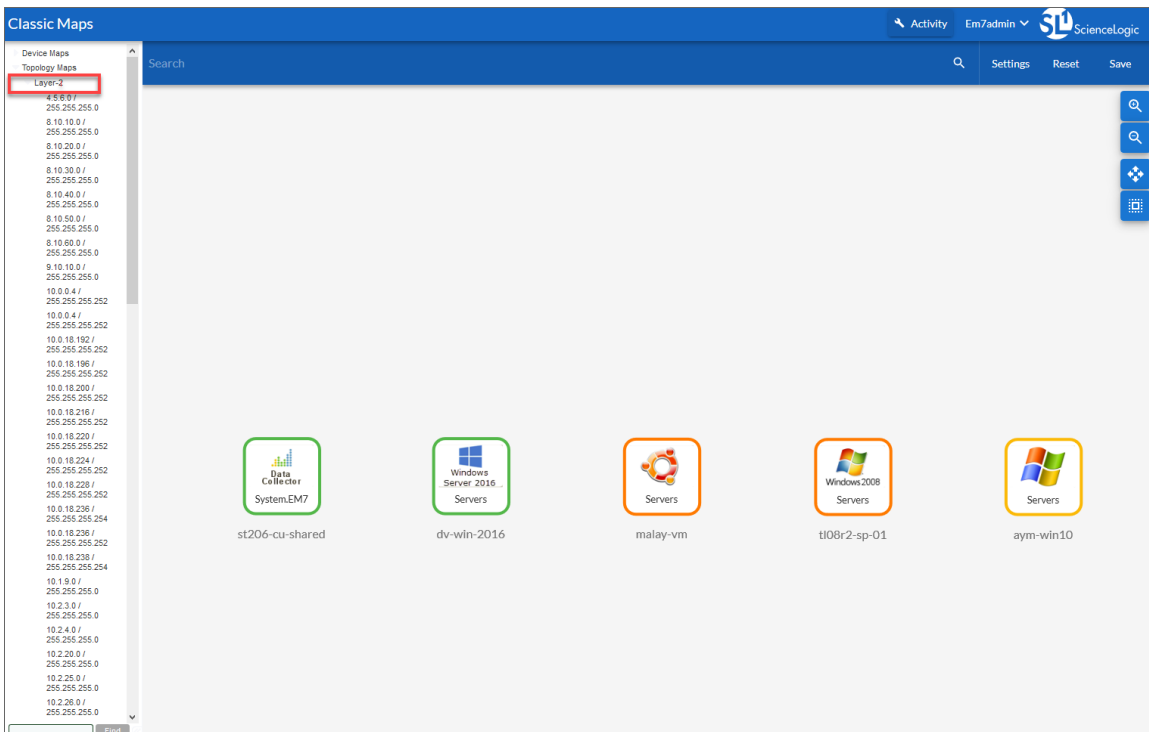
A layer-2 network map can include:

- Devices of each device category defined in SL1.
- 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".
- SL1 automatically updates the map as new devices are discovered. SL1 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.

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 SL1:
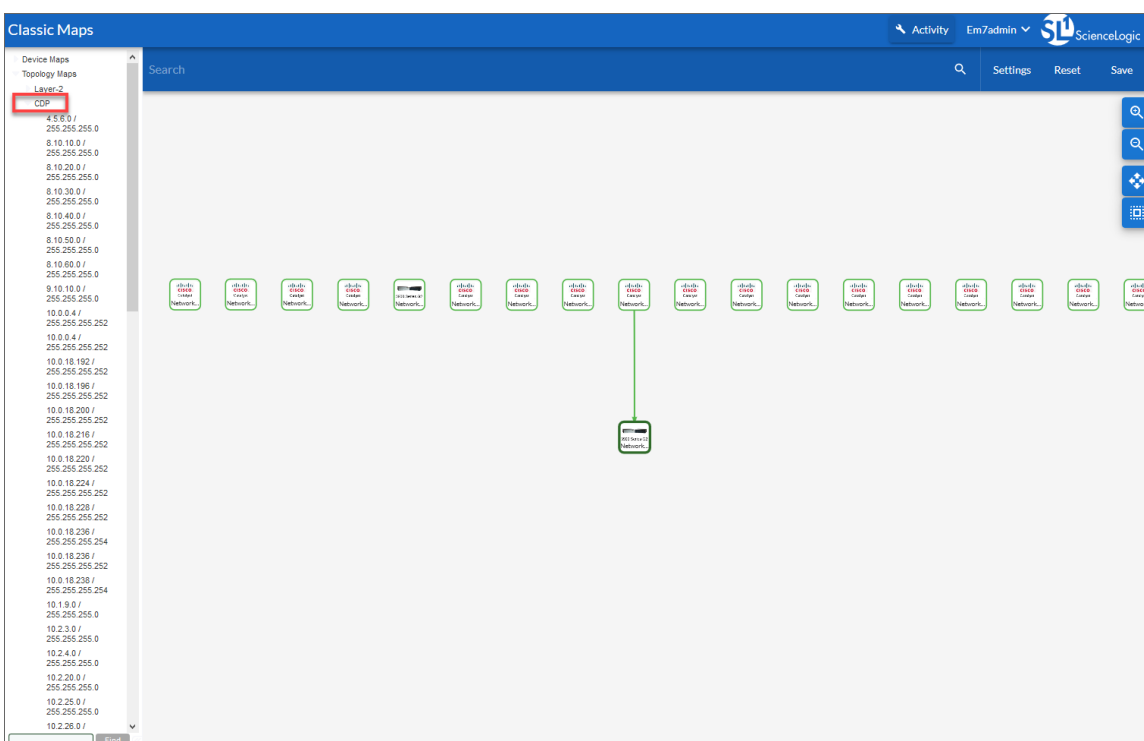
> **NOTE**: For SL1 to create CDP maps, you must first enable the *Enable CDP Topology* checkbox on the **Behavior Settings** page (System > Settings > Behavior). This checkbox tells SL1 to discover CDP relationships where possible.

If you enable *Use CDP Topology*, SL1 automatically discovers all CDP relationships in your infrastructure. SL1 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 SL1.
- Links between devices.
- Links between networks (created with switches or routers).
- SL1 automatically updates the map as new devices are discovered. SL1 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).

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 SL1:
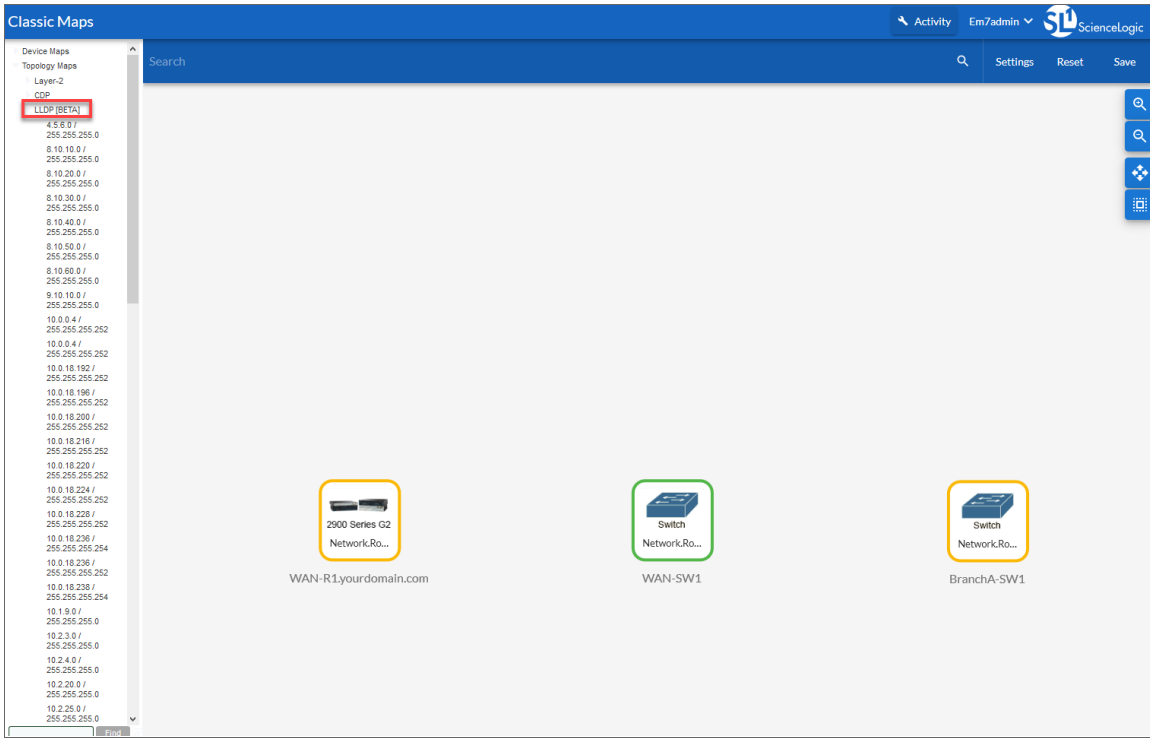
NOTE: For SL1 to create LLDP maps, you must first select the *Enable LLDP Topology* checkbox in the *Behavior Settings* page (System > Settings > Behavior). This checkbox tells SL1 to discover LLDP relationships where possible.

