Introduction

Business Service Management Map

Note: *This article applies to Fuji. For more current information, see Service Mapping* [1] *at* http://docs.servicenow.com The Wiki page is no longer being updated. Please refer to http://docs.servicenow.com for the latest product documentation.

ServiceNow has the following Business Service Management (BSM) Map products. Select one of the following options:

- Next Generation Business Service Management Map

  This documentation describes the version of BSM that first appears in the Fuji release. Next Generation BSM (NG-BSM) is built on D3 and Angular technology. It provides an enhanced, modern interactive graphical interface to visualize Configuration Items (CIs) and their relationships. It continues to provide the filtering and related information capabilites available in BSM Eureka release.

- Eureka Business Service Management Map

  This documentation describes the version of BSM that appears in the Eureka release.

- Original Business Service Management Map

  This documentation describes the Business Service Management Map product in versions prior to Eureka.

References

[1] https://docs.servicenow.com/bundle/jakarta-it-operations-management/page/product/service-mapping/reference/c_ServiceMappingOverview.html

Installed Components

Overview

The following components are installed with BSM Maps:

- Tables
- Properties
- Script Includes
- Business Rules

Note: *If you are using a version of the ServiceNow platform other than Eureka, see the related documentation in Business Service Management Map.*

Tables

BSM Maps includes the following tables.

Table	Description
BSM Map Filter [bsm_map_filter]	Contains all saved BSM map filters.
BSM Map Icon [bsm_map_icon]	Contains the paths to all icon images used in a BSM map.
BSM Saved View [bsm_chart]	Contains the data for saved BSM snapshots

Properties

To customize your map properties, navigate to **BSM Map > Map Properties**.

For properties with the type **Color**, use one of the following options:

- A valid HTML4 color name [1]. The color names are case-insensitive.

  The extended color set (X11 color keywords) typically work, as well.
- A RGB hex code, such as #003366
- A RGB decimal code, such as rgb(0,51,102)

Property	Description
glide.bsm.map.style.text_color	The color of the text that appears under an unselected CI node. See above for color selection guidelines. • **Type**: Color • **Default value:** Black
glide.bsm.map.style.selection_text_color	The color of the text that appears under a selected CI node. See above for color selection guidelines. • **Type**: Color • **Default value:** White
glide.bsm.map.style.font_size	The font size of the text that appears with a CI node. The default size is magnified for nodes with more connections and reduced for downstream nodes. • **Type**: Integer • **Default value:** 14

glide.bsm.map.style.selection_background_color	The background color of a selected CI node. This color is also used with a node's **Highlight Hierarchy** option. See above for color selection guidelines. • **Type**: Color • **Default value:** RoyalBlue
glide.bsm.max_levels	Maximum level depth from the root CI that can be initially displayed in Business Service Maps. Level depth is the graph distance between the root CI and a node. This value must be an integer. • **Type**: Integer, valid values 1 to 10 • **Default value:** 5 • **Learn more:** Direction and Level
glide.bsm.map.style.font_family	The font family name used in the map text. If you designate a font that is not on your users' system, the browser substitutes another font and the text may not render as you expect. • **Type**: Font name • **Default value:** Arial
glide.bsm.new_node_color	The color for nodes that became viewable from the last expand operation. See above for color selection guidelines. • **Type**: Color • **Default value:** PaleGreen
glide.bsm.too_many_children	The maximum number of child nodes to display. Nodes are collapsed for the map to meet this limit. • **Type**: Integer, valid values 1 or greater • **Default value:** 10
glide.bsm.color.affect_neighbors	The color of an affected neighbor node. When a node has a service issue, all the nodes that are dependent on that node are considered affected nodes. In the map, the affected nodes are parents or grandparents of the node with the service issue. See above for color selection guidelines. • **Type**: Color • **Default value:** Beige
glide.bsm.max_nodes	The maximum number of downstream nodes to retrieve from the database for a CI. If more nodes exist in the database, they are not displayed in the map. • **Type**: Integer • **Default value:** 1000
glide.bsm.task_threshold	Change the CI's glyph color from orange to red when the number of tasks reaches this threshold. • **Type:** Integer • **Default value:** 3 • **Learn more:** Tasks by Type and Date
glide.bsm.refresh_interval	Seconds between each automatic reloading of troubles and tasks. The range is 1 to 3600. • **Type:** integer • **Default value:** 30
glide.bsm.layout	The default layout for the BSM map. Options are **Hierarchy**, **Radial**, **Grouping**, and **Force**. • **Type:** String • **Default value:** Hierarchy

Script Includes

BSM Maps includes the following script include.

Name	Description
KeylinesBsmAJAX	Client callable AJAX for Keylines BSM maps.

Business Rules

BSM Maps includes the following business rules.

Name	Table	Description
Update Filter Name	BSM Map Filter [bsm_map_filter]	This rule ensures that a new filter name is not already in use. Filters must have unique names.
Insert/Update type	BSM Map Icon [bsm_map_icon]	This rule ensures that an icon type is unique for a category of CIs. For example, Linux servers should have only one icon type defined.
Validate BSM Map max child nodes	System Properties [sys_properties]	This rule ensures that the max child nodes property is a valid number greater than 0.
Validate BSM Map font size	System Properties [sys_properties]	This rule checks the font size for correct values and warns if the font size is too large and may cause rendering issues.
Validate Refresh Interval	System Properties [sys_properties]	This rule ensures that the refresh interval is a valid number between 1 and 3600, inclusive.
Validate BSM Map max levels	System Properties [sys_properties]	This rule governs the maximum level depth from the root CI that can be initially displayed in Business Service Maps. This rule ensures that the value is an integer between 1 and 10, inclusive.
Validate BSM Map max nodes	System Properties [sys_properties]	This rule checks max node value for valid numbers and minimum nodes shown.
Validate BSM Maps tasks threshold	System Properties [sys_properties]	This rule determines the threshold limit to change the task glyph from orange to red.
Increment view version	BSM Saved View [bsm_chart]	This rule determines the next version number for this saved BSM map.
Update Version	BSM Saved View [bsm_chart]	This rule verifies that a saved version of a BSM chart does not already exist.

References

[1] http://www.w3.org/TR/2002/WD-css3-color-20020418/#colorunits

Introductions to Mapping Assets

Note: *This article applies to Fuji and earlier releases. For more current information, see Configuration Management* [1] *at* http://docs.servicenow.com **The ServiceNow Wiki is no longer being updated. Visit** http://docs.servicenow.com **for the latest product documentation.**'

Overview

The Configuration Management Database (CMDB) is a series of tables containing all the assets and business services controlled by a company and their configurations. This includes computers and devices on the network, software contracts and licenses, business services, and more. The IT desk can use the CDMB to understand better their network users' equipment, and the relationships between them. The CMDB can also be referenced by other processes within the system.

The CMDB can be populated using the **Discovery** product. Discovery searches the network for all attached computers and devices, then populates the CMDB with information on each computer/device's configuration, provisioning, and current status. Discovery also reports on any software which is running, and the TCP connections between computer systems, thereby establishing their relationships.

The **Asset Portfolio**, **Asset Contracts**, and **Configuration** applications contain modules which display different tables within the CMDB. Each application is designed with a specific purpose in mind.

The two Asset applications have an Asset Management focus, providing a perspective on the CMDB from a business perspective. The **Asset Portfolio** application links to CMDB of all assets, hardware, software, assets in stock, as well as records for manufacturers and vendors. The **Asset Contracts** application contains information about contracts, including leases, service contracts, purchase orders, warranties, and software licenses. The **Configuration** application has a focus on operation.

CMDB

CMDB contains the following major record types:

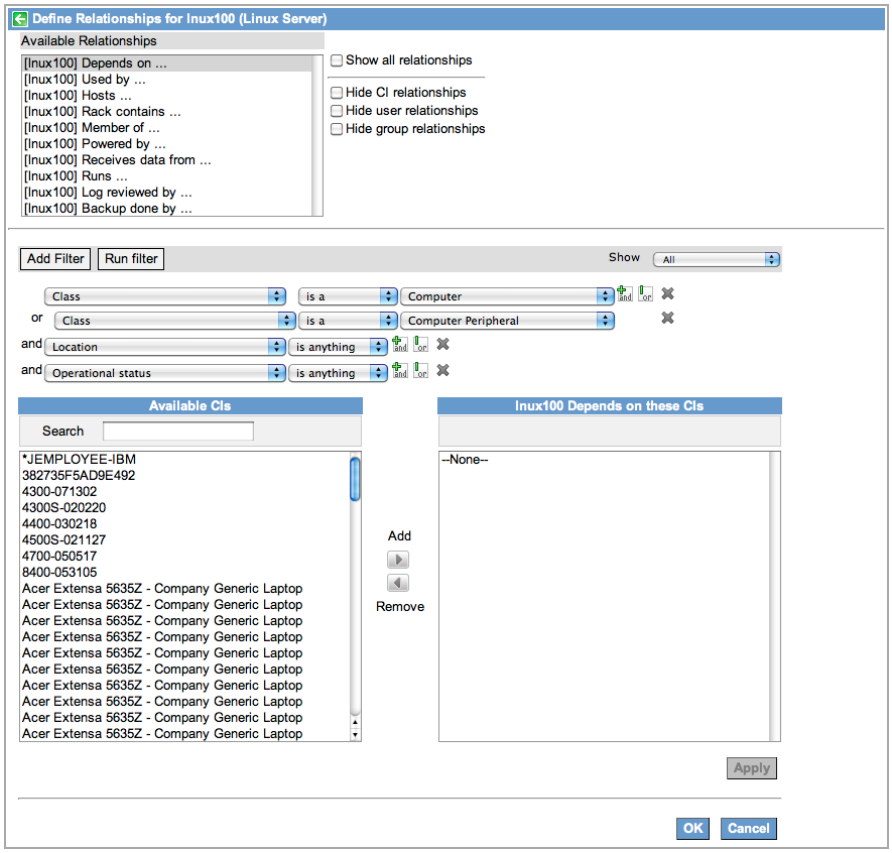
- **Configuration Item (CI)**: Any computer, device, software, or service in the CMDB. A CI's record will include all of the relevant data, such as manufacturer, vendor, location, etc. Configuration items can be created or maintained either using tables, lists, and forms within the platform, or using the Discovery application.
- **Relation Type**: A defined relationship between a CI and either another CI, a user, or a group. Relation types are defined twice, once from the perspective of the child CI and once from the parent CI's perspective. For instance, a parent CI that powers a child CI uses relation type *Powers::Is Powered By*. Example relation types include *In Rack::Rack contains*, *Log Reviewed by::Reviews logs* for, or *Backup done by::Does backups* for. CMDB relationships can be established using Discovery, or using the tables, lists, and forms within the platform. The CMDB form has a specific Related Items toolbar optimized for modifying relationships.

CI Relations Formatter Overview

The default CI form includes the CI relations formatter. This element contains the list of related CIs and a toolbar with controls for viewing the relationships between the current CI and related CIs. Note that the BSM Map provides a more complete view of CI relationships. Configure the controls in this formatter with two properties that restrict varying aspects of the view. For additional information about formatters, see Creating a Formatter.

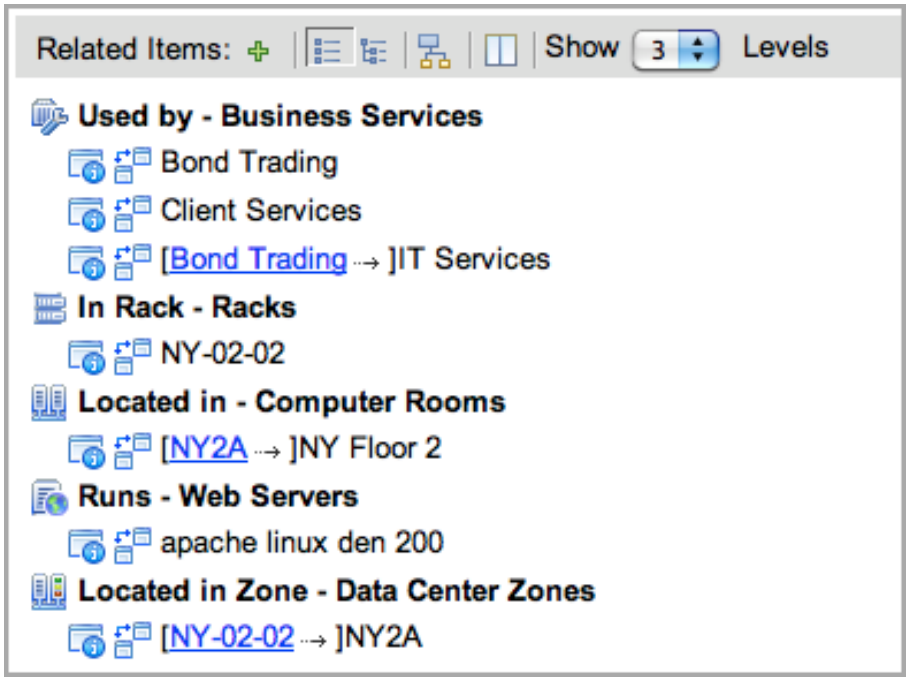
CI Relationship Builder

Click the CI relationship builder icon (✚) to display the Define Relationships page. Used to define CI relationships manually, this page is a sophisticated version of the standard ServiceNow slushbucket. For more information, see Defining CI Relationships.



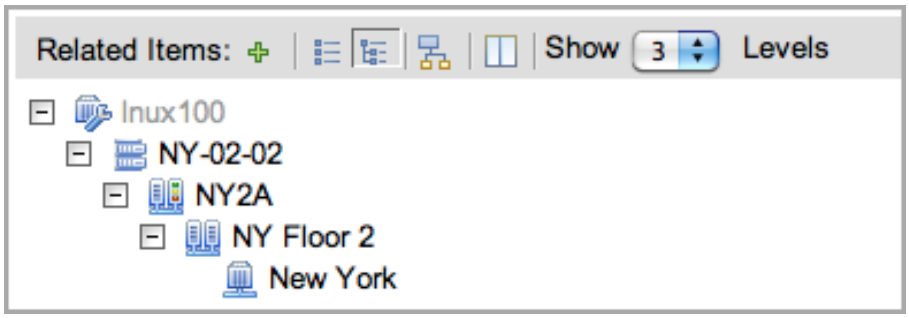
Flat Layout

Click the flat layout icon ( ) to group the related CIs by relationship.



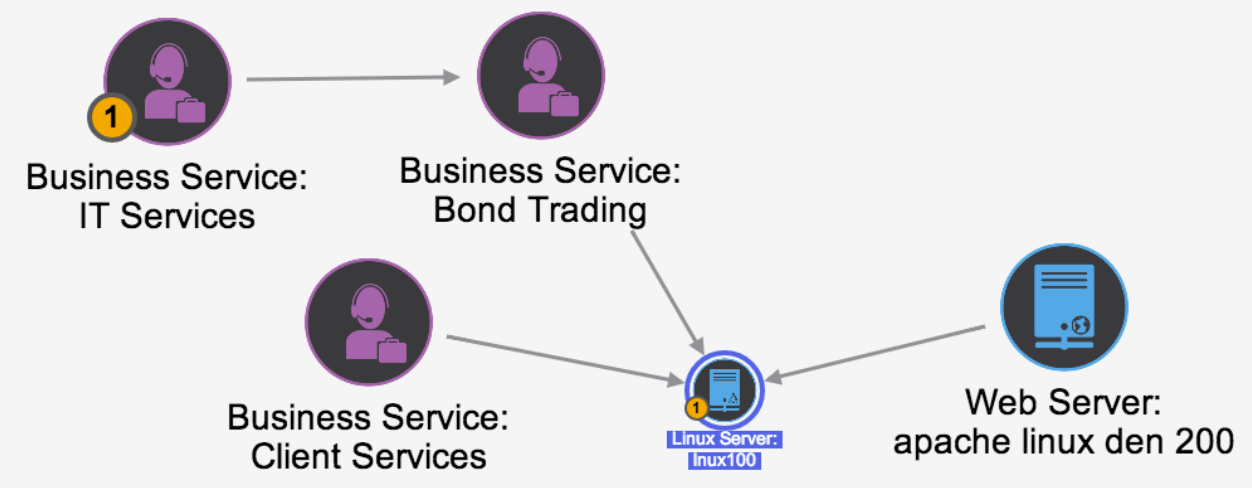
Tree Layout

Click the tree layout icon ( ) to group the related CIs in a hierarchical tree.



BSM Map

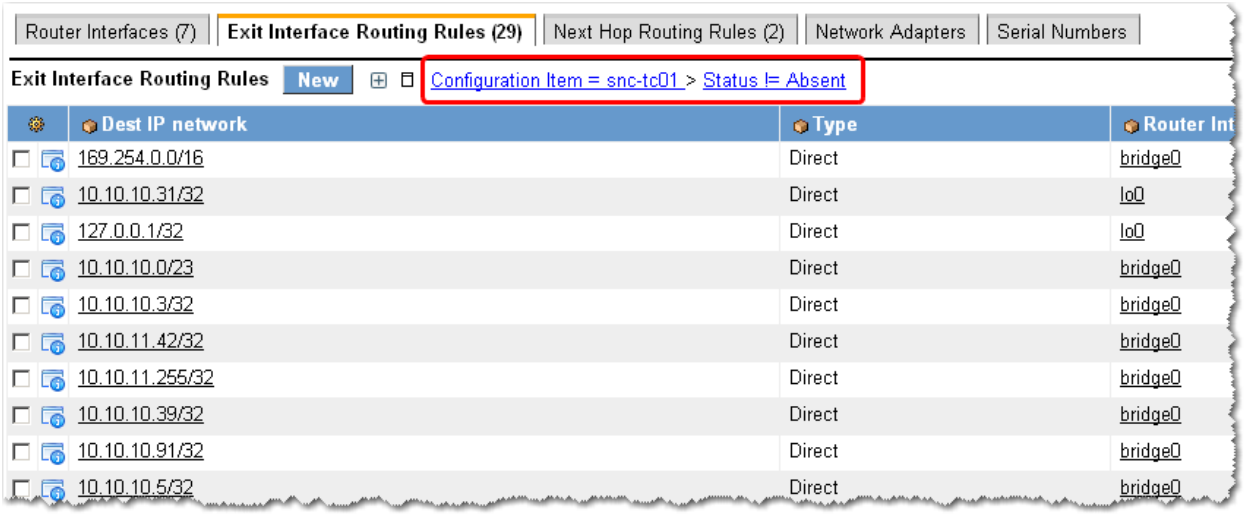
Click the BSM icon ( ) to launch the related Business Service Management Map in another window or tab. The map starts with a focused CI and displays a configurable number of levels above and below that node in the hierarchy. Colored glyphs on the nodes indicate the number of tasks, incidents, problems, changes, or outages related to that node. Right-click to expand collapsed nodes or display a list of related tasks or problems. For more information, see Using a BSM Map.