If you enable *Enable LLDP Topology*, SL1 automatically discovers all LLDP relationships in your infrastructure. SL1 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 SL1.

A LLDP map can include:

- Devices of each device category defined in SL1.

- Links between devices.

- Links between networks (created with switches or routers).

- SL1 automatically updates the map as new devices are discovered. SL1 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.

SL1 creates *layer-3* maps by running traceroute from a Data Collector to all devices that have layer-3 collection enabled in the device class.

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 SL1.
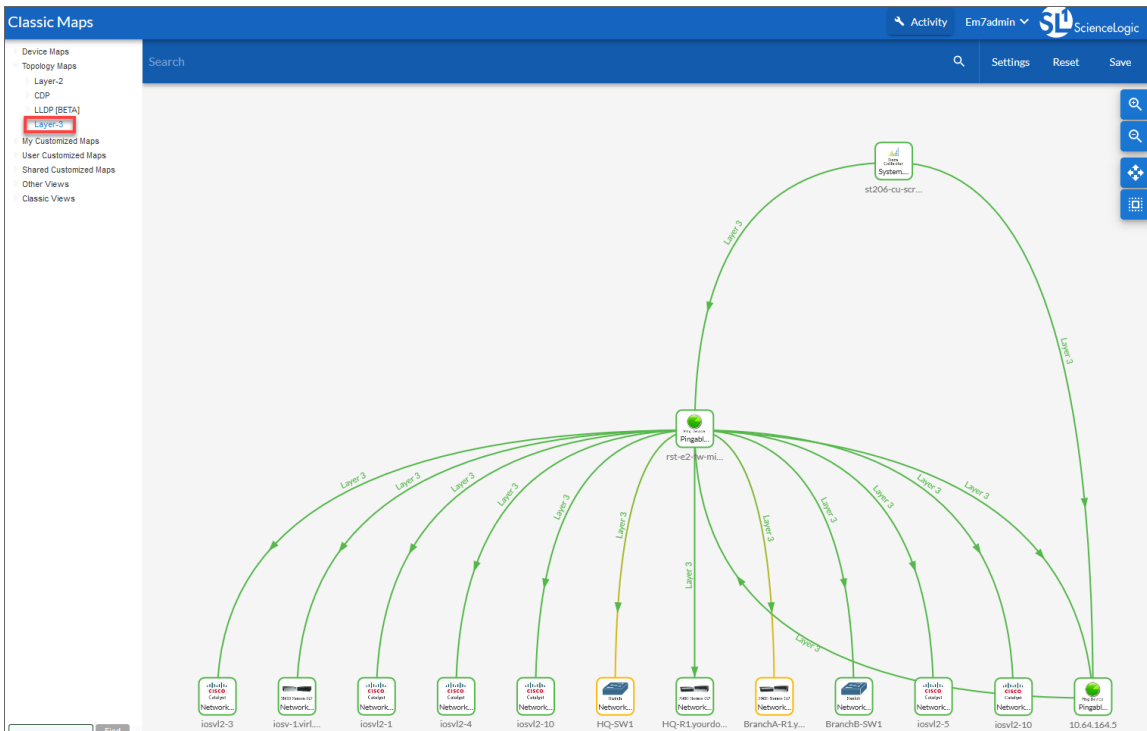
A layer-3 network map can include:

- Data Collectors, switches, and routers.
- Links between devices.
- Links between networks (created with switches or routers).
- SL1 automatically updates the map as new devices are discovered. SL1 also updates the map with the latest status and event information.

Chapter

2

Viewing and Configuring Maps

Overview

This chapter describes how to view and work with relationship maps for the various nodes in SL1.

> **NOTE**: For SL1 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 SL1 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 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 includes the following topics:

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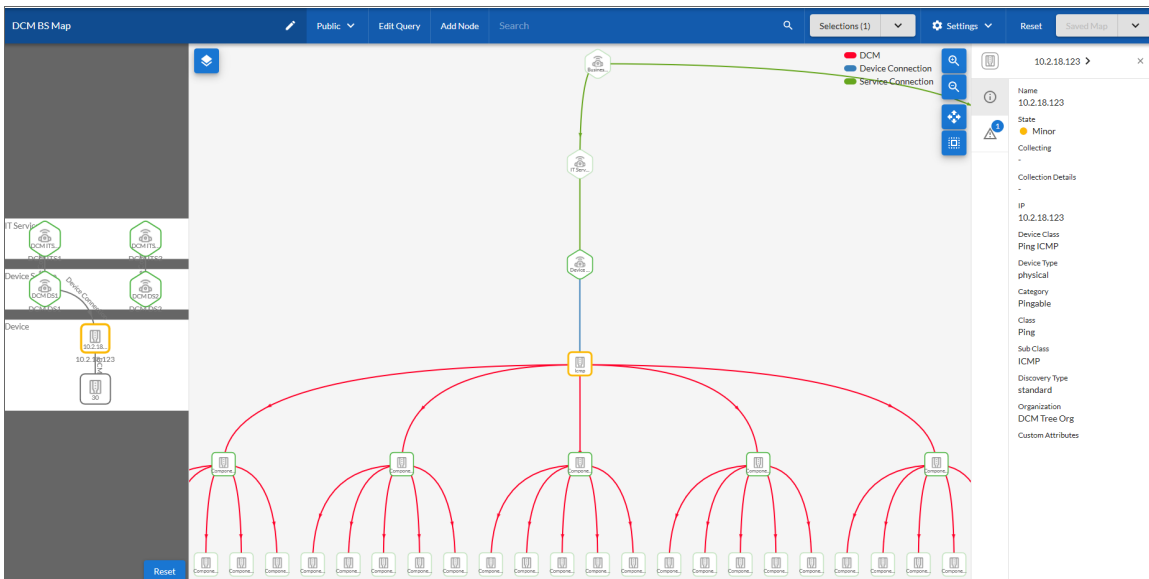
The **Map** window includes the following user interface features:

- A *navigation bar* at the top
- An *interactive legend* on the left
- A *viewing pane* in the middle
- A *Properties pane* on the right

NOTE: Maps support custom SL1 themes, and the theme colors will be reflected in the maps, including dark mode themes.

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

Navigation Bar

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

- *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 SL1.

  - *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 **Properties** 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 **Properties** pane. You can view the status for that node and the events associated with that node on the **Properties** pane. For more information, see *Viewing Node Details*.

NOTE: The number in parentheses after *Selections* on the button 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 **Properties** pane to view properties for the other nodes.

NOTE: If you select two device nodes, you can click the down arrow icon on the **[Properties]** button and select *Create Relationship* to create an "ad-hoc" relationship between those two device nodes in the map. The relationship will *only* exist in this map, not anywhere else in SL1. 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 edges appear in your map. For more information, see *Changing the Filters for a Map*.

- **[Reset]**. Click this button to revert any unsaved changes you have made to your map.

- **[Save Map]**. Click this button to save any changes you have made to your map. The text of the button is grayed out if no changes have been made or if you have already saved your changes. To make a copy of the current map, click the drop-down arrow and select *Save As Copy*.