Related Lists of CI Components

Related Lists in CI records display additional components contained by that CI, such as disk drives on a server and the rules that control the behavior of a network router. When **Discovery** runs, the Related List is populated with the components that Discovery finds running on the CI. The CI record might show different lists from scan to scan, depending on whether or not Discovery found the component. By default, the Related Lists only display those components that are associated with that CI in the CMDB that have been discovered by the last scan. CI components that are discovered but cannot be matched to the CI in the CMDB are added to the CMDB and appear in the Related List. Components that are recorded in the CMDB but are *not* discovered in a scan, are deemed *absent* and do not appear in the list. There are two types of components that appear in the Related List: those that are CIs themselves (such as hard disks), and those that are not (serial numbers and rules). The default filter condition in the breadcrumbs for components that are CIs is **Status != Absent**. The filter condition for components that are not CIs is **Absent=false**.

In the following example, the **snc-tc01** router has several Related Lists affected by these filter conditions, including routing rules, disk drives, interfaces, and network adapters. Only those components found during the last Discovery appear in these Related Lists.



Enhancements

Fuji

- The Financial Management application adds a financial report and a Finance view to the Business Service form. The report, which appears when the Finance view is selected, shows the expenses allocated to that business service for each fiscal period during which there is an allocation.
- Tables have been added to the CMDB to support ServiceWatch-related business services.

References

[1] https://docs.servicenow.com/bundle/jakarta-servicenow-platform/page/product/configuration-management/concept/c_ITILConfigurationManagement.html

Administration

Administration

Overview

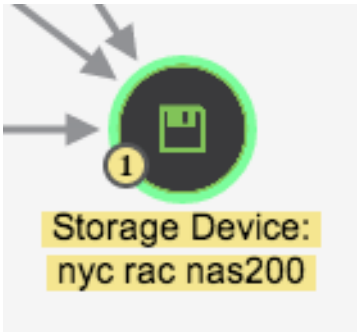
ServiceNow uses color highlights to direct focus to a node, such as to indicate that a node has an outage. These highlights are called *map indicators*. Users with the admin role can control the appearance and behavior of business service management (BSM) maps by configuring map indicators, map related items, and map icons.

You can also edit or create options that appear on right-click menus in the map. For instructions, see Creating or Modifying Menu Actions.

Note: *If you are using a version of the ServiceNow platform earlier than Eureka, see previous version information in Business Service Management Map - Versions Prior to Eureka.*

Map Indicators

The default configuration uses map indicators to differentiate between different types of tasks or outages. For example, a CI that has an open incident is highlighted in yellow.



Affected CI

The following highlight colors are used in the default BSM map:

- **Yellow:** CIs that have an open incident and all affected upstream CIs.
- **Red:** CIs that have an open problem or a current, planned, or past outage.
- **Khaki:** CIs that have open tasks.
- **Light Blue:** CIs with a current, planned, or past change request.

Creating or Modifying Map Indicators

You can create a map indicator to define additional record types, such as trouble sources for business service CIs. You can also modify an existing map indicator, for example to use a different color scheme or to alter the priority of a task.

For more information on how map indicators are used to show tasks and outages in clusters and collapsed nodes, see Collapsed Elements in a BSM Map.

To create or modify a map indicator:

1. Navigate to **BSM Map > Map Indicators**.
2. Click **New** to create a new map indicator, or click the name of an indicator from the **Table** column to modify an existing map indicator.
3. Fill in the fields on the form, as appropriate (see table).
4. Click **Submit** to enter a new map indicator. Click **Update** to modify an existing map indicator.

Field	Description
Table	Name of the table represented by this map indicator.
Name	Name of the indicator.
Order	Priority order of the task. The highest priority task is the indicator with the lowest order number. When more than one indicator is present on a CI, the displayed color is the color associated with the highest priority task. Additionally, a glyph on a CI displays the color indicator of the highest priority task attached to that CI.
Node color	Highlight color for a node when a task is attached from the table specified. This value can be expressed in hexadecimal code or color name.
Active	Check box that allows you to enable or disable this record.
CMDB CI field	Name of the field on the selected table that contains the configuration item.
Start field	Starting state for this indicator. The indicator color is applied to a CI node when an attached task reaches this state. For example, in the base system, a CI node appears in red when an open problem is attached to the node. You can modify this field to have the problem appear on the map at another time, such as when the state is **Known Error**.
End field	Ending state for this indicator. The indicator color is removed from a CI node when an attached task reaches this state. For example, you can turn off the red highlighting when an attached problem reaches the **Pending Change** state.
Description field	Name of the field on the selected table that contains the description of the configuration item.
Description	User-generated text to describe the indicator. Alphanumeric characters and spaces are valid for this field.
Conditions	Condition builder that specifies when to apply this indicator. For example, a CI that has a past outage is highlighted in red. You can configure a condition to designate that the red highlight no longer appears on the map one week after the outage is fixed.

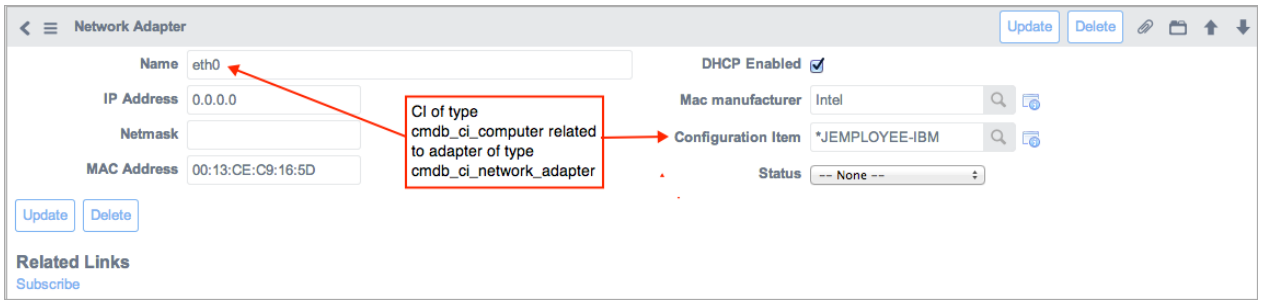
Map Related Items

The Map Related Items module relates referenced CIs to one another, which allows them be displayed in BSM maps. The base system configuration includes the following tables and relates them to items in the Computer [cmdb_ci_computer] and Server [cmdb_ci_server] tables.

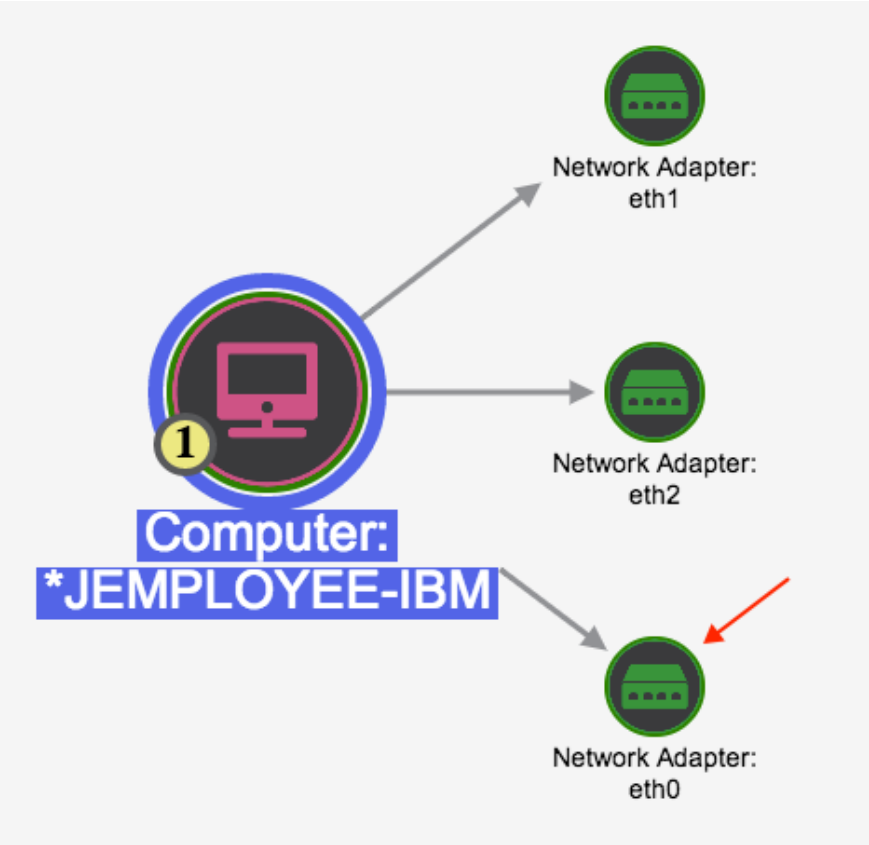
- Disk [cmdb_ci_disk]
- Network Adapter [cmdb_ci_network_adapter]
- Database [cmdb_ci_database]

Some additional referenced CIs that can be related in this manner are file systems and running processes.

In the following example, computer nodes in a BSM map are related to network adapter nodes if the **Configuration Item** field of the adapter records reference the specific CI node. Access or create a network adapter record from the Network Adapter related list in the cmdb_ci_computer record.



The BSM map for the *JEMPLOYEE-IBM computer shows the network adapter attached to the computer.

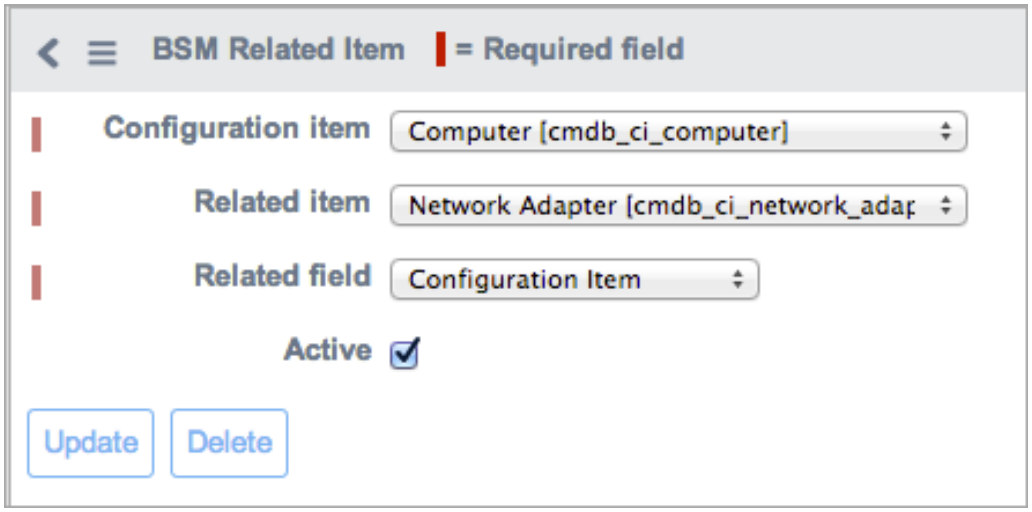


Creating or Modifying Map Related Items

You can configure BSM maps to display CIs that have no relationship record, but are related to other CIs by reference fields.

To create or modify map related items:

1. Navigate to **BSM Map > Map Related Items**.
2. Click **New** to create a new related item, or click the name of an existing CI from the **Configuration Item** column to modify an existing map related item.
3. Fill in the fields on the form, as appropriate (see table).
4. Click **Submit** to enter a new map related item. Click **Update** to modify an existing map related item.



Field	Description
Configuration Item	CI that represents the base node or a CI in a table that extends the base node table. In the base system, the configuration item that represents the base node is Computer [cmdb_ci_computer], which includes all types of workstations and servers.
Related Item	Table name of the related item. Only the cmdb_ci table and tables that extend it are displayed in the choice list.
Related Field	Field that links this related item to the configuration item. In many cases, the appropriate value is automatically populated in the field after the first two fields are selected. Select the drop-down menu for additional options.
Active	Check box that allows you to enable or disable this record.

Map Icons

The icons used in the BSM maps are listed in the Map Icons module. Users with the admin or ecmdb_admin role can access the records in this table [bsm_map_icon] to upload new icons.

Records in the BSM Map Icons list are arranged by CI classes, such as cmdb_ci_linux_server. The path to the default image files is **https://<instance name>.service-now.com/images/keylines_bsm_map/<image name.png>**.

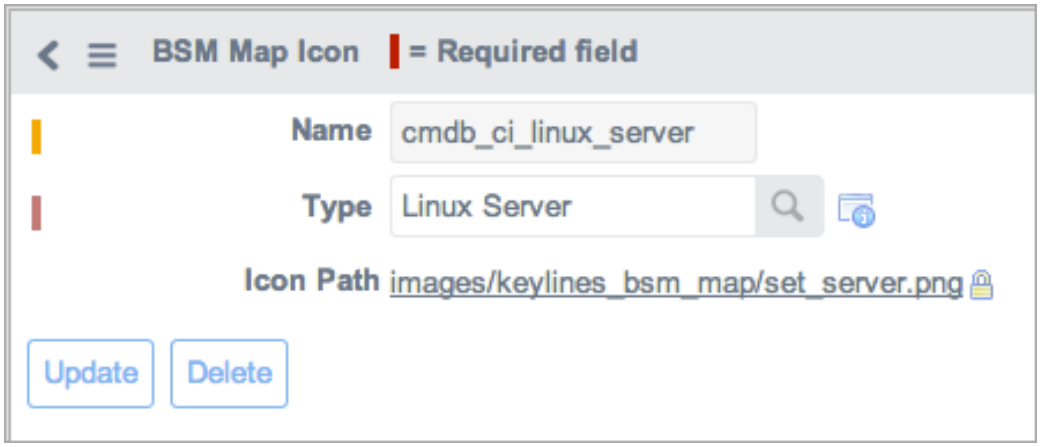
Creating or Modifying Map Icons

You can upload new icons or modify existing icons to customize the icon displayed for a CI.

To create or modify a map icon:

1. Navigate to **BSM Map > Map Icons**.
2. Click **New** to create a new map icon, or click the name of an existing icon from the **Name** column to modify an existing icon.
3. Fill in the fields on the form, as appropriate (see table).
4. Click **Submit** to enter a new icon. Click **Update** to modify an existing icon.

   The system creates or updates the record.



Field	Description
Name	Name of the icon.
Type	Label or *friendly name* of the CI table this icon represents on the map.
Icon Path	Path to the icon image using the following format: **/images/keylines_bsm_map/<*image name.png*>** Click the lock icon to enter a new path.

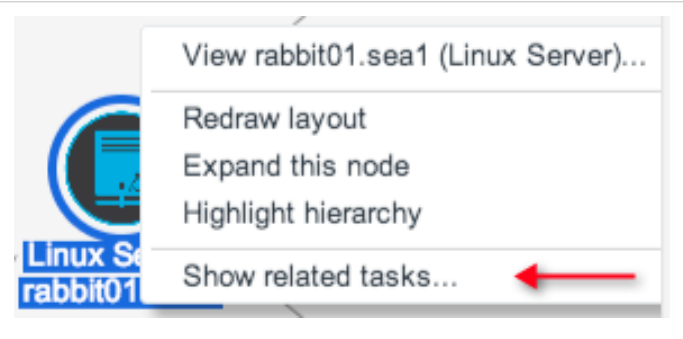
Menu Actions

Menu actions are options that appear in the context menu that displays when you right-click on a map node or relationship link in a BSM map. The actions that appear in the menu differ depending on pre-defined conditions. The Menu Actions module allows you to customize some of the menu options that are provided with the application, or you can create new menu options.

Note: *Creating and modifying menu actions is an advanced procedure that requires scripting knowledge.*

Protected Menu Options

Some right-click menu options are essential to the application and cannot be customized. Permanent options appear above the editable or custom options in the menu.



Node Menus

The following menu options on CI nodes are not editable:

- **View:** Opens the record for the selected CI.
- **Redraw layout:** Redraws the map with the selected CI as the focus.
- **Highlight hierarchy:** Highlights the CIs that depend on the selected CI, including those CIs on which the selected CI is dependent.
- **Expand this node:** Displays all CIs and components within a cluster node or a collapsed node. This option only appears if the node is a collapsed or cluster node.
- **Set as CI**: Replaces the value in the original task's reference field with the name of the selected CI. This action only appears for maps accessed from task records.

Relationship Menus

The following menu options on a relationship line are not editable:

- **Edit connection:** Opens the Edit Link Configuration dialog box. Select a new relationship for this link from the choice list.
- **Remove connection:** Deletes a relationship. The system deletes the relationship without prompting for confirmation.
- **Redraw layout:** Returns the focus to the most recently selected CI.

Creating or Modifying Menu Actions

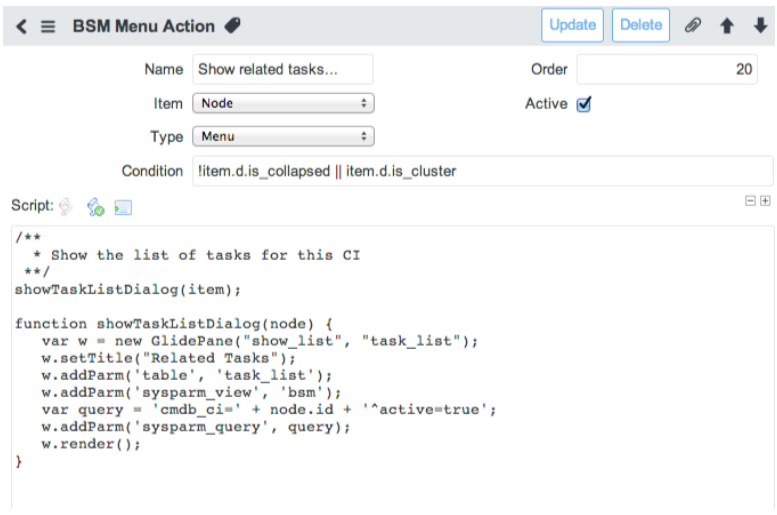
To create a new menu option, navigate to **BSM Maps > Menu Actions** and click **New**. Fill in the fields on the form, as appropriate (see table).