Interactive Legend

The *interactive legend* appears on the left-hand side of a **Map** window when you click the pop-out 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 device is connected to a device node and a device service, and it is in a hierarchy with another device service and two IT services:
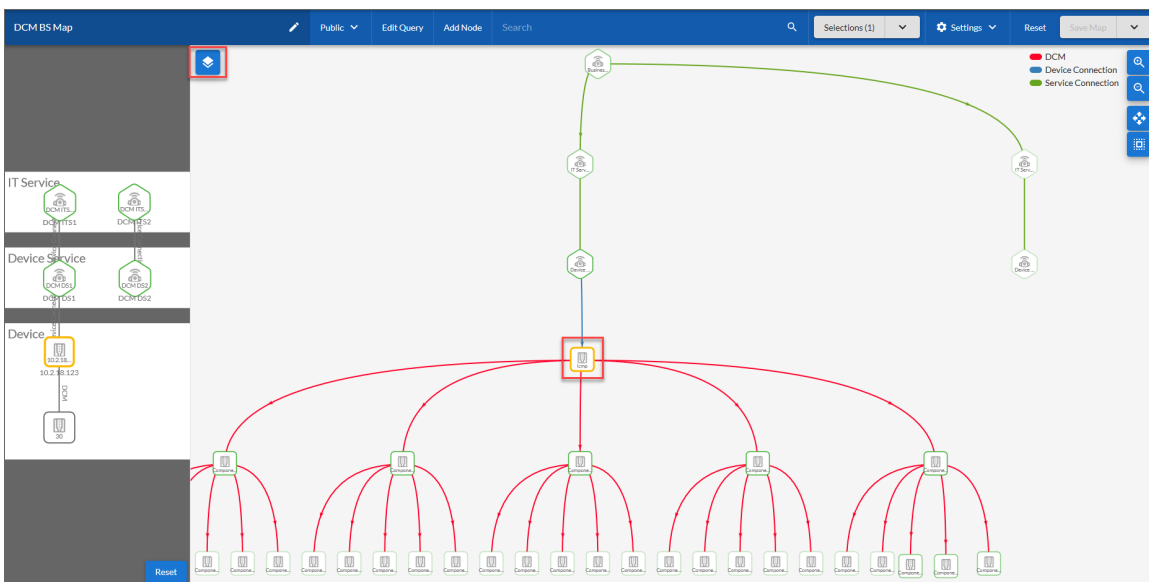
NOTE: If you click and drag the map to move it, if you drag the mouse over the interactive legend, the map will stop moving.

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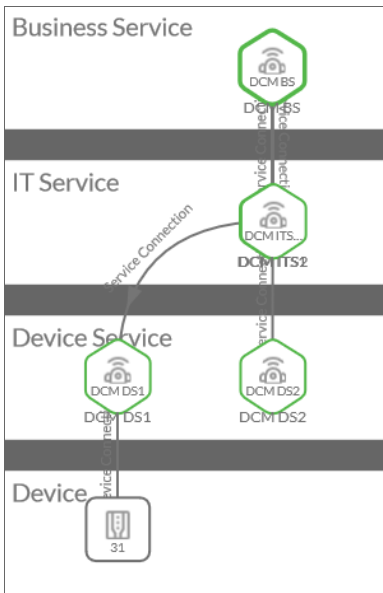
> **TIP:** If you moved the nodes on the interactive legend, you can click the **[Reset]** button to return the nodes to their original grouping. To close the interactive legend, click the pop-out button (⬙) again.

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 **[Edges]** 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 edge 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 SL1. 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*.

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2. **Edges** are lines that represent the relationships and hierarchies between nodes:
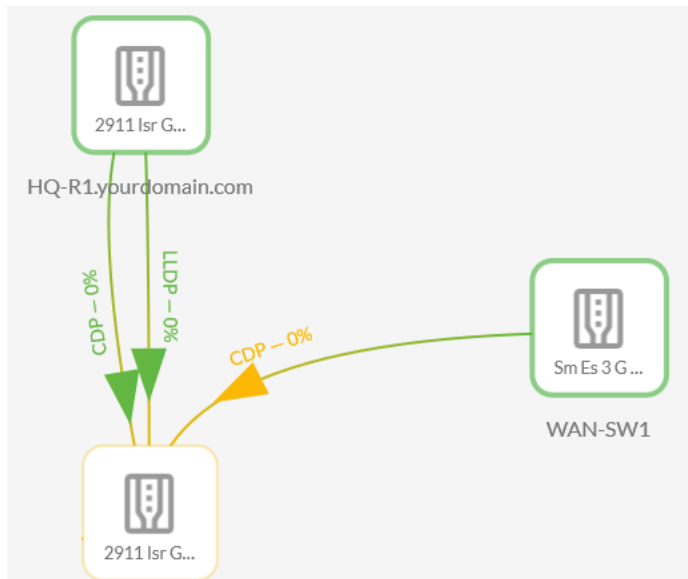
For LLDP and CDP relationships, the edges can include a label describing the relationship as well as a percentage that represents the network usage for the network interfaces on the devices.


NOTE: SL1 automatically updates the map as new nodes are discovered. SL1 also updates the map with the latest status and event information.

The Properties 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 the *Settings* drop-down 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 **Properties** pane appears with the metadata for that node:
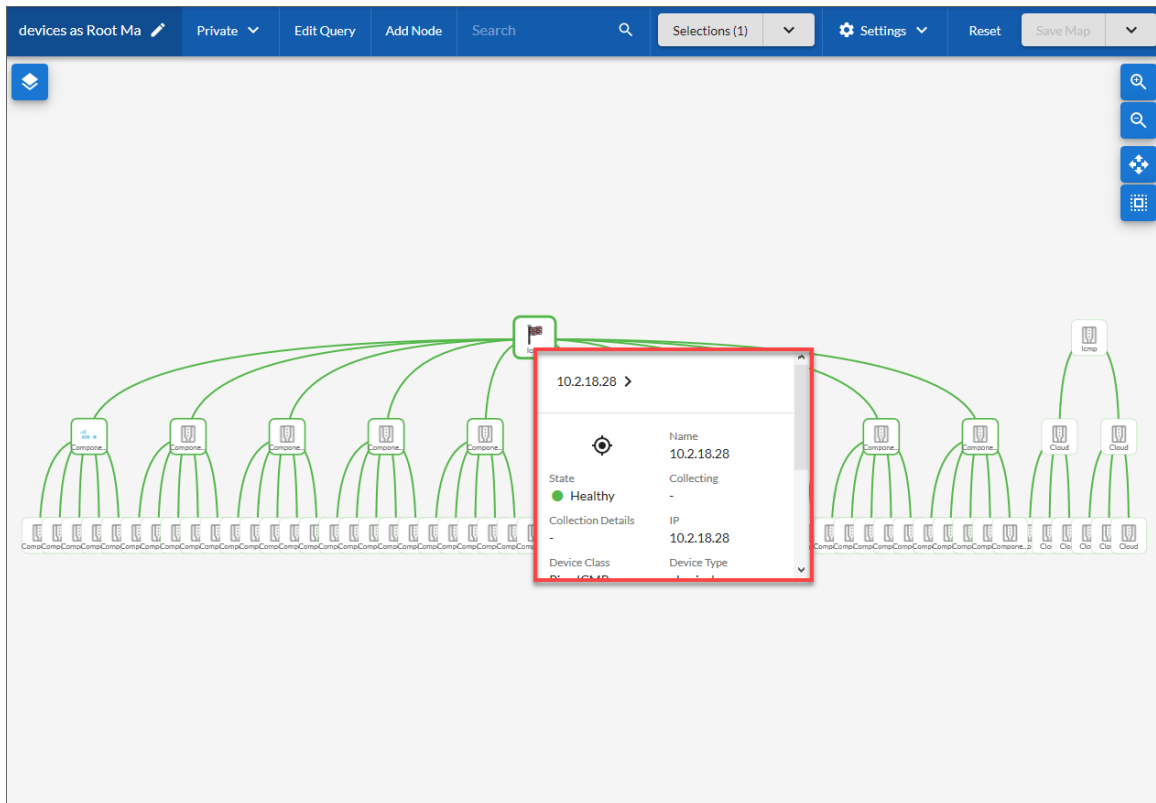
> **NOTE:** If you do not have edit rights for maps, or if the map is in a dashboard or a Device Investigator page, hover is on by default. Also, if you select this option, it is *not* retained on the **Map** window when you save or close this map.