To change an existing menu option, copy the original menu action record, and then modify the copy. This ensures that ServiceNow can update the record normally during the upgrade process and allows you to restore the original menu option quickly, if necessary.

1. Navigate to **BSM Maps > Menu Actions** and open the menu action you want to edit.
2. Right-click in the header and click **Insert and Stay**.

   This creates a duplicate copy of the menu action and leaves it open for editing.
3. Change the name of the copied record to avoid confusion.
4. Modify the form fields as necessary and save the record.
5. Open the original record and disable it by clearing the **Active** check box.

Field	Description
Name	Descriptive name that appears as the menu option.
Item	Map element for which the menu option displays. Valid values are **Node** for the menu on a CI and **Relationship** for the menu on a relationship link.
Type	Menu action type being created, either a menu option or a menu separator. The menu separator is a single line. When the type is a separator, the **Script** field is ignored.
Order	Physical location of the option in the menu. The option with the lowest order number appears first in the menu. All editable and custom options appear below the permanent menu options.
Active	Check box that allows you to enable or disable this record.
Condition	Condition that triggers the display of this menu option. If the condition evaluates to *false* the menu option does not display. For details on available parameters, see Condition Parameters.
Script	Script that is executed in the browser when the menu option is selected.

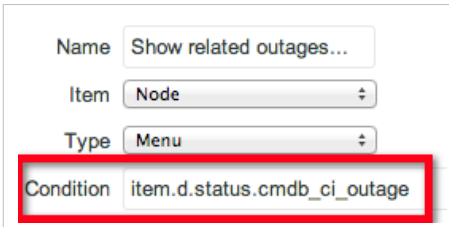


BSM menu action form example

Condition Parameters

The **Condition** field contains a boolean expression that evaluates to true or false. If the condition is true or if there is no condition, the specified option appears in the menu when you right-click on a CI or a relationship link. When you select the option from the menu, ServiceNow executes the associated script.

Note: *The usual regular expression conventions are valid in the condition field, such as* ***!*** *for NOT,* ***&&*** *for AND, and* || *for OR.*



Sample condition field

The following table provides common elements to use when building a condition:

Text	Description
item.d	Node or reference link's data on which you performed the right-click action.
item.d.label	Label of the node.
item.d.ci_type	CI's type (table), such as **cmdb_ci_service**.
item.d.name	Name of CIs or relationships. • **CIs**: CI's type name or the table label, such as **Business Service**. • **Relationships**: Relationship's type name, such as **Depends on::Used by**.
item.c.status.*tablename*	Status of the node in the table *tablename*. Replace *tablename* with the name of a map indicator table, as listed in the Map Indicators module.
item.d.parent_relationship	Parent relationship on a relationship link.
item.d.child_relationship	Child relationship on a relationship link.
item.d.location	Location of the CI, such as **New York**.
item.d.manufacturer_name	Name of the CI's manufacturer, such as **Dell Inc.**.

The following table provides examples of valid conditions.

Condition	Description
item.d.is_collapsed	The node is a collapsed node.
item.d.is_cluster	The node is a cluster node.
item.d.status.incident	The CMDB has an incident for that CI in the incident table.
item.d.status.cmdb_ci_outage	The CMDB has an outage for that CI in the cmdb_ci_outage table.
item.d.parent_relationship == "Depends on"	This relationship link is a *depends on* relationship.

Script Parameters

Menu action scripts are executed on the client when a user clicks the menu option. You can use the same building blocks in scripts as in conditions. Menu action scripts do not function on separators. These are some additional, useful expressions for scripts:

Condition	Description
item.id	The sys_id of the CI node or relationship link.
item.d.source	The sys_id of the relationship's parent or child
item.d.target	The sys_id of the relationship's parent or child
item.d.label	The name of the CI node, such as **IronMail-SD-02**.
item.d.location	The sys_id of the CI node's location.
item.d.location_name	The full address of the location, such as **4616 Clairemont Drive, North Clairemont, San Diego CA**
item.d.manufacturer_id	The sys_id of the CI's manufacturer.

Using the BSM Map

Using a BSM Map

Overview

A business service management (BSM) map has one starting point, called the root CI or root node of the map. The root CI is highlighted with a circle around it. The maps can show both upstream and downstream dependencies for the root CI. By default the BSM map displays 3 levels, both upstream and downstream relationships, and collapses all clusters. Administrators can configure the number of levels displayed.

Use the layout controls to display map elements in different configurations for easier management. Use the filter panel to display fewer levels or to filter out elements you don't want to see, then save the filter for use later. Draw new relationships between elements or edit existing relationships.

In a BSM map, icons and glyphs indicate if a CI has an active, pending issue. You can investigate the tasks that are connected to a CI to get more details. The map collapses and expands clusters to make them easier to view.

Note: *If you are using a version of the ServiceNow platform other than Eureka, see the related documentation in Business Service Management Map.*

Accessing the Map

When you access the map from one of the view options, the map is centered on the root CI, and displays the layout and number of levels defined in Map Properties. Administrators can configure these settings.

When you access the map from a saved view, the map opens using the saved properties.

To access a BSM map, navigate to **BSM Maps** and open one of these modules:

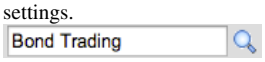
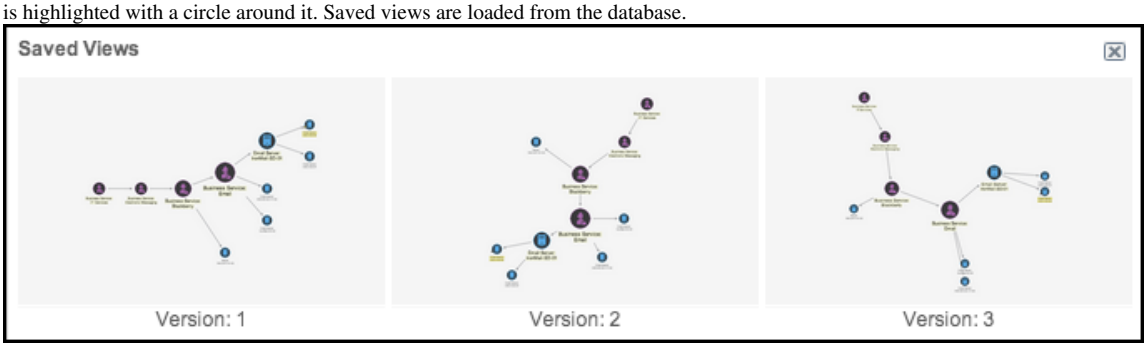
- **View Map in New Tab:** Opens the map in a new, full screen tab without the application navigator.
- **View Map:** Opens the map in the content pane of the current tab.
- **Saved Views:** Opens a view of a map that you previously saved. Click a number in the Version column, and then click the map icon ( ).

Note: *Adobe Flash Player is required to access BSM maps using Microsoft Internet Explorer versions 7 and 8.*

Managing the Map

You can manage the map using controls on the map and controls on the CI.

Map Controls

Control	Description
CI Search Field	Select a CI from the search field above the map. Alternatively, you can start typing to have the auto-complete feature present a list of CIs that match your partial value. The search field displays the name of the root CI shown in the map and not the currently focused node. When you return to the map from another form, the system restores the last map viewed, using the default filter and layout settings. 
Magnifier	Use the zoom control to magnify the map. Use the direction arrows to move the entire map, or the selection tool  to move one or more elements. Click the selection tool again to change it into the grab tool  for moving the entire map. Click the circle in the center of the direction arrows to center the image. 
Layout	Select a layout for the map elements from the choice list. You can set a default layout through a map property. • **Hierarchy:** Displays elements in a tree pattern according to their upstream and downstream relationships. This is the default value for the initial display of the map. • **Radial:** Displays elements in a radial pattern according to their upstream and downstream relationships. • **Grouping:** Groups elements according to their CI type. • **Force:** Centers elements around the parent CI, regardless of upstream or downstream relationships.
Collapse	Collapse an expanded node. The **Collapse** button is visible when an expand command adds new nodes to the graph. If you expand multiple times in a row, the **Collapse** button only goes back one collapse action. Collapse memory is not saved to the database, and therefore is available in the current session only.
Export Image	Save a copy of the current map in the PNG format.
Print Map	Print the current map or save the map as a PDF file.
Save View	Save the current map view in the database. The saved view preserves node placement and filter conditions at the point in time of the save command. Each view is assigned an automatically incrementing version number in the thumbnail view. In addition, all saved views are available from the **Saved Views** module. A message notifies the user that the current view has been saved. Views and versions are saved based on the current root CI.
Load View	Load a previously saved view of the BSM map. The selections available are thumbnail views of your saved map configuration for the root node. Selecting a thumbnail will load both the node placement and the filter conditions that were previously saved. The root node is highlighted with a circle around it. Saved views are loaded from the database. 

Full Screen	Toggle the display of the map in and out of full screen mode. The full screen view is not supported on Internet Explorer. This option is available in the **View Map in New Tab** view. 
Filter Panel	Toggle between opening and closing the filter panel.

CI Node Controls

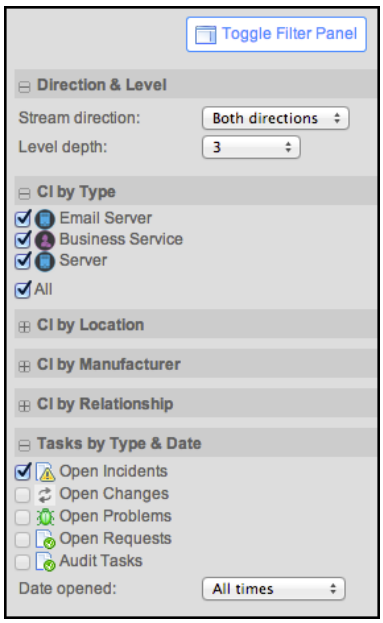
Right-click a CI node to access these controls.

Control	Function
View *CI name*	Displays the record of the selected CI in a pop-up window. You can also double-click the CI to open this window.
Redraw layout	Redraws the map using the selected CI as the new root node, using the currently defined layout setting.
Expand this node	Expands the collapsed nodes in the map that are associated with the selected CI. The CI type, manufacturer, location, and relationship filters are updated to reflect the nodes on the expanded map.
Highlight hierarchy	Highlights related nodes upstream and downstream from the node with the color designated in the map property. The highlight appears as the node background color. The highlight also appears on nodes that are dimmed due to selected filters. The node is related if it meets these criteria: • It is a ancestor, or a direct ancestor of an ancestor, of the node. • It is a child, or a direct child of a child, of the node. The children of ancestors and the ancestors of children are not included.
Show related tasks	Displays all tasks or outages associated with the selected CI, including incidents, problems, change requests, and follow-on tasks. This option is always available, even if there are no tasks associated with the CI.
Show related outages	Displays all outages involving the selected CI. This option only appears when there is an outage associated with the CI.
Add affected CI	Adds the selected CI to the **Affected CI** related list in an incident, problem, or change request. This option is only visible when you access the map from the map icon in a task record's **Configuration item** field. You might need to configure the incident, problem, or change form to display the **Affected CI** related list.

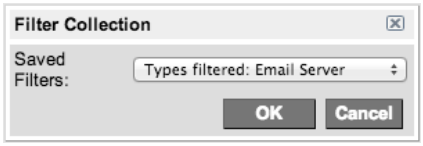
Filtering the Map

Open or close the filter panel with the **Filter Panel** button in the map's header bar. Use the filter to control which elements of the map are highlighted and to save versions of a filter for later use.

Filter groups and controls in the filter panel are contained within collapsible *strips*. Click a strip to expand or collapse it. Within each strip, you can select individual items or use the **All** check box to select all items in that strip.



- **Save Filter:** saves the current filter settings. The system asks you to provide a unique name for the filter and saves it to the BSM Map Filter [bsm_map_filter] table. ServiceNow overwrites an existing filter if it has the same name as the one you are saving. To view saved filters, navigate to **BSM Map > Map Filters**.
- **Load Filter:** allows you to select from a list of saved filters. When you select a saved filter, the system applies the settings to the map as appropriate for the filter groups and subgroups that are present.



- **Reset Filter:** resets the filter to its default state. This action selects all check boxes in the group strips and resets the **Stream direction** and **Level depth** options to their default values.

Direction and Level

By default the BSM map displays three levels of upstream and downstream relationships. To change the number of levels that are displayed by default, navigate to **BSM Map > Map Properties** and edit the **Maximum level depth from the root CI that can be initially displayed in Business Service Maps** property. When you load a new CI or expand a node, the system resets the map to the configured level depth.

Use these map controls to change the view of the levels as appropriate:

- **Stream direction:** Direction of relationships to display. Select from **Upstream**, **Downstream**, or **Both directions**. The default map displays nodes in both directions.
- **Level depth:** Number of relationship levels to highlight for the current node. Select **Show all** to set the depth to the number of levels that are in your CI configuration. When you perform one of the following tasks, the system isolates that node and displays the selected number of levels in the specified direction from that node:
  - Click a node
  - Load a new node

- Change CIs using the search box
- Expand a node

CI Filters by Group

Expand a filter group strip to display the subgroups. For example, the **CI by Type** group contains subgroups such as **Database**, **UNIX Servers**, and **Network Gear**. Select a check box to filter the map to show CIs from that subgroup and their relationships in the map. Clear a check box to dim that subgroup of CIs in the map. Scroll long lists of subgroups.

By default all options in each group are selected. If no manufacturer or location is defined in the database, the **Other** check box is the only option and is selected. Clear a check box to dim those CIs or relationships. Select the **All** check box to highlight all CI subgroups or clear the check box to dim all subgroups. For example, you might want to clear all check boxes in a long list and then reselect only one or two subgroups to highlight. The **All** control only works for the current group. Make sure a group filter shows the desired view before you switch groups, since this can affect what you see in subsequent views. For example, if you dim database servers in the **CI by Type** group and then change to the **Location** group, you cannot highlight database servers in any location.

Tasks by Type and Date

Click the **Tasks by Type & Date** strip to show the tasks by type for the CIs on the map. Clear the check box for a task type to subtract those tasks from the total displayed in the glyph. When the last task on the CI is hidden, the glyph disappears.

Select from these task types:

- **Open Incidents**
- **Open Problems**
- **Open Changes**
- **Open Requests**
- **Audit Tasks**

Select a time period for the task filter from the **Date opened** field.

- **All times**
- **In last 7 days**
- **In last 30 days**
- **In last 90 days**

By default, an orange task glyph on a CI indicates the number of open tasks that are associated with that CI. A red glyph indicates that the CI has reached its task *threshold*. These properties are configurable.

Viewing Map Information Glyphs

When a CI has a service incident or a task associated with it, a glyph appears on the map. You can change the displayed data point for a class of icons in the **Map Properties** page.

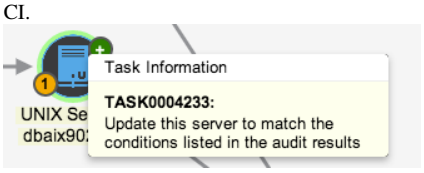
Incidents, or troubles, and tasks share one glyph in the lower left corner of the CI. Each glyph has a color and a symbol. The symbol may be a number that represents a metric or count from other information. The following rules apply:

- If there are tasks but no troubles, the glyph color is orange. The glyph color turns red if the number of tasks reaches the configured threshold (default is 3)
- If there are troubles, with or without tasks, the glyph uses the color set in the Map Indicator module.
- If there are troubles with no tasks, the symbol is an exclamation mark (!)

You can change the color of the glyph in the Map Indicators module.

Note: *For information on how glyphs and color highlighting are used with clusters and collapsed nodes, see Collapsed Elements in a BSM Map.*

The glyphs that appear on the CI icons provide the following information.

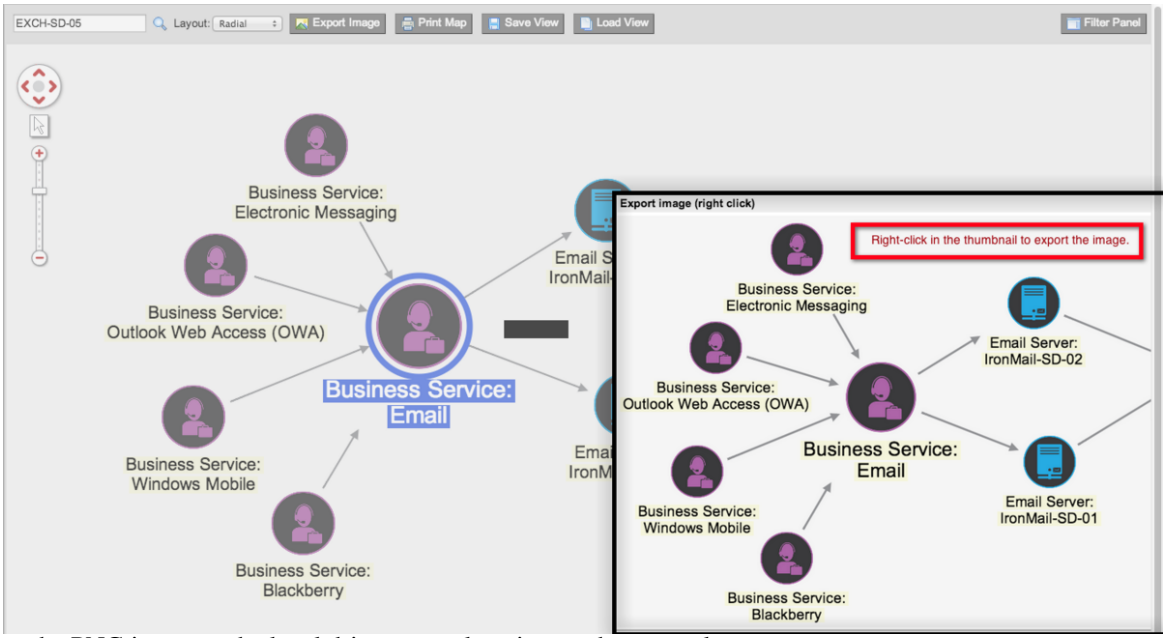
Glyph	Name	Description
	Cluster node	Shows the number of elements in a collapsed cluster node. To expand the node, right-click the CI and select **Expand this** from the context menu.
	Collapsed node	Shows the number of CIs in a collapsed node. To expand the node, right-click the CI and select **Expand this** from the context menu.
	Task threshold exceeded	Appears when the configured threshold for number of tasks is reached. Indicates the total number of tasks associated with the CI. To view the tasks associated with this CI in a pop-up window, right-click the CI and select **Show Related Tasks** from the context menu.
	Task count	Shows the number of open tasks associated with this node. To view the tasks associated with this CI in a pop-up window, right-click the CI and select **Show Related Tasks** from the context menu. Alternatively, point to the glyph to display a pop-up window with detailed information about tasks associated with this CI. 
	Trouble with no tasks	Indicates that there are troubles but no tasks. To view the incidents associated with this CI in a pop-up window, right-click the CI and select **Show Related Outages** from the context menu.
	Add relationship	Creates relationships between CIs. See Managing Relationships in the Map.