Viewing a Map

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

1. Select a node on a map and then either double-click the node or click the **[Selections]** button. The metadata displays in a new **Properties** pane to the right of the map:
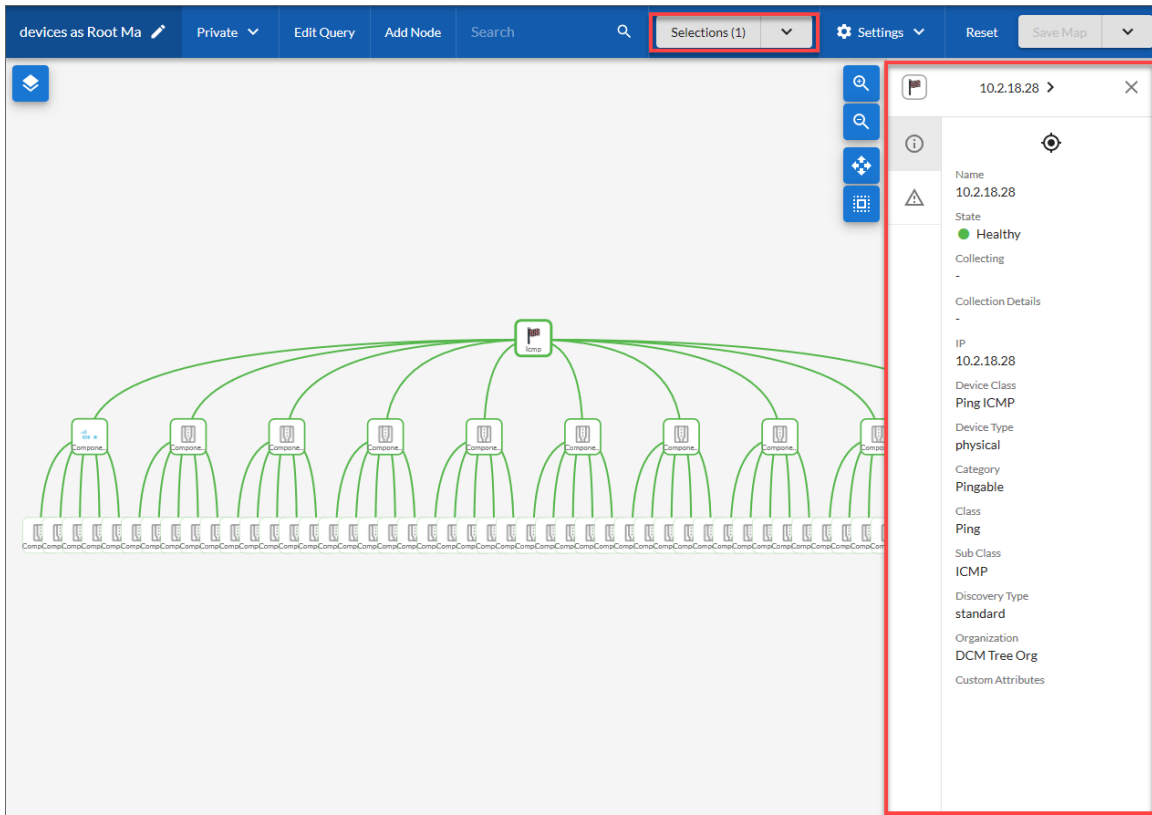
2. To close the **Properties** pane, click the Close icon (✕) to the right of the node name at the top of the pane.

The following items appear in the **Properties** 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 each event associated with the node.

> **NOTE**: If you selected more than one node, use the **[Previous]** and **[Next]** buttons at the bottom of the **Properties** 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 the **[Settings]** button and select *Design*. The **Design** pane appears:
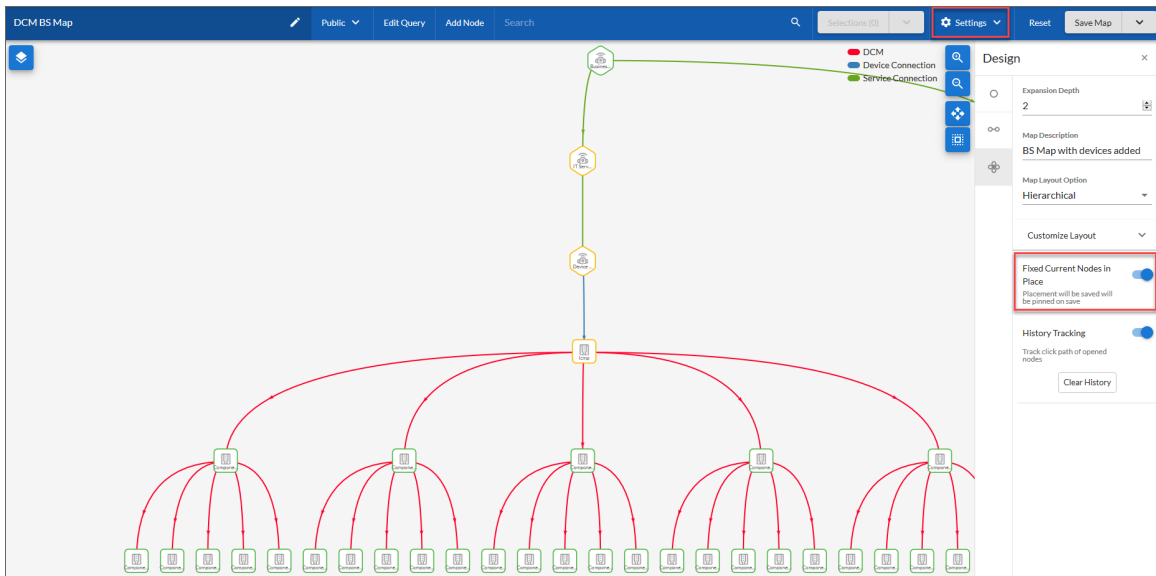
2. Click the **[Map]** tab ( ) on the **Design** pane and enable the *Fixed Current Nodes in Place* toggle to save the layout when your are done moving the nodes.

3. After you finish moving the map and its nodes, or zooming in or out, click the **[Save Map]** button. The next time you open the map, the nodes will display in the same layout.

Viewing the Classic Maps Page

In previous versions of SL1, 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 is being deprecated at the end of 2020, the maps on the **Maps** page in SL1 are rendered using HTML5 instead of Flash. In addition, the maps on the **Classic Maps** page can be rendered in HTML5 as well as Flash.

> **NOTE:** Currently, the default setting for rendering maps and classic maps is Flash. To make HTML the default rendering engine instead of Flash for all users of SL1, go to the **Behavior Settings** page (System > Settings > Behavior) in SL1 and select *HTML5* from the **Topology Map Rendering** drop-down. To prevent issues with creating new maps, ScienceLogic recommends that if after you switch from Flash to HTML5, do not switch back to Flash again.

If you choose to continue to use Flash to render classic maps, the classic maps will display in the same format as the views from previous versions of SL1 instead of the new format of the maps from the **Maps** page in SL1.

> **TIP:** After 2020, you will no longer be able to render the classic maps using Flash, as Flash will be deprecated at that time. As a result, ScienceLogic recommends that you begin making the transition away using Flash for classic maps as soon as possible.
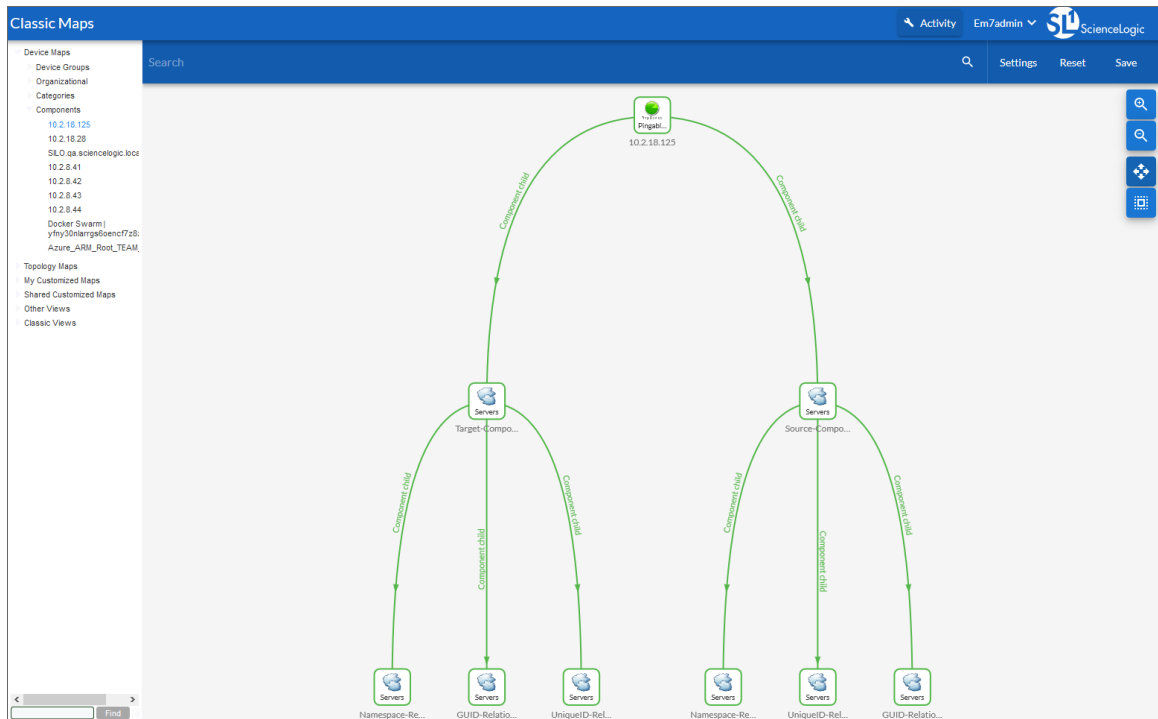
Viewing Classic Maps in SL1