Exporting a Map

You can export a BSM map to an image in the PNG format.

1. In the map page, click **Export Image**.

   A thumbnail image of the map appears.
2. Right-click the thumbnail and select **Save Image As**.



3. Save the PNG image to the local drive or to a location on the network.

Managing Relationships in the Map

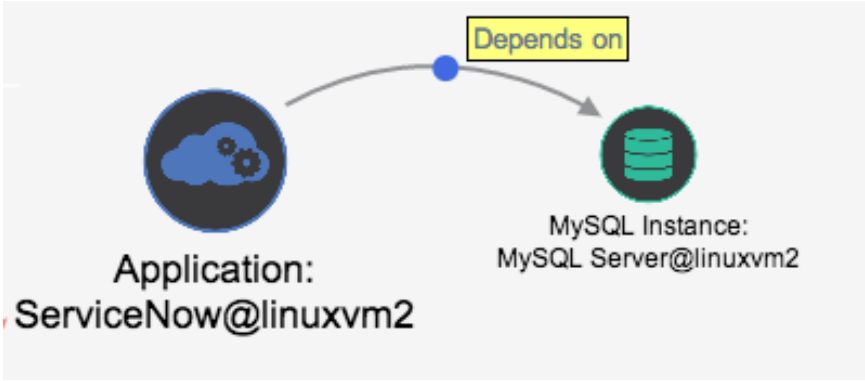
You can create new relationships between CIs in the BSM map. You can also edit or delete existing relationships. All changes to relationships are automatically updated in the CMDB.

Viewing Relationships

To identify a current relationship, point to the relationship link to activate the label.

To make connectors more visible in congested areas of the map:

1. Select the connector.
2. Click and drag the blue spot that appears to make the line curve.



Creating Relationships

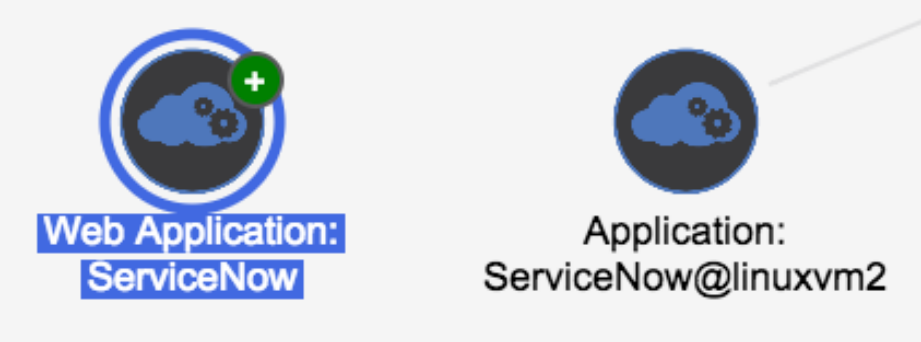
The following rules apply to creating a relationship between nodes on the map:

- You cannot add a relationship to or from a CI if the node is collapsed.
- You cannot create a relationship from a CI to itself.
- You cannot create a relationship between an active node and a dimmed node.
- You can add a relationship to or from a cluster node.

Note: *The BSM map only displays the upstream and downstream relationships from the* root *node selected as the focus of the map. It does not show any direct relationships between a child of the root node and a parent of the root node. If you add such a relationship and redraw the map with the same root node, the relationship line does not appear on the map. However, if you focus the map on a different root node directly upstream or downstream of the new relationship, the connector appears where you created it.*

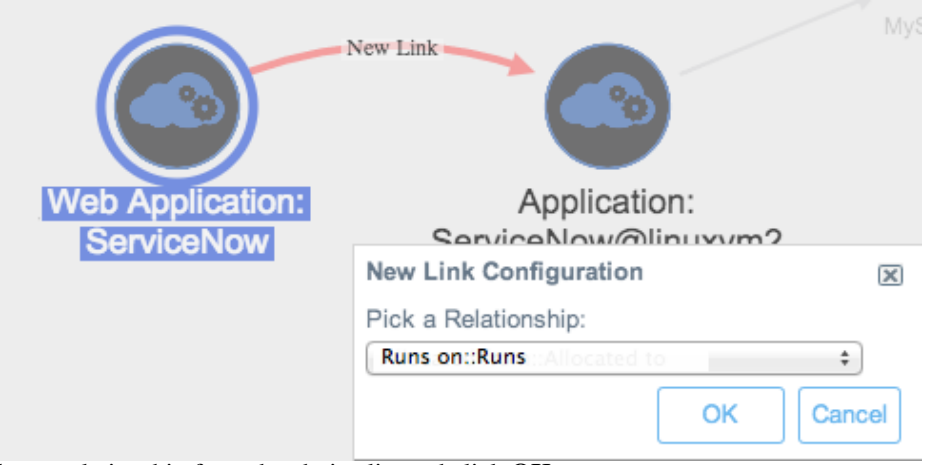
1. Select the CI you want to use as the parent in the relationship.

   The green *plus* glyph appears on the icon for the CI.



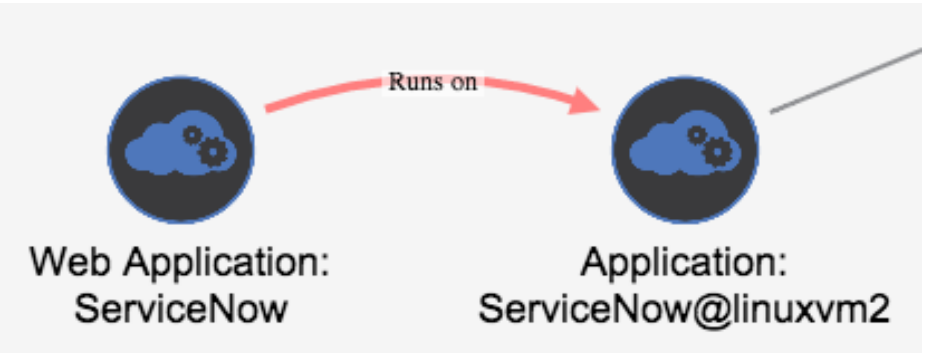
2. Click the plus glyph and drag a new connector to the child CI.

   A link configuration dialog box appears.



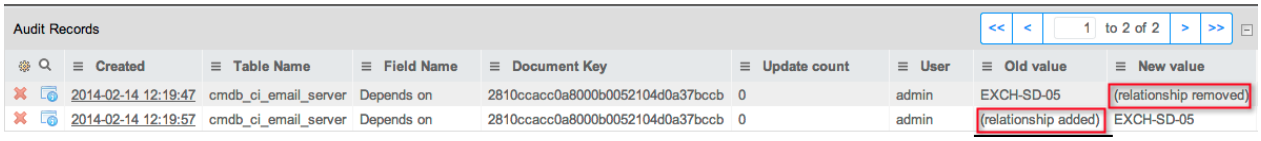
3. Select a relationship from the choice list and click **OK**.

   The map displays the new connector and label.



Viewing Changes to a Relationship

Changes that involve relationships between CIs are automatically recorded in the configuration record for each CI. You can view the changes in the Audit Records section as *relationship removed* or *relationship added*. You may need to configure the form to display the audit records.



To open the configuration record for the CI:

1. Right-click the CI node
2. Select the **View** option on the context menu.

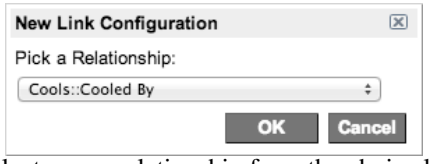
Editing Relationships

You cannot right-click to edit the relationship link if the relationship type is not defined in the CI Relationship Type [cmdb_rel_type] table.

To edit the type of relationship between two CI nodes if the relationship type is defined in the cmdb_rel_type table:

1. Right-click the connector.
2. Select **Edit connection** from the context menu.

   The Edit Link Configuration dialog box appears. The current relationships is selected.



3. Select a new relationship from the choice list.
4. Click **OK**.

Deleting Relationships

Note: *When you delete a relationship between two nodes, the application does not require confirmation. The relationship is immediately removed from the CMDB.*

To delete a relationship, right-click the connector and select **Remove connection** from the context menu.

You cannot delete the relationship if the relationship type is not defined in the CI Relationship Type [cmdb_rel_type] table.

Collapsed Elements

Overview

The ServiceNow BSM map can display clusters and child nodes alongside individual CI nodes. Aspects of the map can differ in these cases, for example the nodes can display in a collapsed format to avoid unnecessary clutter in large maps.

A *cluster* is an organized set of computer CIs that work together as a single system. Each node in the cluster represents a CI, typically a server, that can have referenced hardware, such as disks and network adapters. Clusters are CIs in the Cluster [cmdb_ci_cluster] table and can have tasks assigned to them. ServiceNow automatically collapses all clusters it encounters when it creates a BSM map.

A *collapsed node* collects all the children of a CI that are in the same class into a single node when the number of children in that class exceeds a configurable threshold. Collapsed nodes contain CIs but are not CIs themselves and cannot have tasks assigned to them.

Note: *If you are using a version of the ServiceNow platform other than Eureka, see the related documentation in Business Service Management Map.*

Annotation

Icons for clusters and collapsed nodes are highlighted in blue and display a counter glyph in the upper left that indicates the number of nodes contained in the collection. The system searches through all the component nodes in a cluster CI or collapsed node looking for tasks, outages, and *trouble*, such as incidents, problems, or change requests. This search evaluates only the number of levels that are displayed in the diagram. A glyph appears on the lower left edge of the icon if any tasks, incidents, or outages are associated with nodes in the collection. This glyph displays the number of tasks assigned to nodes within the collection and appears in the color of the highest priority task.

Note: *All incidents, problems, changes, and tasks are displayed in a single list. The system uses map indicators to establish a priority (order number) that determines which task indicator colors are displayed in task glyphs. Outages are displayed in a different list.*

By default, the system automatically updates the map every 30 seconds. To change the refresh interval, navigate to **BSM Maps > Map Properties** and edit the **Seconds between each automatic reloading of troubles and tasks** property. The system also updates changes to the CIs in the map when the map is reloaded.

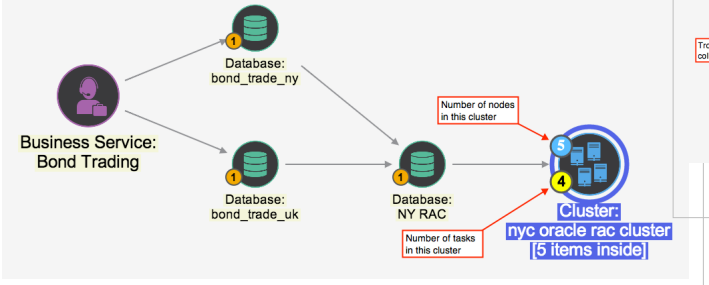
Viewing Collapsed Objects

To expand a cluster or collapsed node, right-click the icon and select **Expand this** from the context menu. To collapse a cluster or a node with children, click **Collapse** in the map header bar.

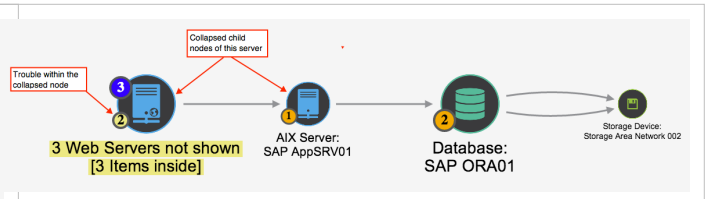
The following behaviors apply to collapsible nodes:

- The collapse option only collapses the most recently expanded node.
- The map view retains the last filter settings when the collection is collapsed.
- If the cluster itself contains tasks, the count that displays in the task glyph includes the total count for tasks on the cluster CI. The color of the glyph is the color of the highest priority task in the cluster.
- When a cluster is expanded, the counter glyph disappears.
- If the cluster CI has no tasks associated with it, the task glyph disappears.

- When a collapsed node is expanded, the icon disappears until you collapse the nodes again.



Collapsed cluster node with tasks



Collapsed node with trouble

Default Map Indicators

You can configure the color and order number for tasks, outages, and troubles, such as incidents, in the Map Indicators module. The order number establishes priority when the system displays indicators for multiple tasks.

Tasks

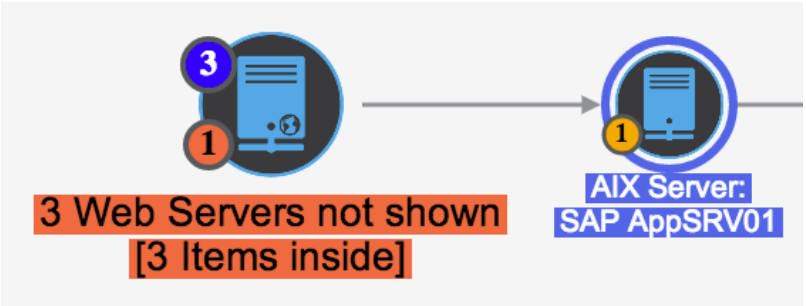
A collapsed collection with tasks assigned to its nodes displays an orange glyph. If the total number of tasks within the collection meets or exceeds the configured maximum in the threshold property, the glyph color is red. These colors are not configurable.

Outages

A collapsed collection indicates when its nodes have current, planned, or past outages. In the default configuration, the color for any outage is red, and current and planned outages have the highest priority. Next in priority are incidents and problems, which means their configured color displays over past outages. Outages are not included in the activity count shown in the task glyph.

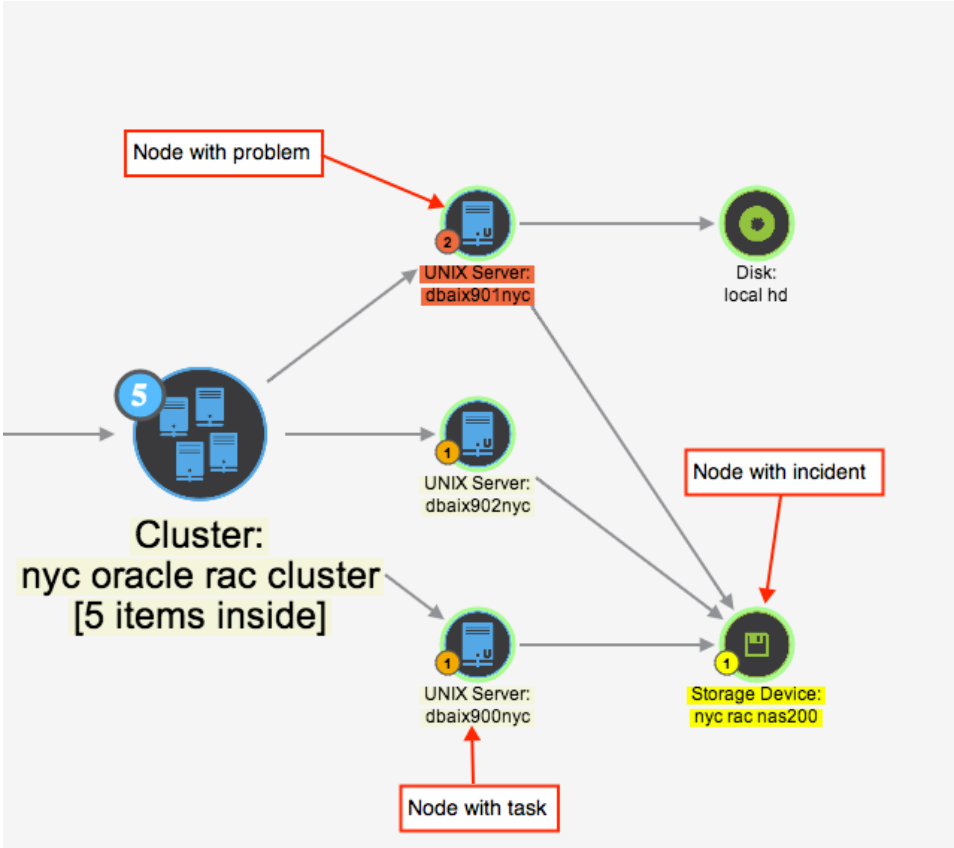
To manage when past outages appear for a CI:

1. Navigate to **BSM Map > Map Indicators**.
2. Click the reference icon for the **outage_past** indicator.
3. In the outage record, configure one of the following:
   - Clear the **Active** check box. This prevents past outages from displaying on the BSM map at any time.
   - Edit the condition statement to limit the length of time past outages display on the map.
4. Click **Update**.



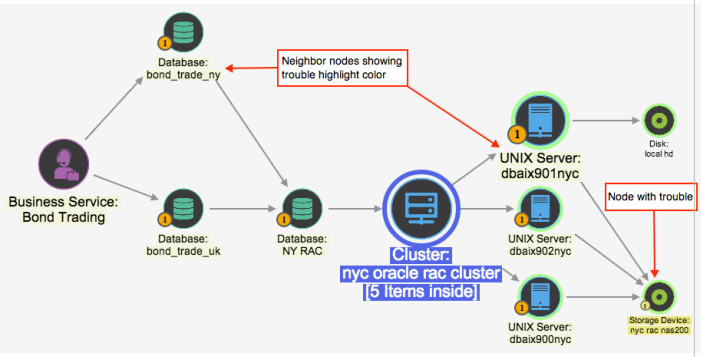
Troubles

If the collapsed collection contains one node with trouble, the system displays a glyph in the color defined for that map indicator. If there are multiple trouble records, the glyph shows the color of the indicator with the lowest order number. For example, in a default configuration, if there are incidents and problems within the collection, the glyph uses the map indicator color for incidents, which has a lower order number than problems. If the nodes in the collection have a problem, a change request, and some tasks, the glyph shows the color of the problem, which has a lower order number than the others.

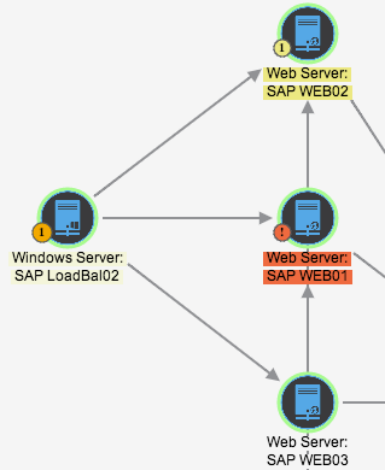


Component Nodes

An expanded collection shows all nodes that satisfy the level depth configured for the map. Node icons show glyphs for tasks, trouble, or outages associated with them, and neighbor nodes affected by trouble are highlighted in the appropriate affected node color. The cluster node itself is not displayed after you expand it.

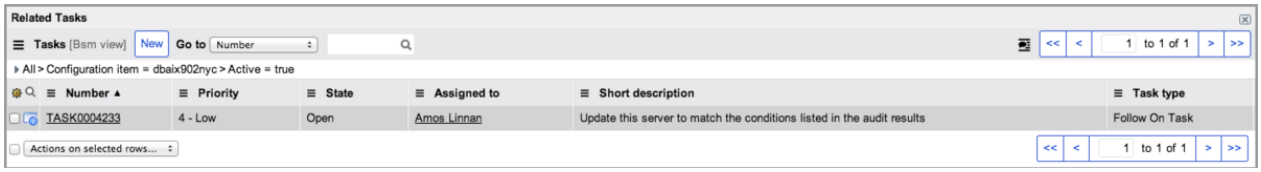


Expanded cluster with trouble in nodes



Expanded nodes with an outage

Click the task number to display the list of task records associated with that node.



When a node has an incident or an outage associated with it, all the nodes that are dependent on that node are considered affected nodes. The dependent nodes inside and outside the cluster display the configured neighbor node trouble coloration. You can change the color of an affected node.

BSM Map for Versions Prior to Eureka

BSM Map - Versions Prior to Eureka

Note: *This article applies to Fuji. For more current information, see Service Mapping* [1] *at* http://docs.servicenow.com The Wiki page is no longer being updated. Please refer to http://docs.servicenow.com for the latest product documentation.

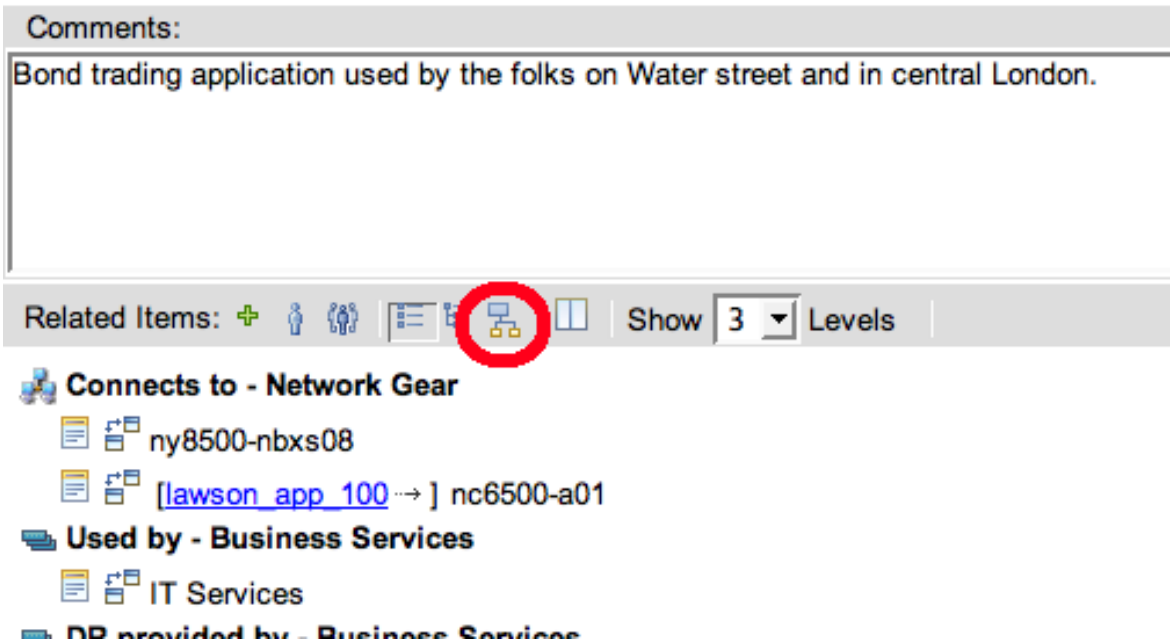
Overview

A business service is a service, such as the delivery of email to employees of an organization, that is supported by an IT infrastructure. The delivery of email, for example, requires IT services such as exchange servers and Web servers. A Business Service Management (BSM) map graphically displays the configuration items (CI) that support a business service and indicates the status of those configuration items. The status is refreshed automatically.

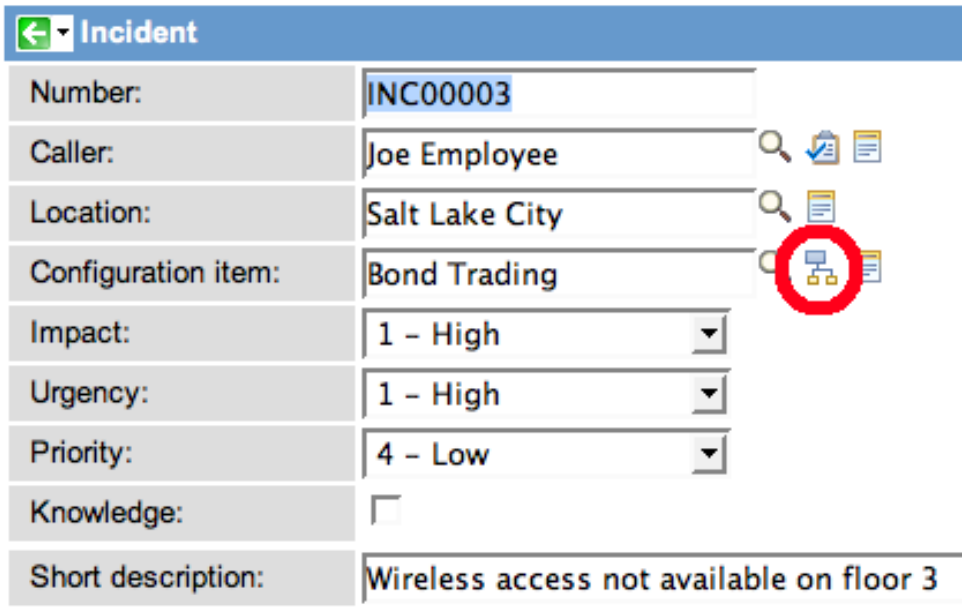
Accessing Business Service Maps

To display a business service map:

- Navigate to *BSM Maps* > *View Map*, then enter the name of a CI in the CI reference picker at the top left corner of the map window.
- Navigate to *Configuration* > *Business Services*, select a record from the list, and click the *BSM view* icon.



- Open an incident, problem, or change request and click the *Show CI map* icon next to the configuration item.



Using a Map

BSM maps are similar to an organizational chart - there is only one starting point. A BSM map never has multiple starting points. After the starting point, information goes upstream and downstream with BSM maps commonly showing the downstream relationships of a parent CI.

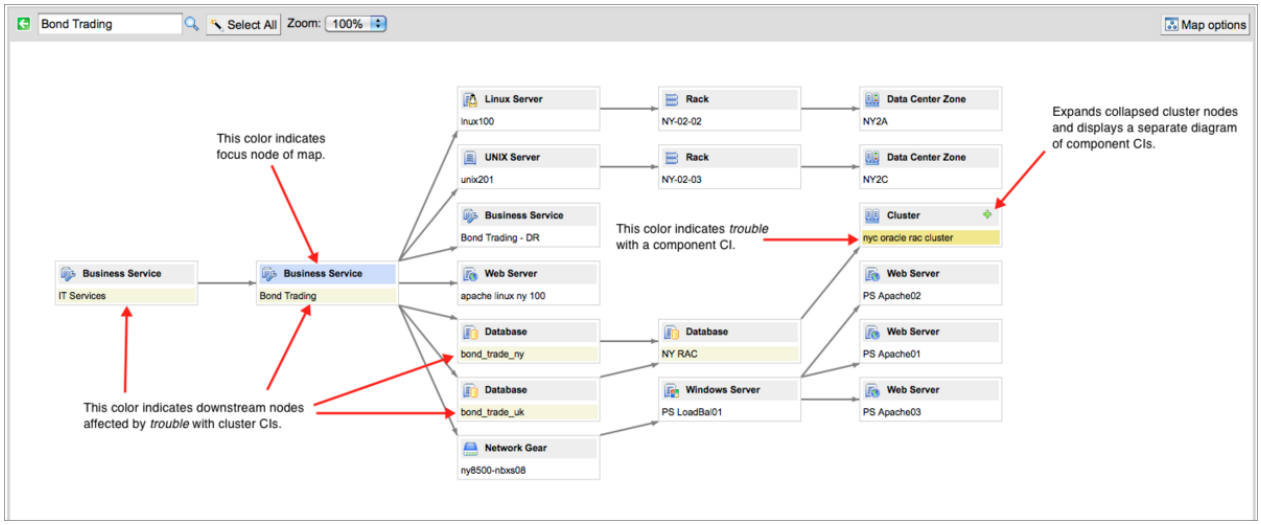
Relationships have a parent and child. For relationships, BSMs only show what is upstream from the focused CI (the CI named in the upper-left corner of the BSM map).

Note: Upstream relationships for other CIs that occur to the right of the focused CI in the BSM map are not displayed. Doing so could result in a very large map with multiple starting points.

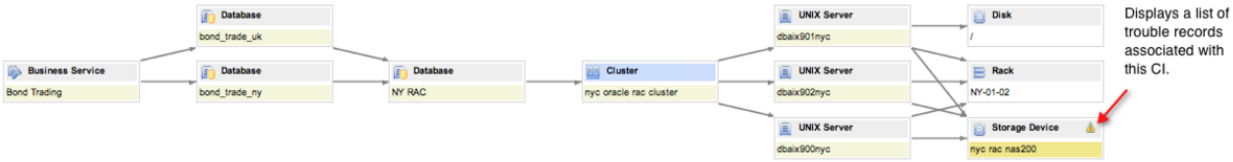
BSM maps only show related items that are downstream from the CIs displayed. For example, if a cmdb_ci_computer is shown on the BSM map and a cmdb_ci_disk has a reference to that same cmdb_ci_computer, cmdb_ci_disk will show on the BSM map as well (the default behavior is that there is an active "related items" record). The upstream direction is not checked for related items.

In a BSM map, icons and color-coding for nodes enable an administrator to follow CI relationships, determine where issues exist, and access CI *trouble* records directly. Different colors are used to tag clusters and CI nodes that have incidents, problems, or outages associated with them, and to indicate which nodes downstream are affected by the trouble. Use the icons on a node to expand and collapse the node and to open the trouble records associated with that node. Use the control bar in the map to switch the map view, adjust the perspective, move the diagram, or change the update interval.

The first level of a map with a collapsed cluster showing trouble might look like this:



An expanded cluster node shows a detailed diagram, upstream and downstream, of the component CIs and provides access to the related issues through distinct icons.



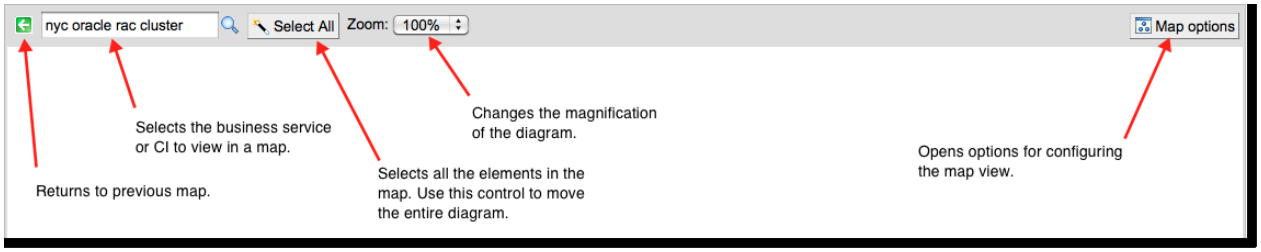
Icon Actions

Hover the cursor over the icon in the map to display the name of the map action in a tooltip. The icon Map Actions in the out-of-box system are:

- **Expand CIs with issues**: Expands a CI node to which issues (incidents, change requests, or outage records) are associated. This icon is not associated with clusters.
- **Expand**: Expands collapsed nodes.
- **Collapse**: Collapses expanded nodes.
- **Show Related Issues**: Shows the related issues (incidents, change requests, or outage reports) for a CI.
- **Cluster Diagram**: Displays a diagram for a cluster node.
- **Show Related Outages**: Shows a list of outage records for a CI.
- **Show Affected CIs**: Displays a list of tasks associated with a specific CI node. In this action, the node has been identified as an **Affected CI** in a task record, such as an incident.

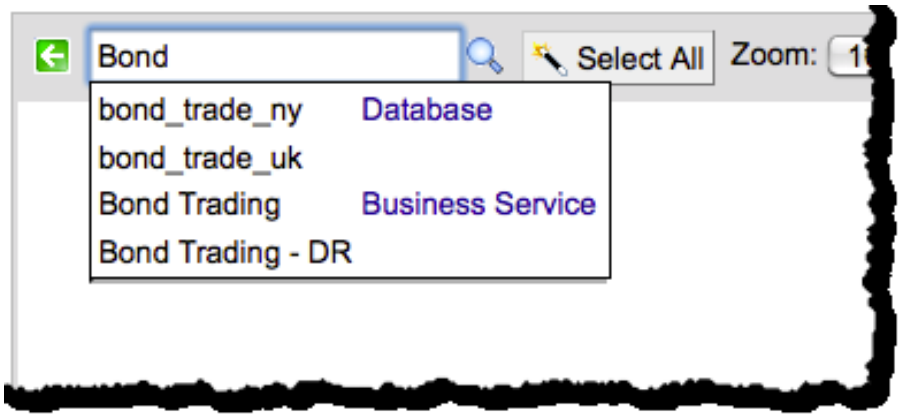
Map Controls

Use map controls to adjust the view of the map, move between maps, or change the presentation options.



CI Reference Picker

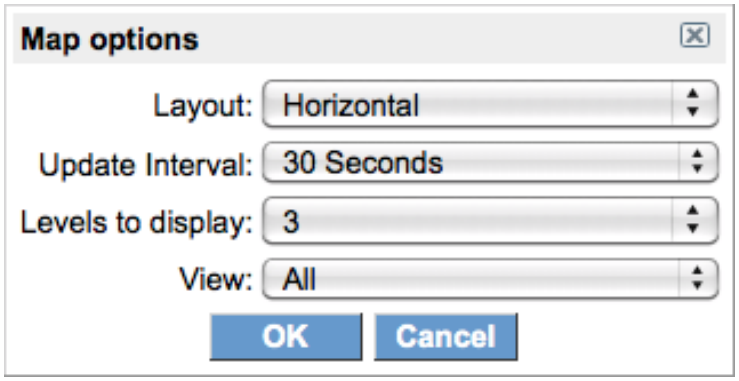
The CI reference picker enables users to open a map for any CI in the system. Select a CI from the choice list or start typing, and the auto-complete feature in the field presents a list of CIs that match your partial value.



Map Options

To access options for a map, click **Map options** in the upper right corner of the map. The following map elements are configurable:

- **Layout**: Select either a horizontal or vertical layout to present the map in a more appropriate format.
- **Update Interval**: Select the frequency with which the trouble detection is refreshed on the map. The default is 30 seconds.
- **Levels to Display**: Configure the number of levels of configuration items (CI) to display below the selected business service.
- **View**: Define custom views of the map. For details, see Creating a Business Service Map View.



Map Administration

To administer Business Service Maps, see the following pages:

- **Map Indicators**: Map Indicators enable administrators to define records from specific tables as trouble sources for business service CIs.
- **Map Actions**: *Map actions* in a Business Service Map contain scripts that define icons and context menu options that might appear on map nodes if those nodes meet specific conditions.
- **Clusters**: Cluster configuration items (CI) are rendered as a single node in a primary Business Service Map to avoid adding unnecessary complexity to the diagram. A link on the cluster node to a cluster diagram provides a view of the component parts of the cluster. The cluster diagram also displays CIs that do not have a relationship record, but are related to other CIs by **reference fields**.

- **Map Views and Filters**: Create different filtered map views that restrict the information displayed to users. This allows for specific, reusable views of the configuration items in the database.
- **Map Related Items**: Enables an administrator to relate referenced CIs to one another, which allows them be displayed in Business Service Maps.

Properties

To set BSM properties, navigate to **BSM Map > Map Properties**. Hover over a property to display its internal name.