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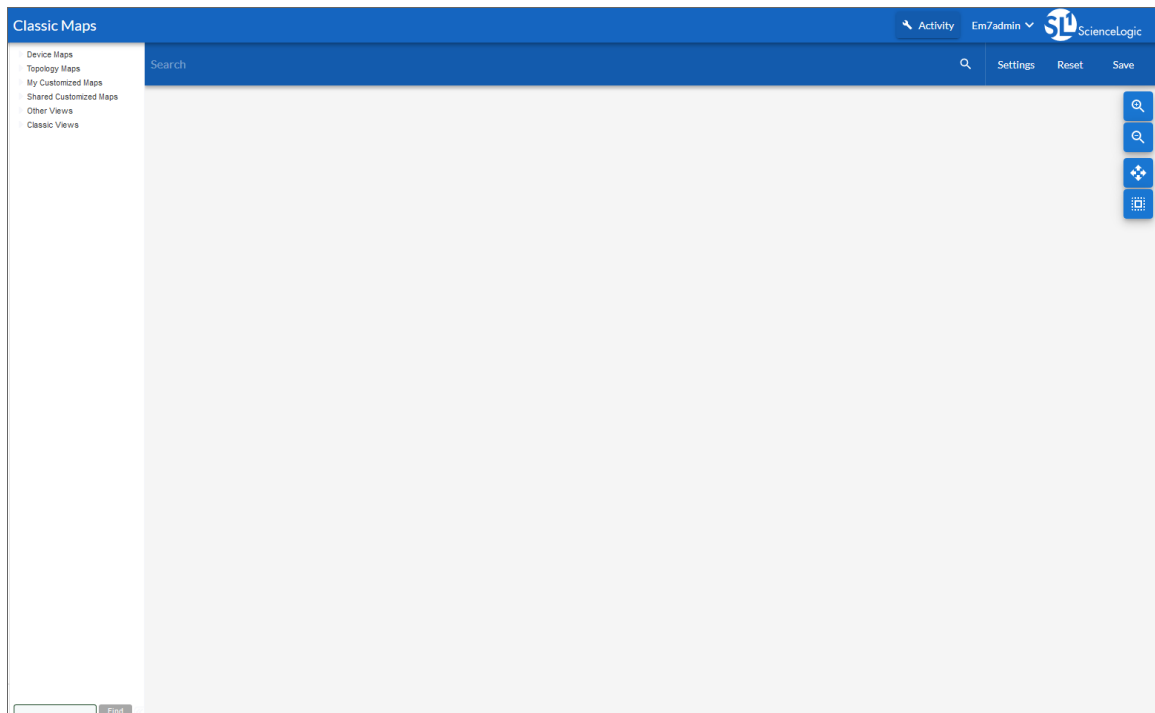
2. Expand the section for the classic map you want to view, and select a map. The navigation on this page is the same as the **[Views]** tab in the classic user interface. The following is an example of an HTML5-based classic map:

3. You can view details about a classic map by hovering over the map.
4. To customize the map using the **Design** and **Filter** panes, 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

If you are still using the classic user interface for SL1, you can enable SL1 to generate and display the maps using HTML5 instead of Flash.

> **NOTE:** To make the HTML5 the default rendering engine instead of Flash, go to the **Behavior Settings** page (System > Settings > Behavior) in SL1 and select *HTML5* from the **Topology Map Rendering** drop-down. The default is *Flash*.

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 SL1.

> **NOTE:** Only one user at a time can edit the same map.

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 includes 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.

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 "Advanced Search" chapter in the *Introduction to SL1* 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.
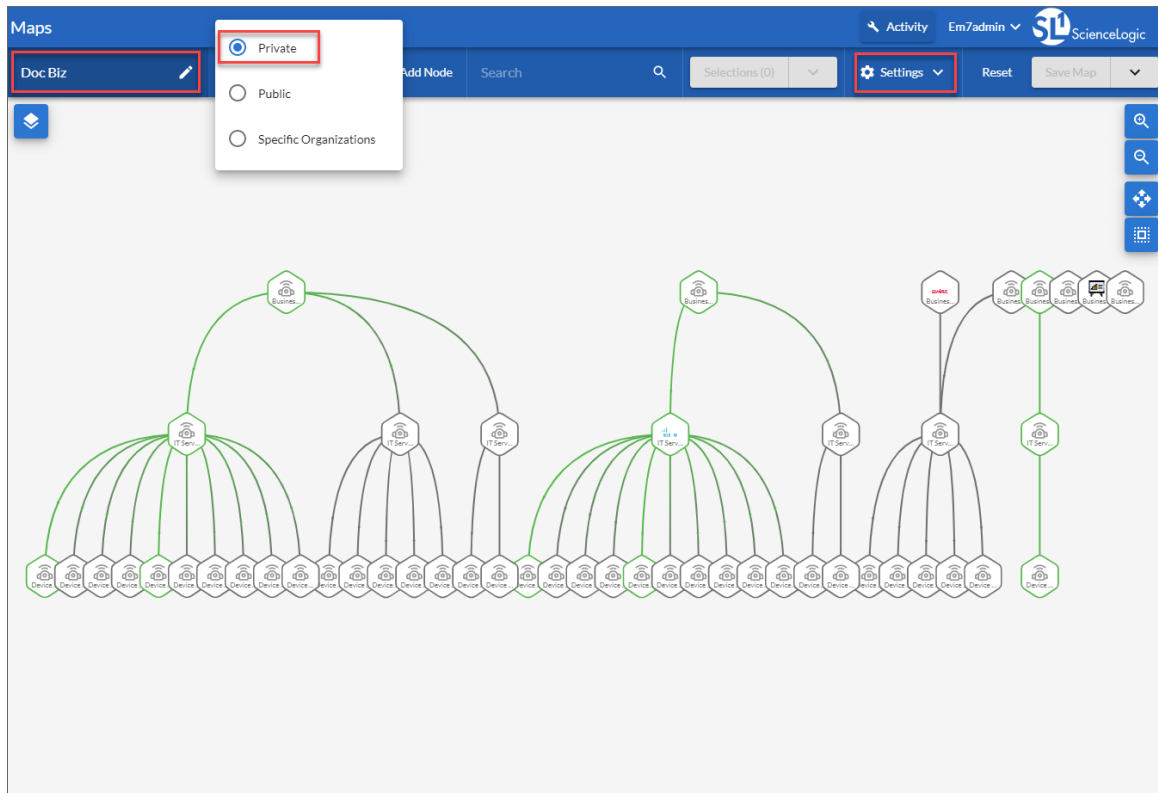
For example, the following map has an *Expansion Depth* value of 1:
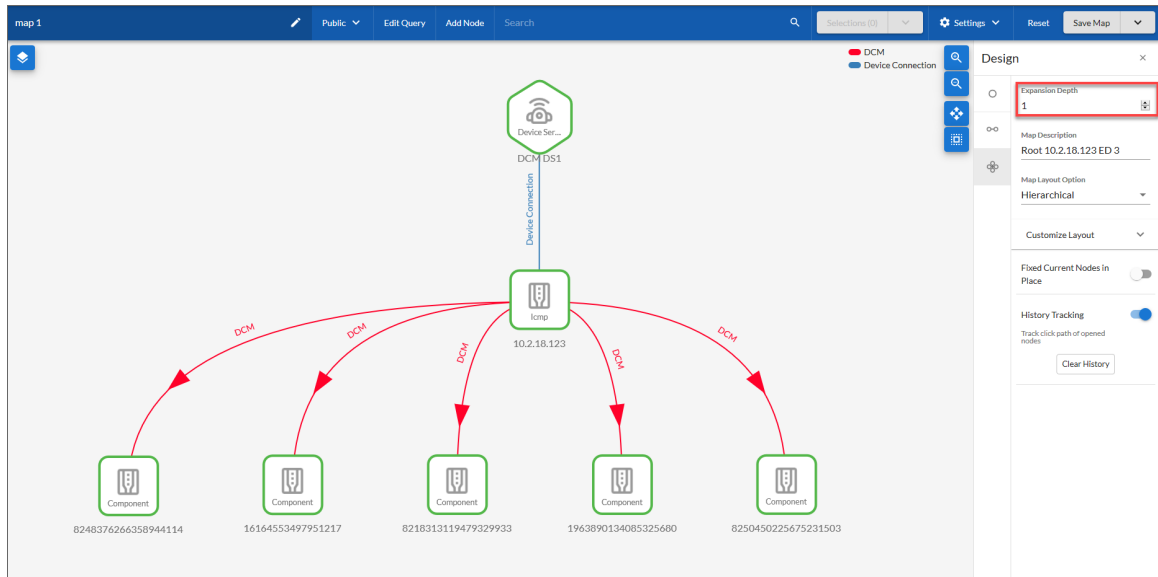
The following map is the same map with an *Expansion Depth* value of 3:

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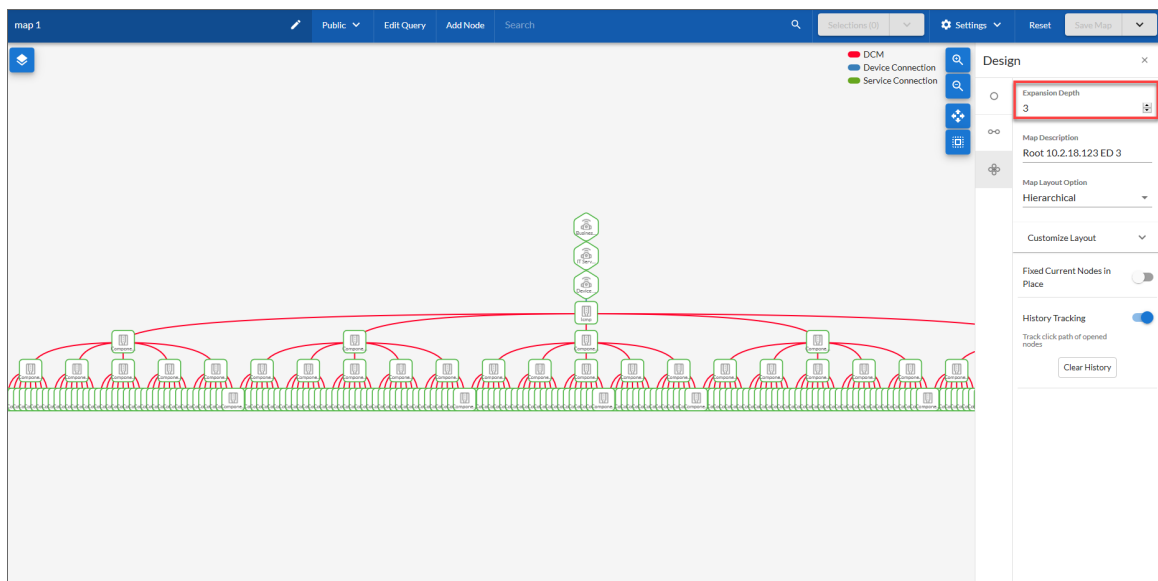
5. Click **[Create Map]**. The nodes that match your query appear in the map:

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 the **Settings** drop-down and selecting *Design*. For more information, see *Changing the Appearance of a Map*.

9. Click **[Save Map]** 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.

> **NOTE:** Only one user at a time can edit the same 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:
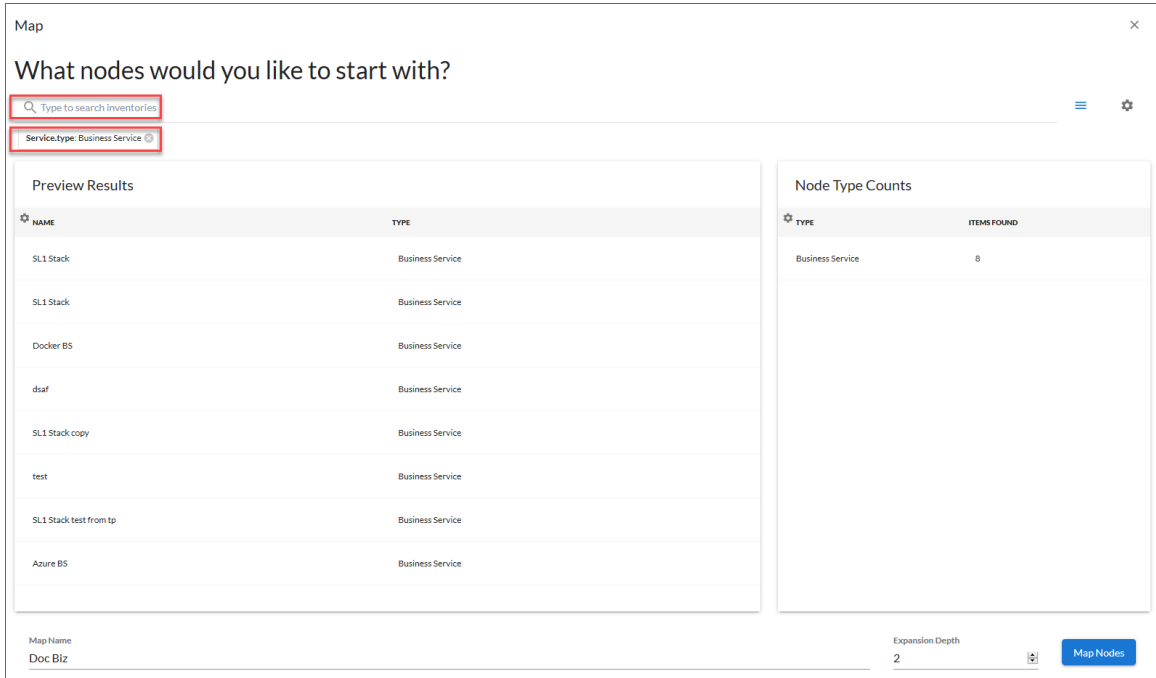
2. To remove the current search criteria, click the Close icon (⊗) on the criteria button that appears under the *Search* field.

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 "Advanced Search" chapter in the *Introduction to SL1* 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 the *Settings* drop-down and selecting *Design*. For more information, see *Changing the Appearance of a Map*.
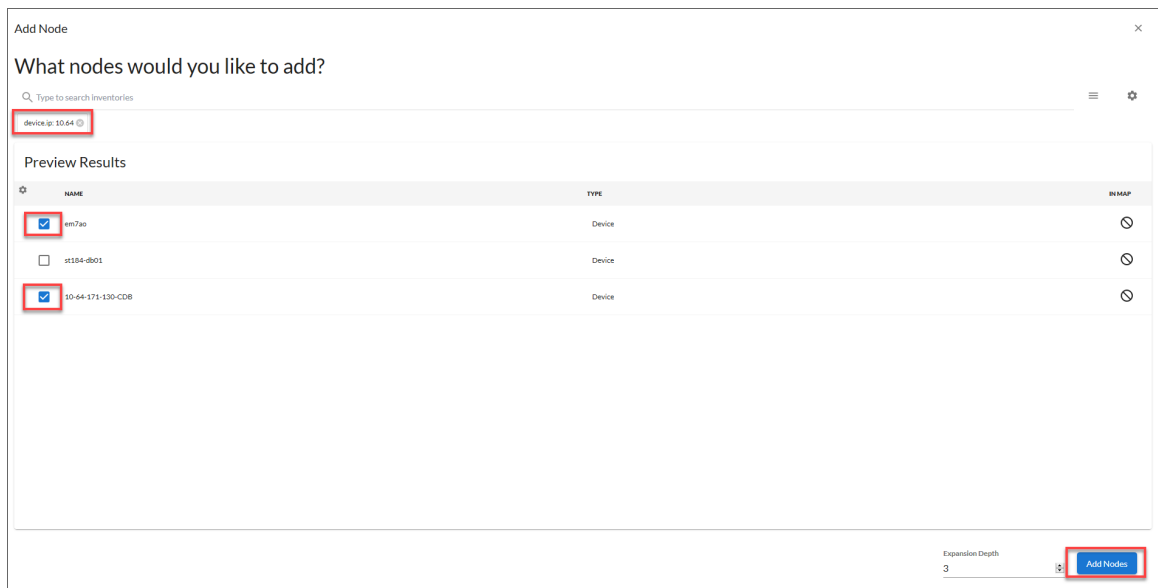
7. Click **[Save Map]** to save the map.

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:

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 "Advanced Search" chapter in the ***Introduction to SL1*** manual.

4. 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.

5. 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.

6. Click **[Add Nodes]**. The node or nodes are added to the **Map** window.

7. Update the appearance of the map by clicking the ***Settings*** drop-down and selecting *Design*. For more information, see *Changing the Appearance of a Map*.

8. Click **[Save Map]** 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 SL1 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 SL1.