Property	Description	Default
glide.bsm.children_to_display	Number of child nodes to display when the parent CI has too many children according to the property glide.bsm.too_many_children.	0
glide.bsm.collapse_node_color	Color used for collapsed node when too many children exist for parent CI:	#008B8B
glide.bsm.collapse_node_style	Style to use for the text of the collapsed node when too many children exist for parent CI.	Bold / Italic
glide.bsm.color.affect_neighbors	Color of an affect neighbor node:	beige
glide.bsm.map_picker.columns	Additional columns for the BSM Map CI picker that appears at the top of the map. Choose fields in the cmdb_ci table. Must be semicolon separated.	sys_class_name
glide.bsm.map_picker.order_by	Ordering for the BSM Map CI picker that appears at the top of the map. Choose fields in the cmdb_ci table.	sys_class_name
glide.bsm.max_nodes	Maximum number of CI's to display on a map at once:	1000
glide.bsm.max_to_expand	Maximum number of collapsed nodes to expand at one time:	100
glide.bsm.min_to_collapse	Collapse child nodes once the number of child nodes is greater than:	0
glide.bsm.new_node_color	Color for recently expanded nodes:	#99FF99
glide.bsm.too_many_children	Maximum number of child nodes to display (the rest will be collapsed):	10

BSM Map Views and Filters - Versions Prior to Eureka

Overview

When viewing the business service management (BSM) map, it is possible to create different filtered map views, to restrict the displayed information. This allows for specific, reusable views of the configuration items in the database. These views are defined on a map view record, which can filter based on configuration classes, or based on the condition builder.

Note: *If you are using the Eureka or later version of the ServiceNow platform, see the related documentation in Business Service Management Map.*

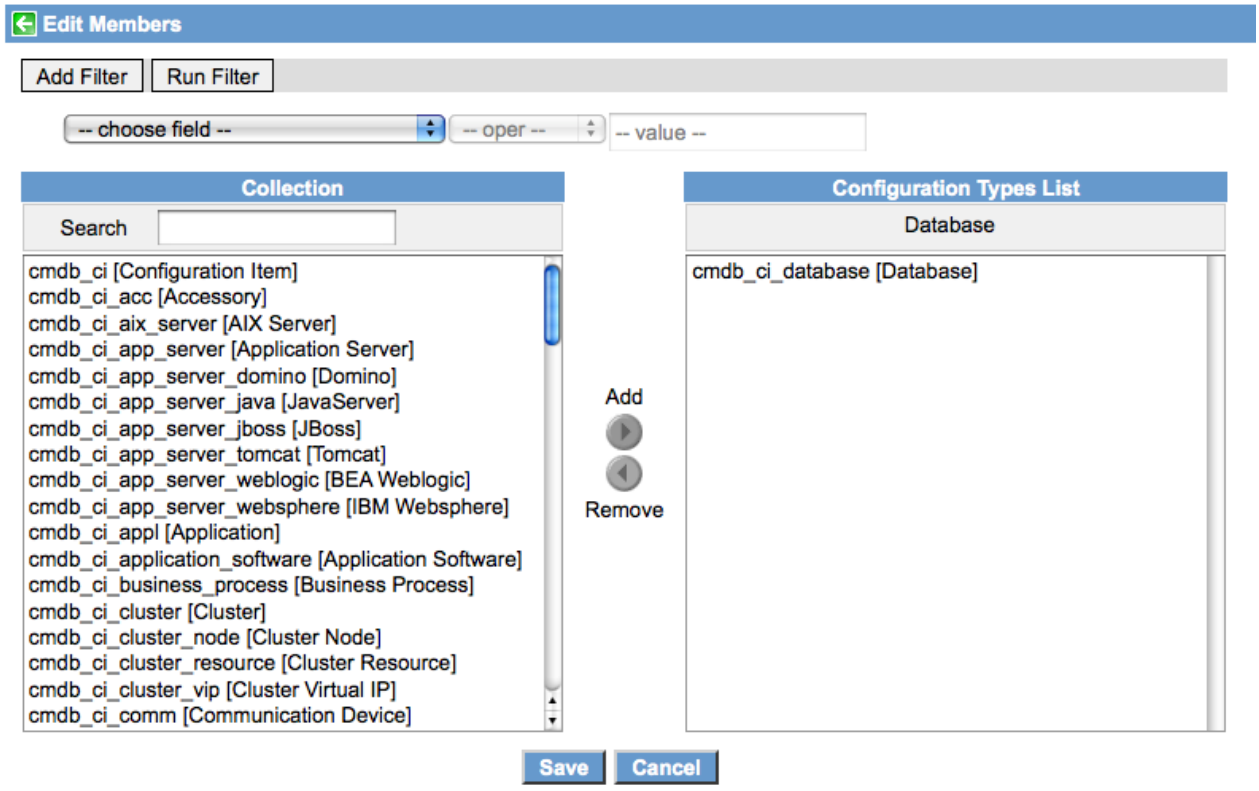
Creating a BSM Map View

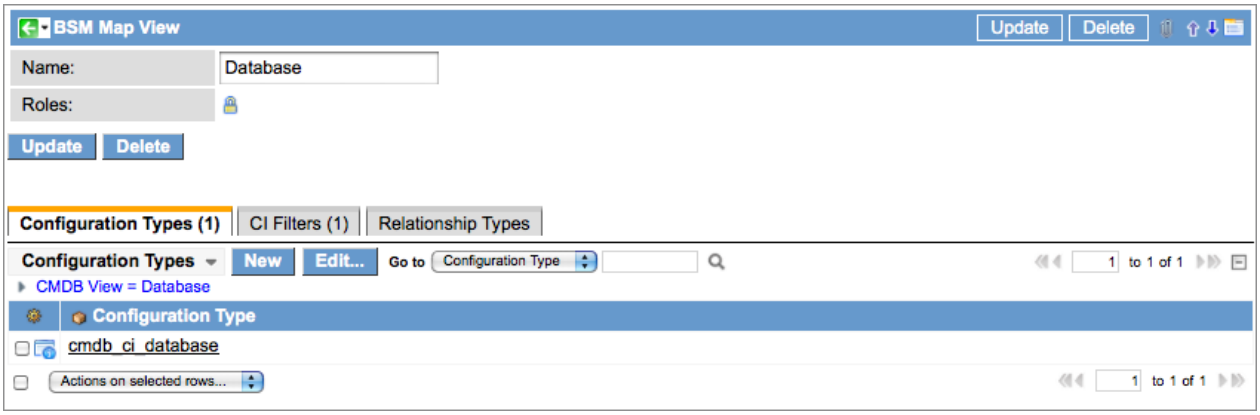
1. Navigate to **BSM Map > Map Views**.
2. Create a new record.
3. Name the BSM map view and assign roles.
4. Right-click the header bar and click **Save**.
5. Add either configuration types and/or CI filters as appropriate (see below for details).
6. Save.

Note: *Deleting the BSM Map deletes the associated Map Filters.*

Using Configuration Types

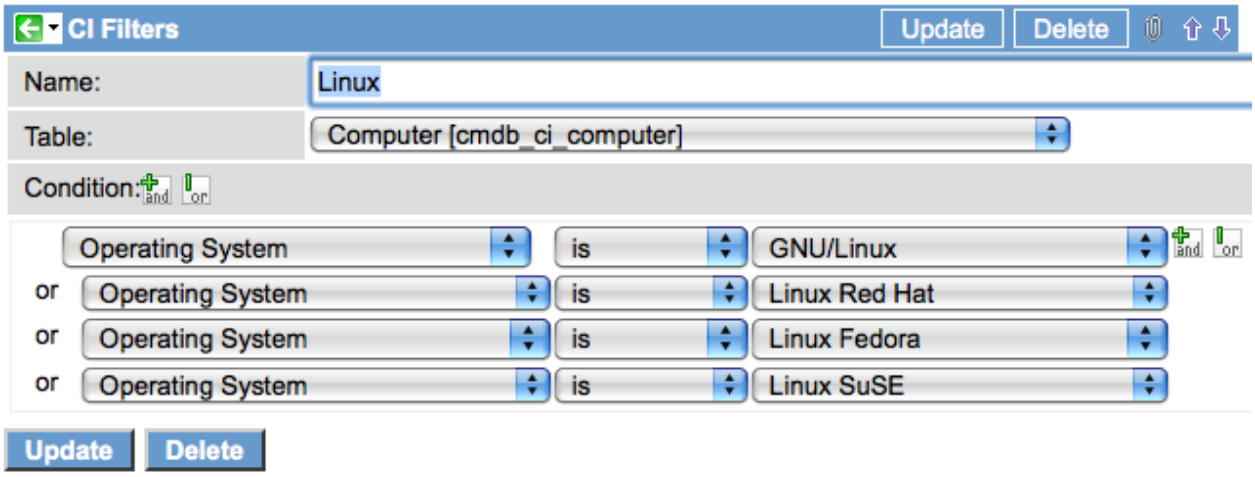
Filtering by configuration types allows quick access to a view of the BSM map by the CI types. Simply add the desired class or classes to the related list by clicking **Edit**. The following images create a sample view of databases, using the CI class Database.

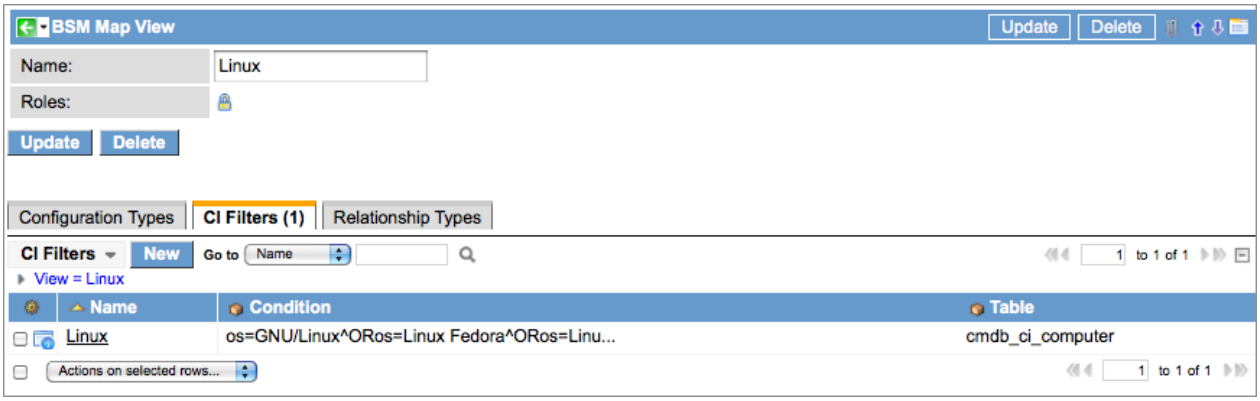




Using CI Filters

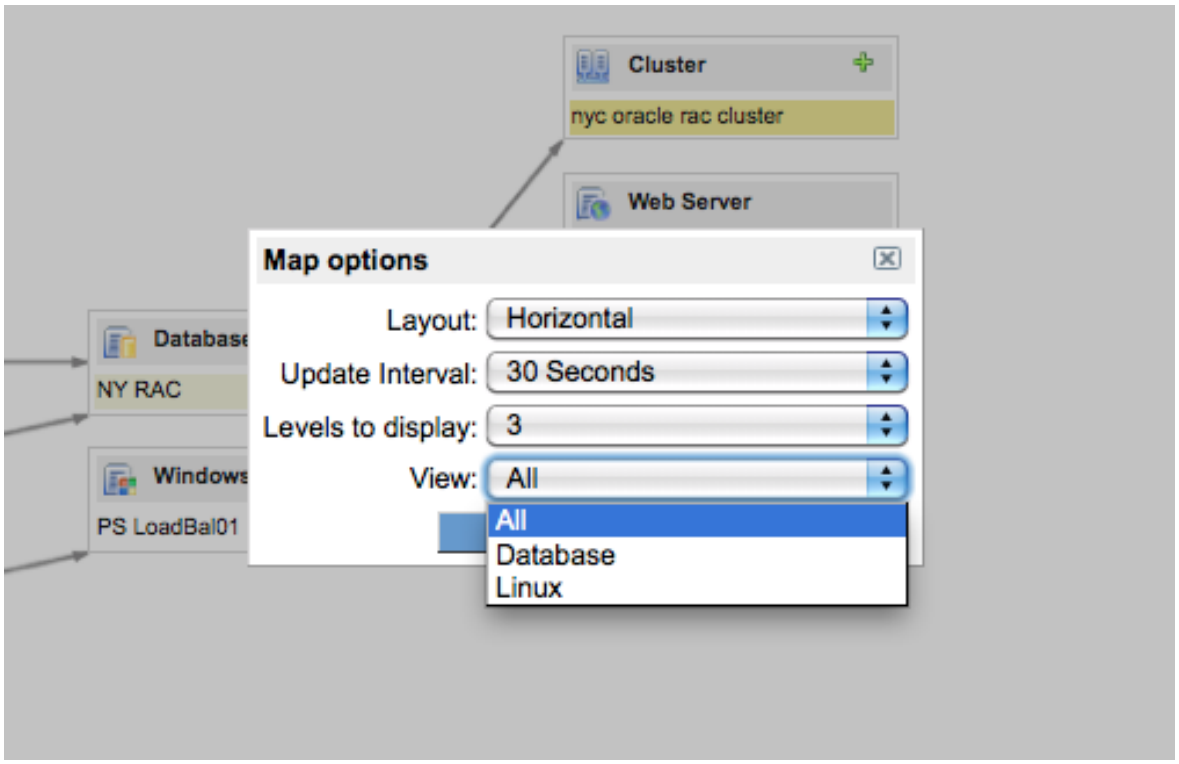
Create a new filter by clicking **New** and specifying the table and conditions. The following example is a CI filter for computers with Linux operating systems.





Switching BSM Views

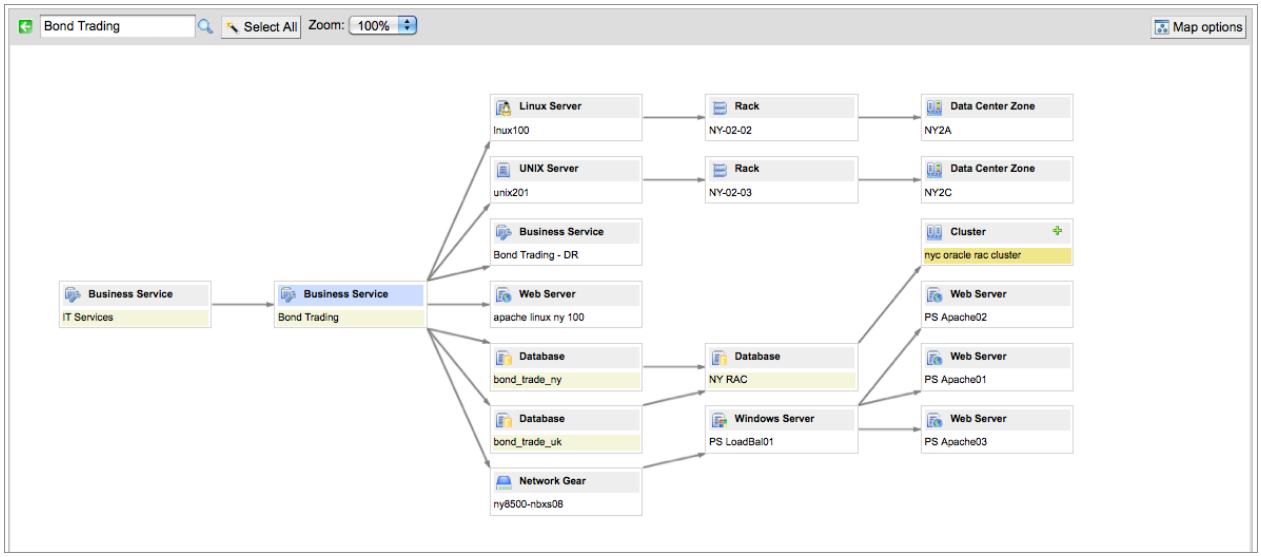
1. Select **BSM Map > Map Options**.
2. In the **View** field, select a view.



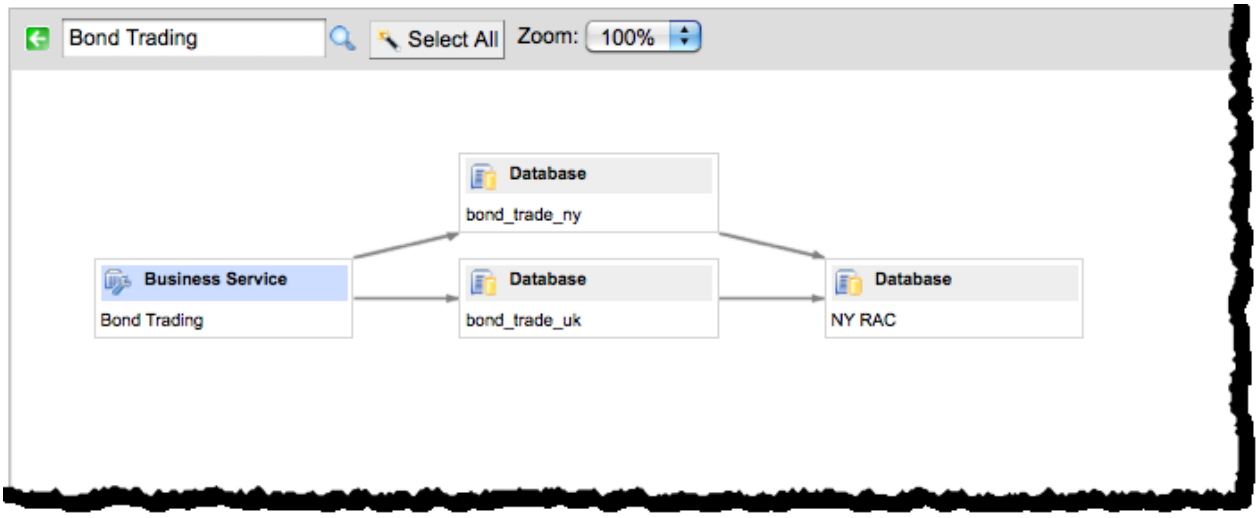
The map is now filtered based on the view.

Example

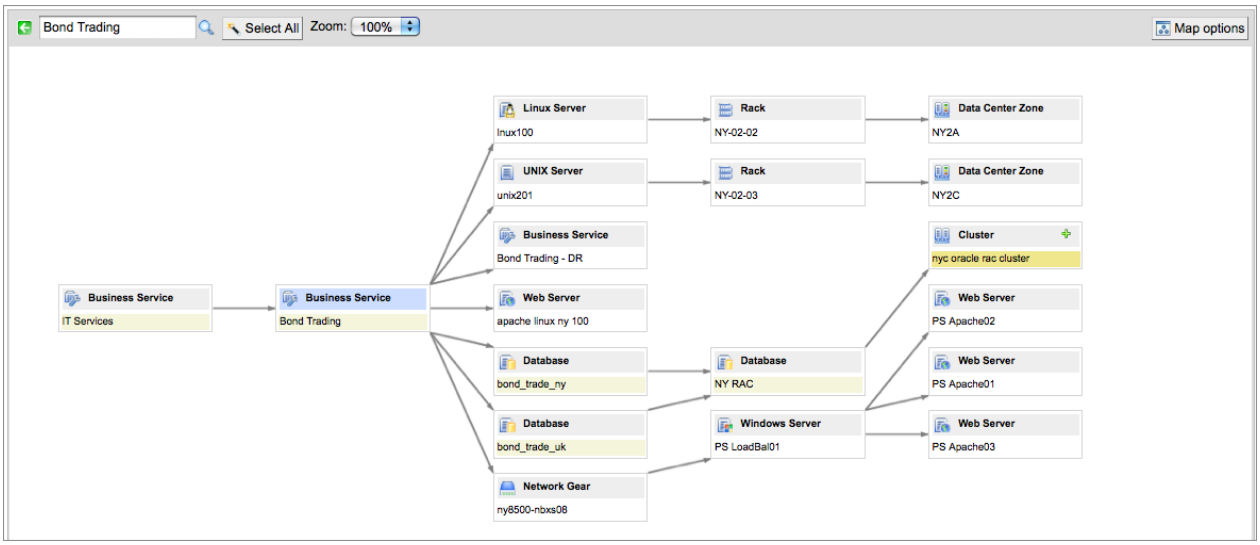
This is the demo Bond Trading business service:



This is the same business service viewed using the Database view:



And this is the same business service viewed using the Linux view:



Setting the Default BSM View

You can set a custom BSM map view as the default for viewing a BSM map.

1. Create the custom BSM map view to be used as the default.
2. Right-click the header bar and copy the sys_id value for this map view.
3. Navigate to **User Administration > User Preferences**.
4. Click **New** and create a new user preference record with these values:

   Name: *ecmdb.ciview*

   Type: *string*

   Value: sys_id of the custom BSM map view

   User: leave blank to create a system-wide setting

   Description: description of the BSM map view

   System: selected
5. Click **Submit**.

The new BSM map view now appears by default. To verify, log out and then log in again. Navigate to a BSM map to see the new view.

BSM Map Clusters - Versions Prior to Eureka

Overview

Cluster configuration items (CI) are rendered as a single node in a primary Business Service Map to avoid adding unnecessary complexity to the diagram. An icon on the cluster node links to a cluster map that provides a view of the component parts of the cluster. Neighboring nodes within the cluster map that are affected by any *trouble* (incidents, changes, outages) upstream display a configurable coloration. Related CI nodes in the primary map track *passed up trouble* from the cluster node using the same colors. The cluster map also displays CIs that do not have a relationship record, but are related to other CIs by reference fields. See BSM Map Related Items for details.

Note: *If you are using the Eureka or later version of the ServiceNow platform, see the related documentation in Business Service Management Map.*

Cluster Configuration Items (CI)

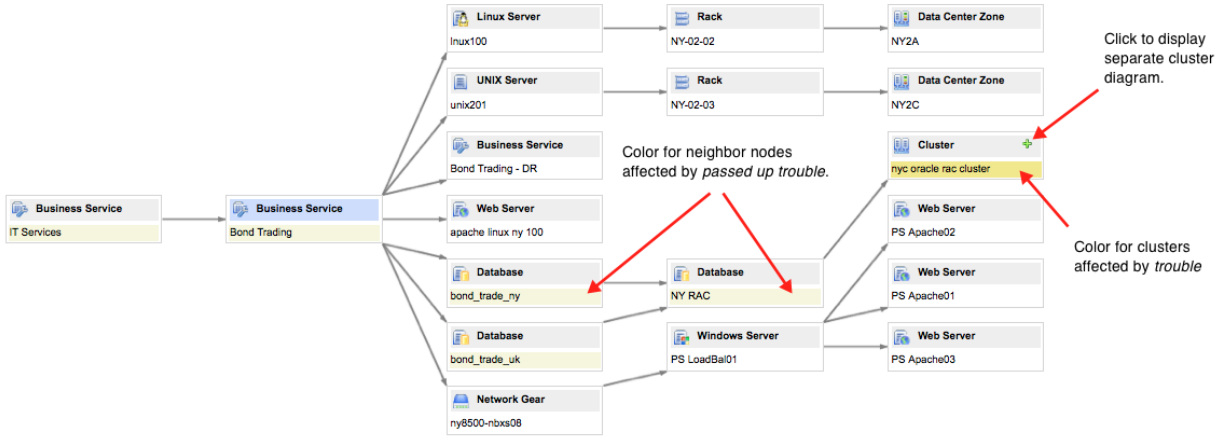
A cluster is a CI that is of type *cmdb_ci_cluster* or a type that extends this table, such as *cmdb_ci_win_cluster*. To view cluster CIs, navigate to *Configuration* > *Clusters*. Locate nodes within the cluster by checking the **Cluster Nodes** Related List on a cluster record. Cluster nodes are CIs of type *cmdb_ci_cluster_node* or a type that extends this table. Each Cluster Node has a **Server** field that indicates the server for that node. Servers are CIs of type *cmdb_ci_server* or a type that extends this table. Server CIs can have various Related Lists for associated hardware, such as **Disks** or **Network Adapters**. Discovery does not create relationship records for disks and network adapters, which are related to server CIs only by a reference field. If the Related Lists for hardware are not present on the server record, add them to the form.

Cluster Trouble Annotation

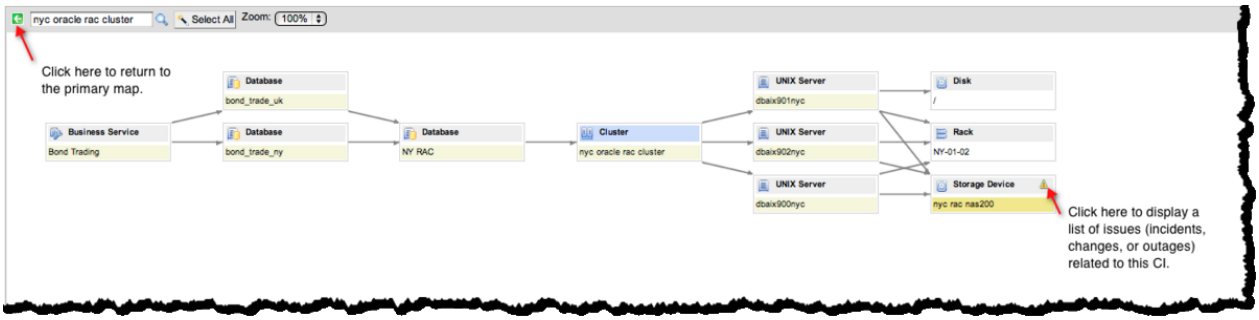
The platform searches through all the component nodes in a cluster CI looking for *trouble*. This trace searches only the number of levels that are displayed in the diagram. If trouble is found within a cluster component, the cluster CI on the diagram displays the trouble coloration, and its *neighbor nodes* on the diagram display the configured *passed up trouble* coloration. To configure the coloration for neighbor nodes affected by trouble in a cluster CI, update the appropriate property in *BSM Map* > *Map Properties*. To configure the trouble coloration for a node, see Map Indicator Record.

Cluster Diagrams

Clusters in a BSM appear with a green plus (**+**) icon in the upper right corner of the node. Click this icon to display the cluster diagram showing the component detail and to access any *trouble* records. Track affected CIs visually with the *trouble coloration*, which is configured for neighbor nodes in *BSM > Map Properties*.



Use Map Action icons to collapse or expand cluster nodes or display a related (*trouble*) issue for a specific CI.



Trouble lists and records open in the browser window and provide full access to the data in the record. When you are through with the issue record, click the green arrow in the upper left corner to return to the list of issues, or click the **X** in the upper right corner to close the pane and return to the map.

BSM Map Indicators - Versions Prior to Eureka

Overview

Map Indicators enable administrators to define records from specific tables as *trouble* sources for CIs in **Business Service Management (BSM) Maps**. The administrator then configures **Map Actions** to display trouble records for CI nodes using these indicators. The base system defines records from the following tables as *trouble*:

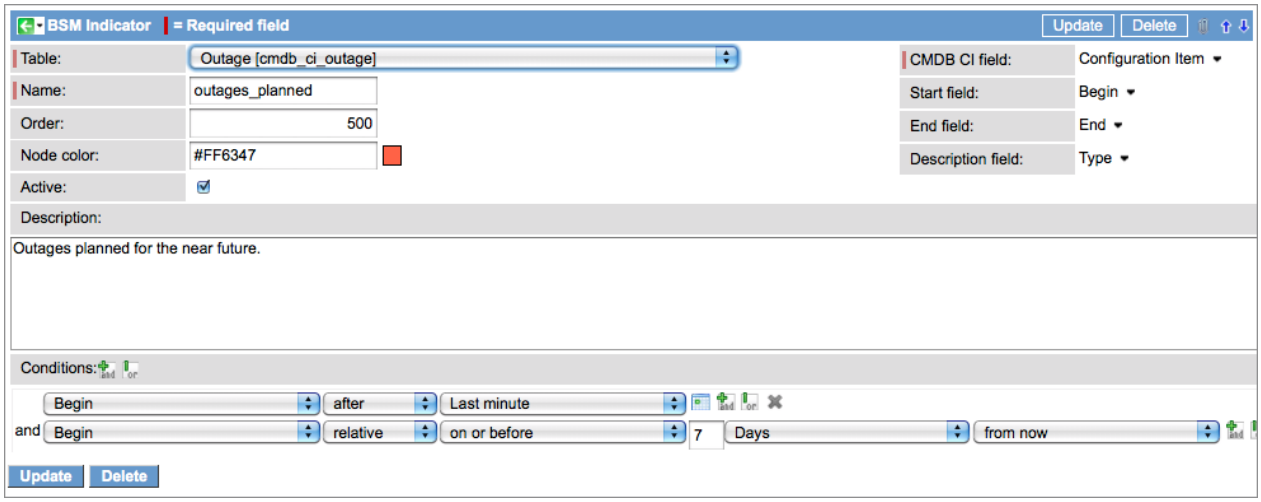
- *incident*
- *problem*
- *change_request* (past, current, planned)
- *cmdb_ci_outage* (past, current, planned)
- *task_ci*

Note: *If you are using the Eureka or later version of the ServiceNow platform, see current information in Business Service Management Map.*

Map Indicator Record

Only records from the tables listed in the previous section are configured as indicators in the base system. To create Map Actions for records for any other table, create a custom Map Indicator record for that table. For an example of how a custom Map Indicator is used to define *trouble* for a Map Action, see How it Works Together. The Map Indicator record provides the following fields:

Field	Description
Table	Select the table that is the source of the *trouble* for this indicator.
Name	Select a unique and descriptive name for this indicator. This is important if you are using the same table for more than one indicator, such as using the *Outage* table for planned and unplanned outages. Do not include spaces in the name.
Order	This value determines the order in which the indicators are evaluated.
Node Color	Enter the name of the color to display on a node when this type of *trouble* is detected. This field accepts CSS color declarations, including hexidecimal and RGB notation.
CMDB CI field	Select the field in this table that identifies the CI experiencing the *trouble*. In most cases, the only available field in the tree picker is **Configuration item**.
Start field	Select the appropriate date/time field for the starting point of the *trouble* for this indicator. The tree picker displays only fields of the appropriate data type from the selected table. This data is not displayed on a map, but is used in the *issues pop-up* in the **tree view** of configuration items related to a Business Service.
End field	Select a date/time field for the end point of the *trouble* for this indicator. The tree picker displays only fields of the appropriate data type from the selected table. This data is not displayed on a map, but is used in the *issues pop-up* in the **tree view** of configuration items related to a Business Service.
Description field	Select the appropriate field for a description of this *trouble*. The tree picker displays only fields of the appropriate data type from the selected table. This data is not displayed on a map, but is used in the *issues pop-up* in the **tree view** of configuration items related to a Business Service.
Description	Type a brief description of this indicator.
Conditions	Define the conditions under which records from the selected table are applied to this indicator as *trouble*. For example, planned outages require conditions that describe a start time in the future.



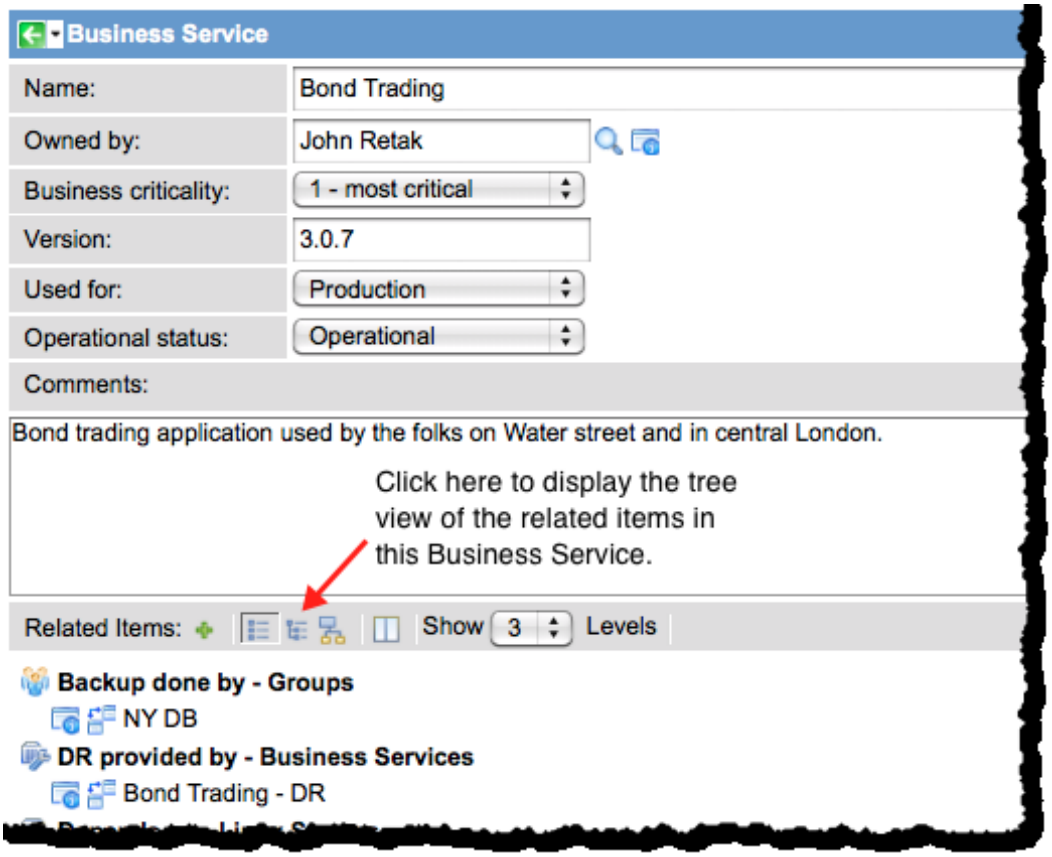
Viewing Additional Trouble Data

The following data from issues affecting a Business Service can be viewed only in the tree view of **related items** in the Business Service record:

- Start field
- End field
- Description field

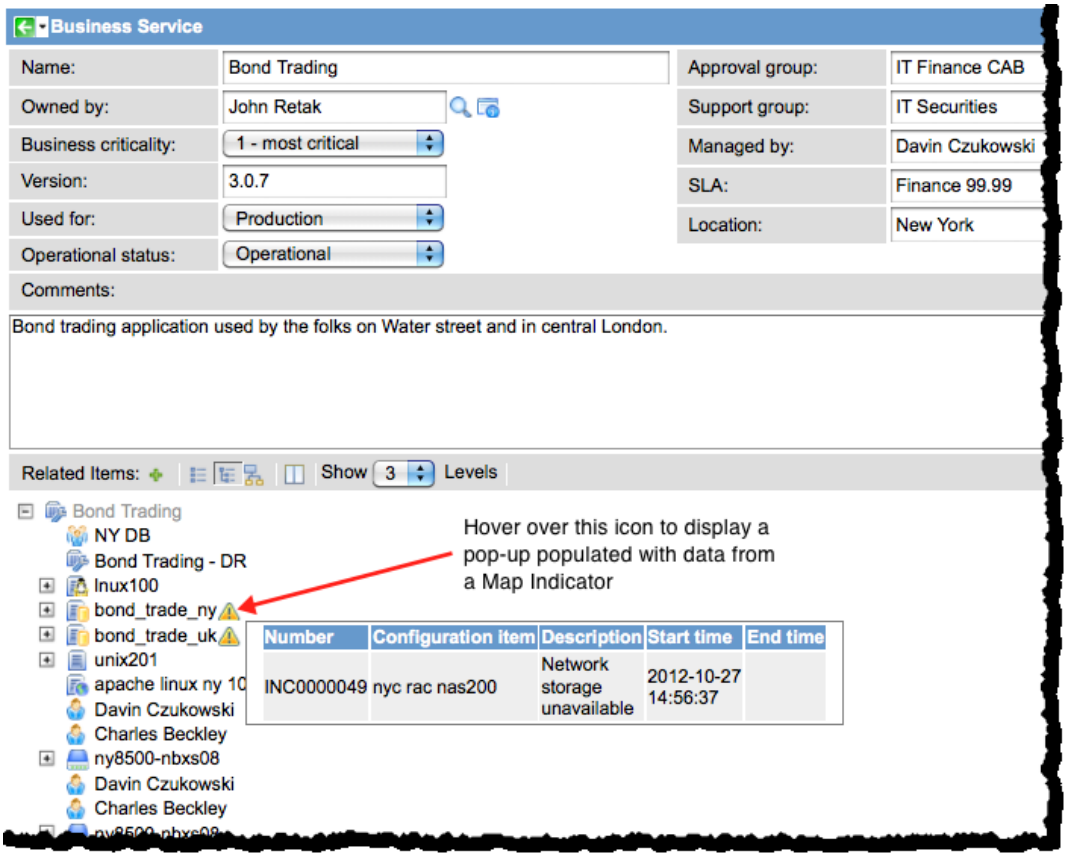
To view this data, switch the view from the **Flat view** to the **Tree view**:

1. Navigate to *Configuration* > *Business Services* and select a record to view.
2. In the Business Service record, click the **Tree view** icon in the Related Items toobar.