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]** button changes from **Selections (0)** to **Selections (2)**:
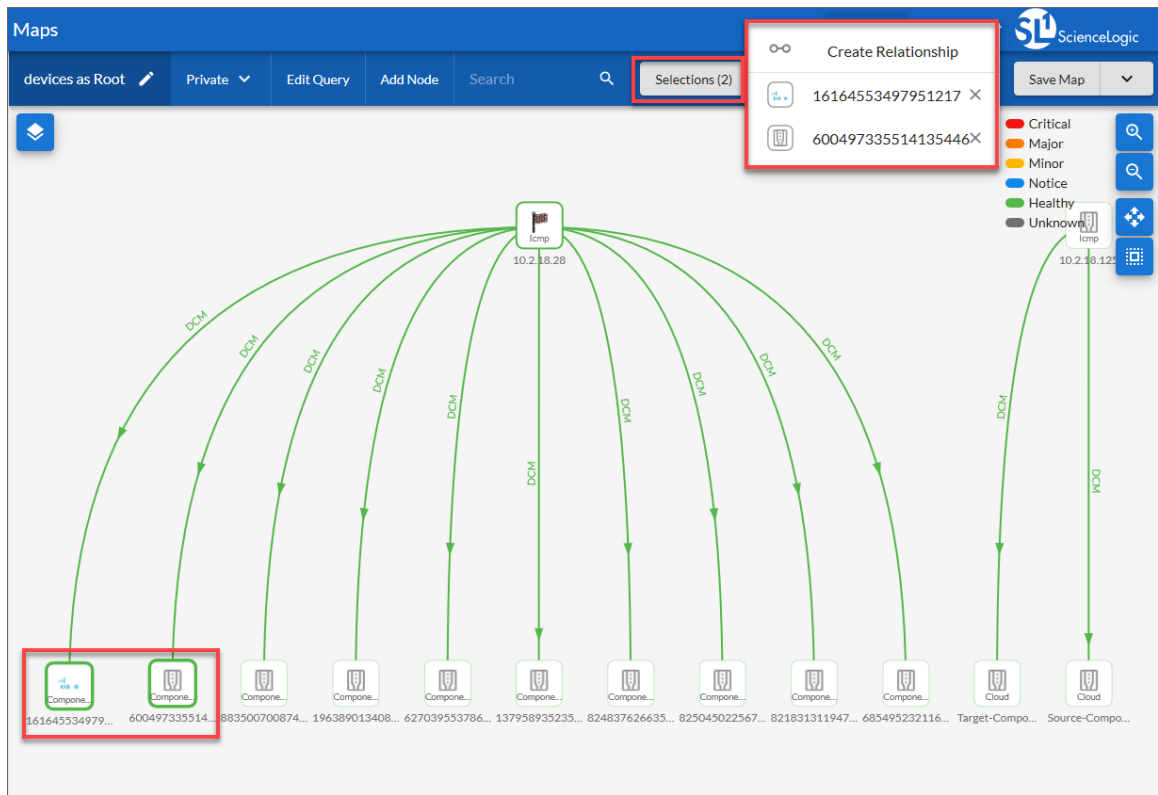
3. Click the down arrow on the **[Selections]** button and select *Create Relationship*. The **Select a relationship type** window appears.

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:
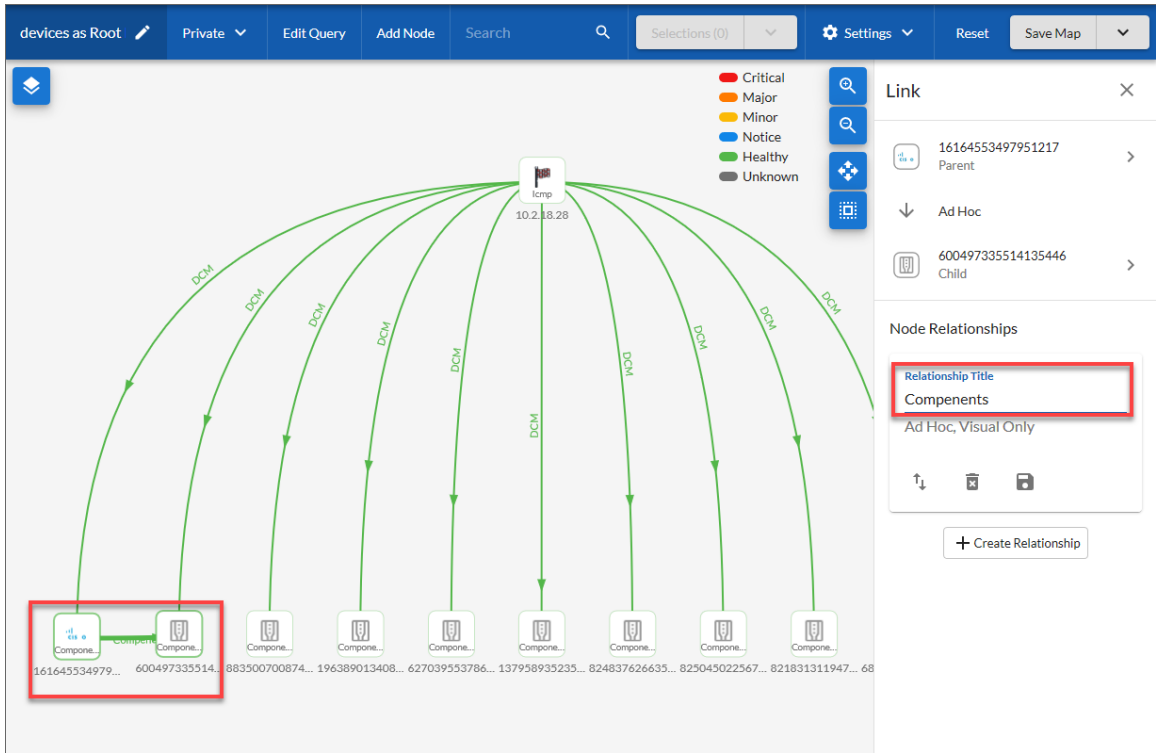
5. If you selected *Ad Hoc* for the type, you can edit the name of the link in the **Relationship Title** field on the **Relationship** pane.

6. If you selected *CDP* or *LDP* as the type, select parent and child interfaces as needed.

7. To change the direction of the arrow on the edge representing the relationship, click the Change Direction icon (⬍).

8. To remove the relationship from the map, click the Delete icon (▣).

9. To make the relationship persist on all maps in SL1 after you save the map, click the Override icon (💾).

10. To add another relationship for the two devices, click **[Create Relationship]** and add a new *Relationship Title*.

11. 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.

Changing the Appearance of a Map

From the **Settings** drop-down, 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
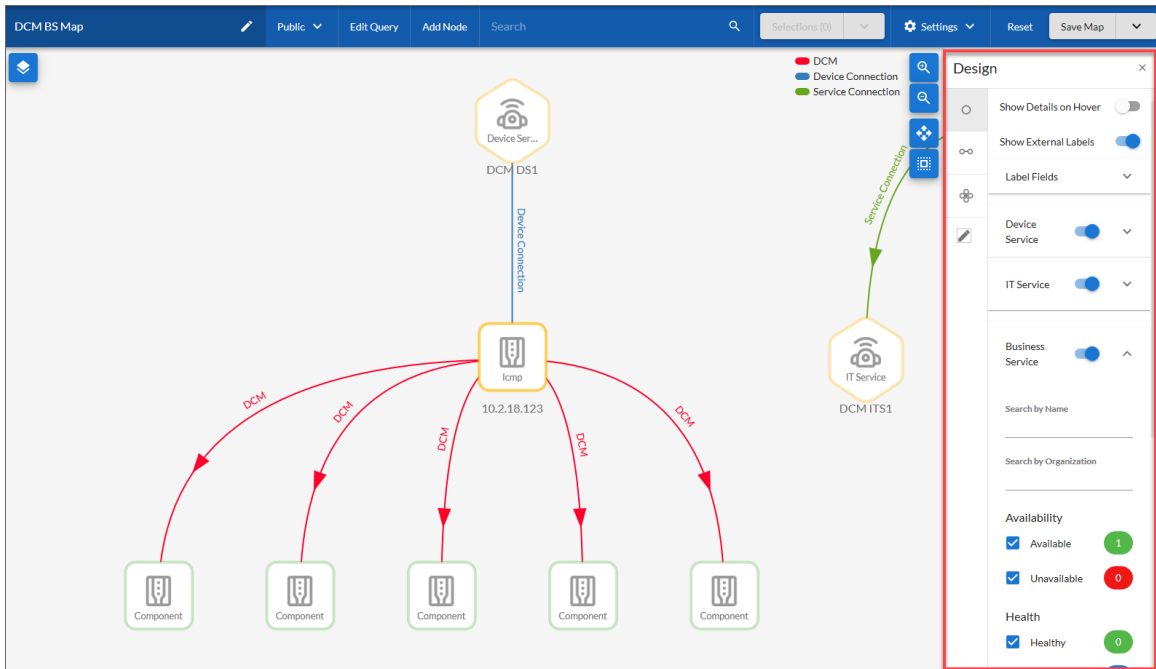
   For more information, see *Changing the Filters for a Map*.

Changing the Design of a Map

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

1. On the **Maps** page (![icon]), select the map you want to edit. The **Map** window appears.

2. Click the **Settings** drop-down 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]**, **[Edges]**, **[Map]**, and **[Edit]**.

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

- *Show Details on Hover Labels*. 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.

  Pre-filters. These expandable sections let you show or hide specific types of nodes based on service and device options, depending on what you want to see in your map. These options are the same as the options on the **[Devices]** and **[Services]** tabs of the **Filters** pane:

  - *Device Service, IT Service, Business Service*. 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.

  - *Device*. 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.

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

- *Labels*. Shows or hides the labels for the type of relation next to the edge.

- *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 edges. 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 edges in the map based on one of the following options:

  - *Status*. Colors the edges based on the status of the device or service, such as Critical or Healthy, that the edge is connecting.

  - *Edge type*. Colors the edges based on the type of relationship, such as DCM (Dynamic Component Map) or Service Connection, represented by the edge.

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 **[Edges]** tab of the **Filters** pane.

5. On the **[Maps]** tab ( ), you can edit the following options:

- *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 SL1 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 edge 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 SL1 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 the **[Save Map]** button. You will need to click **[Save Map]** twice to ensure this setting is saved.

- **History Tracking**. When this option is enabled, SL1 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 SL1. 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.

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7. Click **[Save Map]** 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 Appearance of a Map

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 the *Settings* drop-down and select *Filters*. The **Filters** pane appears to the right of the map:
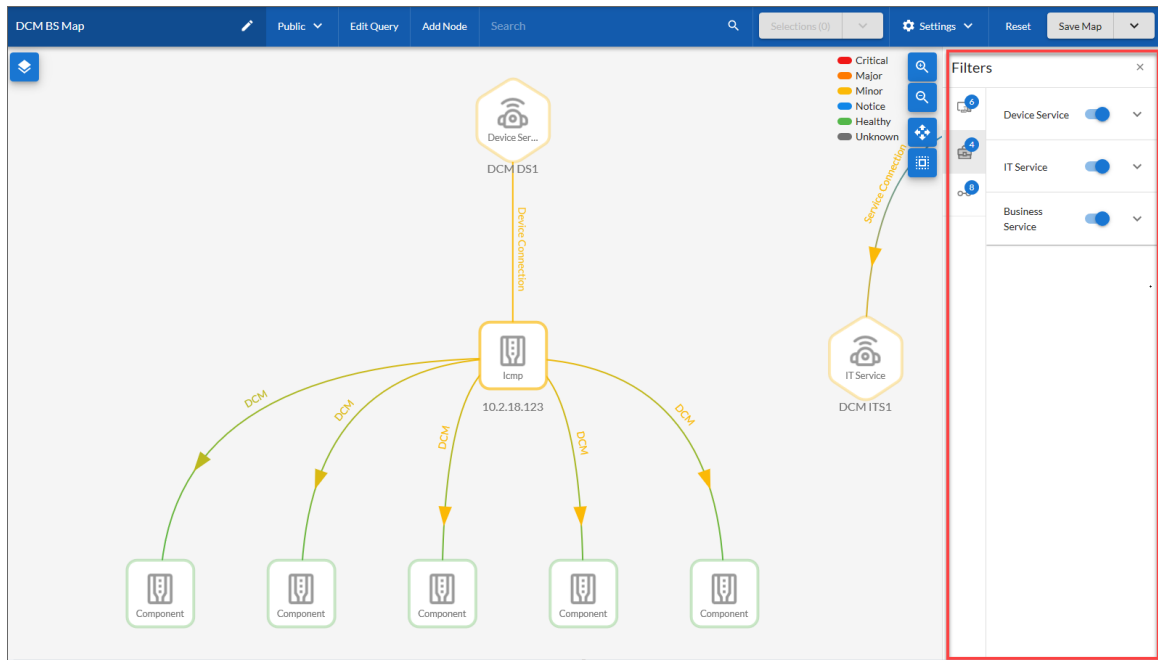
NOTE: The counts for each node type display in a blue badge on each tab.

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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 **[Edges]** 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 Map]** to save the updated filters for this map.

Exporting a Map

If you want to use maps on another SL1 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 SL1 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 SL1 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 (�lightning) next to the maps to add them to the PowerPack. The selected map or maps move up to the **Embedded AP Content Objects** pane:
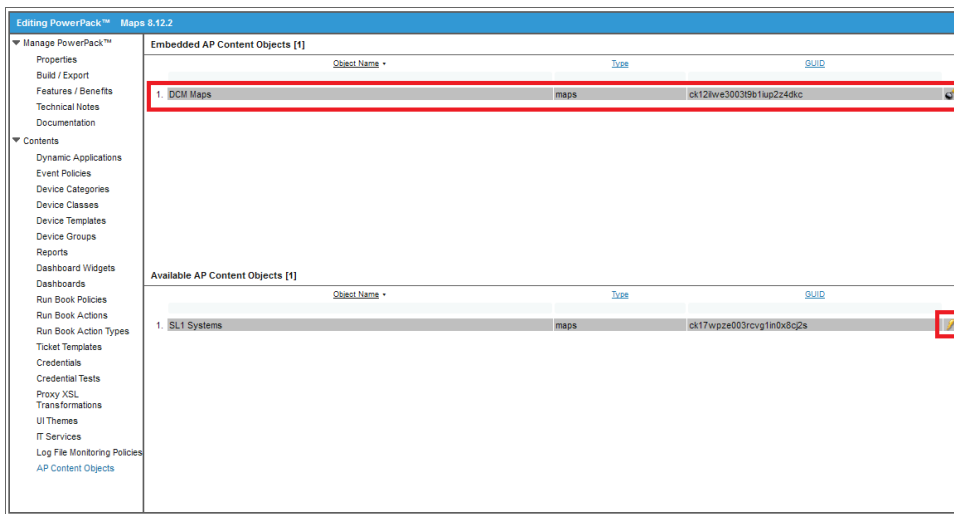
6. Select *Build/Export* from the left-nav to open the **Compiled PowerPacks** window, and then click the *Create a new build* link:
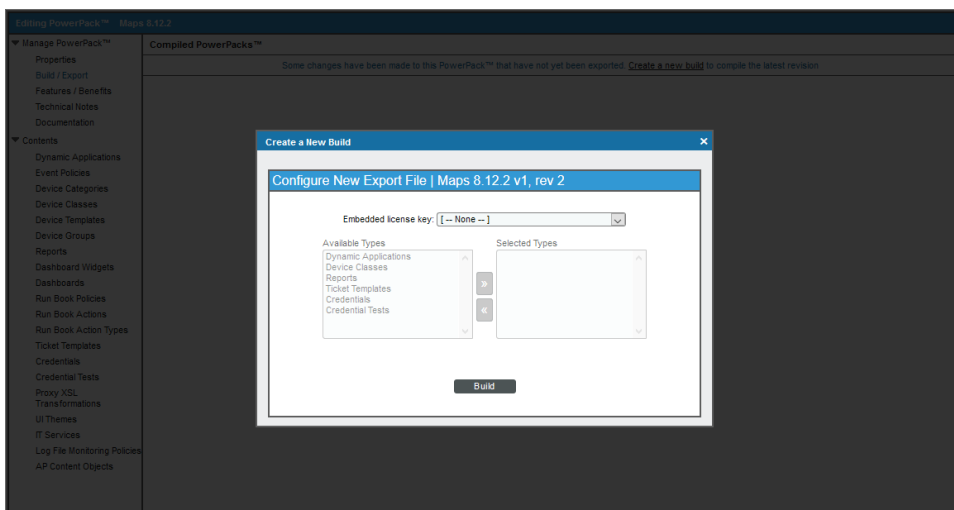
7. In the **Configure New Export File** window, select *Administrative (including export & license)* from the *Embedded license key* drop-down list. Click **[Build]**.

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 SL1 system.

Installing a Map from a PowerPack

1. On the SL1 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.