The tree view of related configuration items in this Business Service appears. Items experiencing *trouble* are marked with warning icons (⚠).

3. Hover the cursor over a warning icon to display the issue popup containing data configured in Map Indicators.



BSM Map Actions - Versions Prior to Eureka

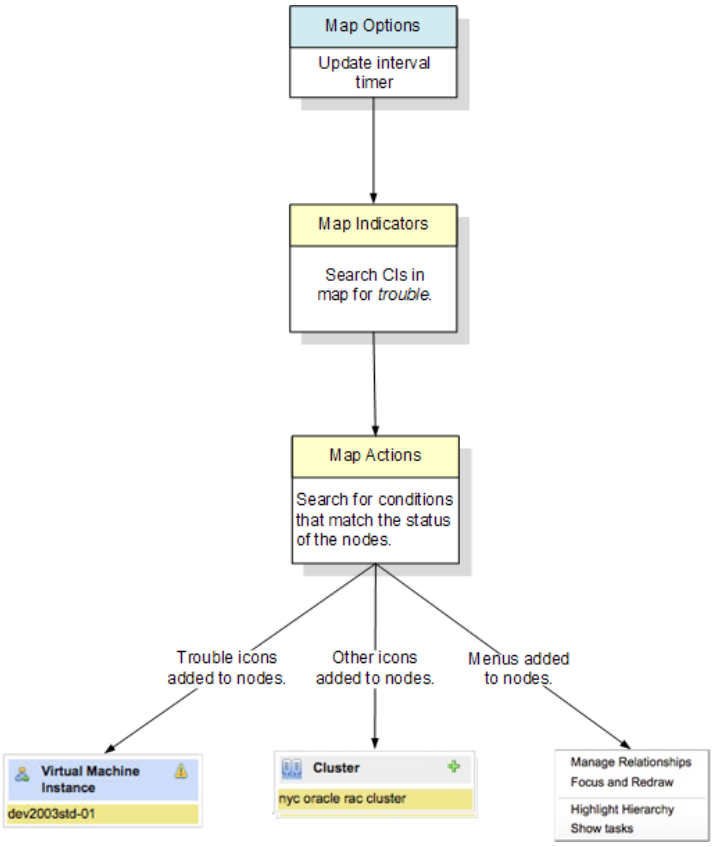
Overview

Map actions in a **Business Service Map** contain scripts that define icons and context menu options that might appear on map nodes if those nodes meet the conditions specified by the Map Action. Icons can indicate *trouble* or other states such as collapsed nodes and clusters. Records that qualify as *trouble* are defined by **Map Indicators**. To access map actions, navigate to *BSM Maps* > *Map Actions*.

Note: *If you are using the Eureka or later version of the ServiceNow platform, see the related documentation in Business Service Management Map.*

How Map Actions Work

The system uses Map Action conditions to determine which menus options and icons to display on nodes in Business Service Maps. Map Actions are applied when a map is first displayed or when it is updated by the system using the **Update interval** timer in the Map Option dialog box.



Using Map Indicators

Map Indicators determine which issues are considered trouble records. When the map is drawn, the following processing occurs:

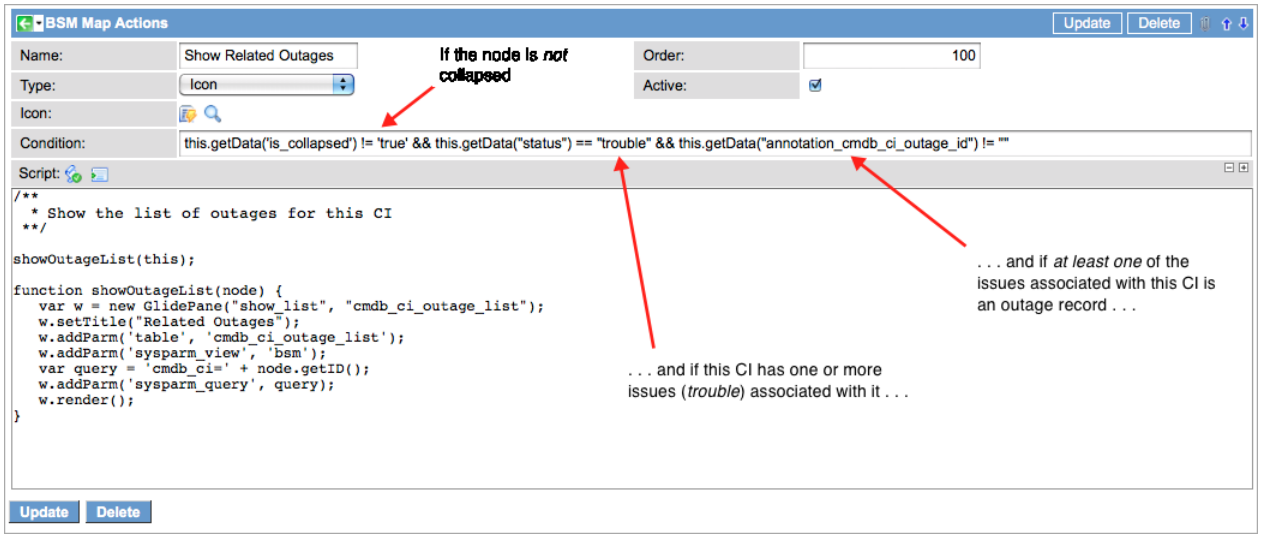
- Map Indicators set the **status** of the node to **trouble** (*this.getData("status") == "trouble"*).
- Map Indicators set the *annotations* in the map nodes (*this.getData("annotation_<table>_id") != ""*). Annotations gather the IDs of all the records that are associated with the node.
- The appropriate Map Actions are applied to the map nodes.

Map Action Fields

The Map Action form provides the following fields:

Field	Description
Name	Descriptive name that appears as a menu option or in the tooltip for an icon.
Type	Determines how the action is used - as an icon, a menu option, or a menu separator.
Icon	Select the icon image to display for a map action.
Condition	Specifies under which conditions the action in this record is available. The node is referenced in the condition by **this** in the parameter **this.getData()**.
Order	Defines the processing order of the action and the order in which options appear in context menus.
Script	Client script executed on the browser when the menu item or icon is selected (and the condition evaluates to *true*). The node is referenced in the script by **this** in the method **this.getData()**.

The completed form for an icon Map Action looks like this:

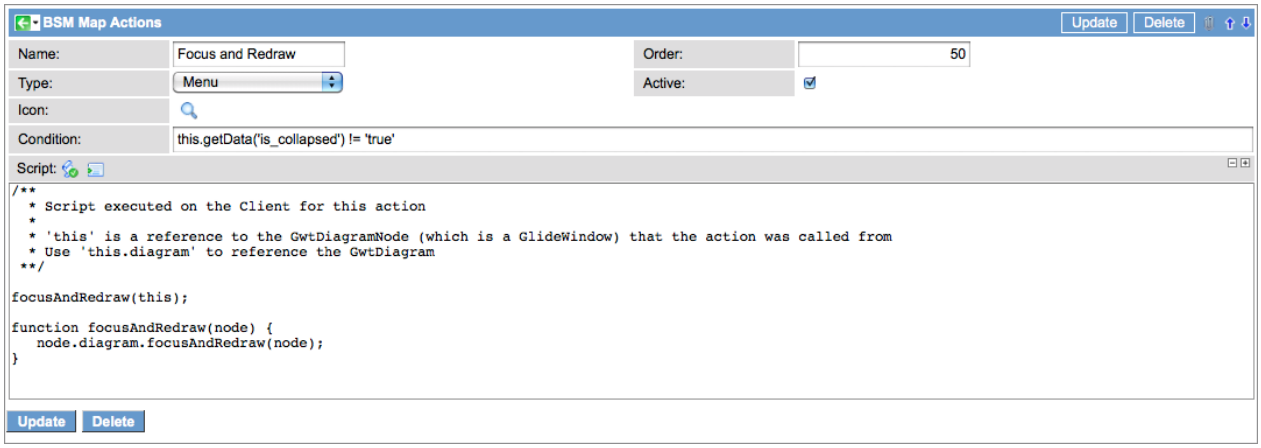


Menu Actions

Menu actions are options that appear in pop-up menus accessed by right-clicking on a map node. Actions that appear in the menu differ depending on how the map was accessed and the roles of the user accessing it. Menu options available for configuration items in the base system are:

- **Manage Relationships**: Edits the relationships for the selected (*focus*) node. See **Defining CI Relationships** for instructions on launching and using the relationship editor.
- **Focus and Redraw**: Redraws the map with the selected CI as the focus.
- **Highlight Hierarchy**: Highlights the CIs that depend on the selected CI and all CIs on which the selected CI is dependent.
- **Show Tasks**: Shows any tasks associated with this CI.
- **Add Affected CI**: Adds the selected CI to the **Affected CI** Related List in the incident currently being viewed. To view this option, open the map from the incident, and then right-click on the CI.
- **Set as CI**: Replaces the value in the original incident's reference field with the name of the selected CI. This action only appears for maps accessed from task records.

The order number in the action determines where the option appears in the menu.



Icon Actions

Hover the cursor over the icon in the map to display the name of the map action in a tooltip. The icon Map Actions in the out-of-box system are:

- **Expand CIs with issues**: Expands a CI node to which issues (incidents, change requests, or outage records) are associated. This icon is not associated with clusters.
- **Expand**: Expands collapsed nodes.
- **Collapse**: Collapses expanded nodes.
- **Show Related Issues**: Shows the related issues (incidents, change requests, or outage reports) for a CI.
- **Cluster Diagram**: Displays a diagram for a cluster node.
- **Show Related Outages**: Shows a list of outage records for a CI.
- **Show Affected CIs**: Displays a list of tasks associated with a specific CI node. In this action, the node has been identified as an **Affected CI** in a task record, such as an incident.

Clusters Condition

To determine whether a node represents a **cluster**, use the following condition:

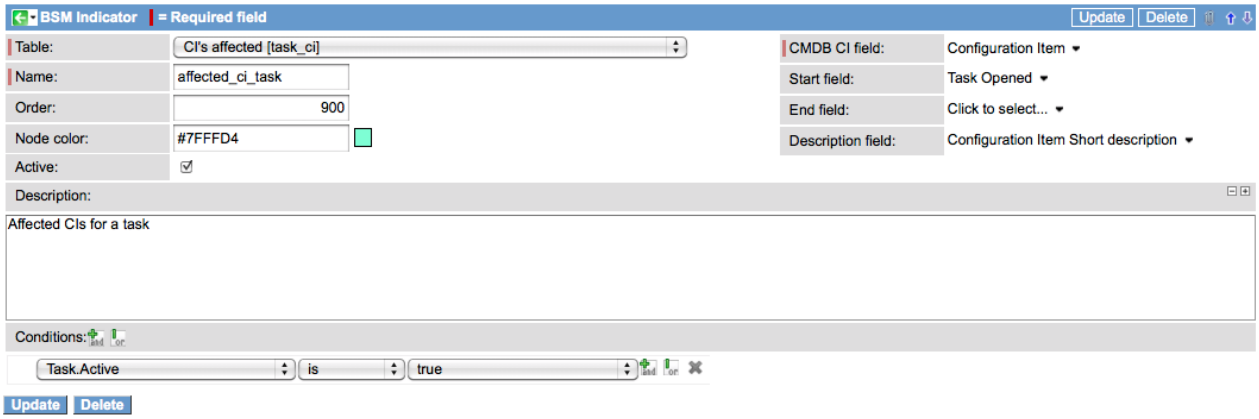
```
this.getData("is_cluster") == "true"
```

The node is referenced by **this** in the method **this.getData()**. When the condition evaluates to *true* for a node, the Cluster Diagram icon ( ) is displayed, which provides access to a secondary diagram of the component CIs in the cluster.

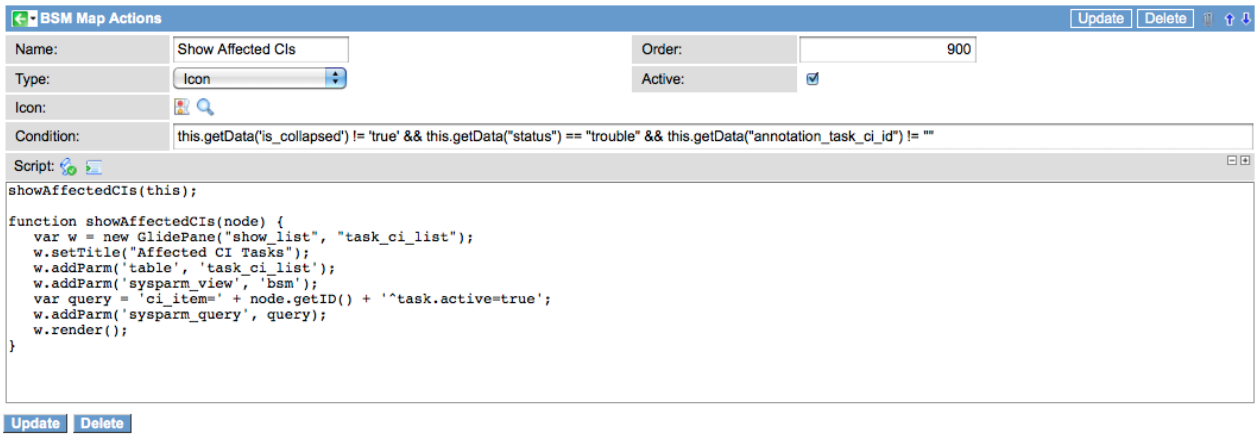
How it Works Together

In this example, we use indicators and actions from a base system to display trouble records for a CI node of an *affected CI* in a Business Service Map. An affected CI has been identified in the **Affected CI** Related List of a task record, such as in incident. The records involved are:

- The **Map Indicator** record for the *CI's affected [task_ci]* table.

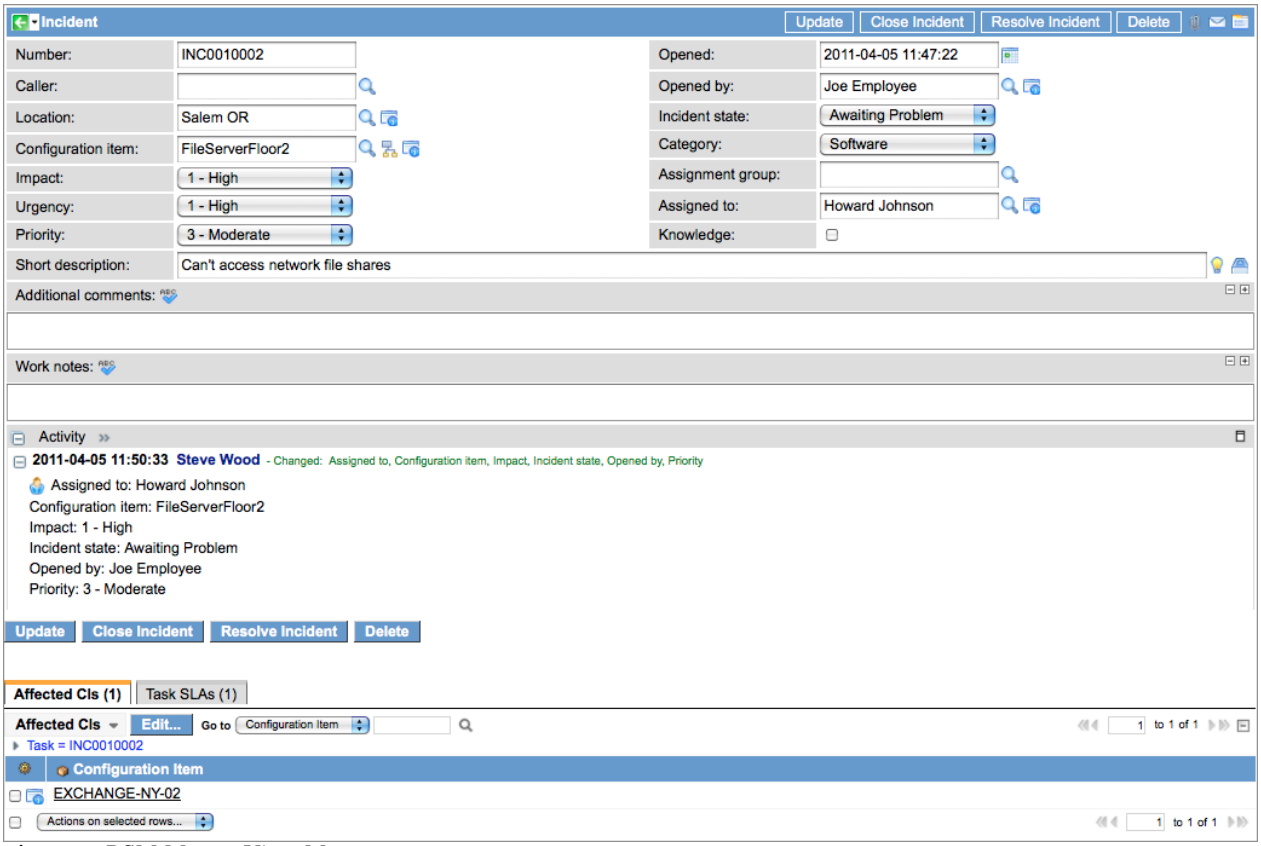


- The Map Action, **Show affected CI**, which displays the trouble records for the node of an *Affected CI*. The first part of the condition statement in this record, *this.getData('is_collapsed') != 'true'*, specifies that the node must be not collapsed. The second part, *this.getData("status") == "trouble"*, is true only if the selected node has trouble records. The last part of the condition, *this.getData("annotation_task_ci_id") != ""*, looks for trouble records in the *task_id* table for the selected CI.

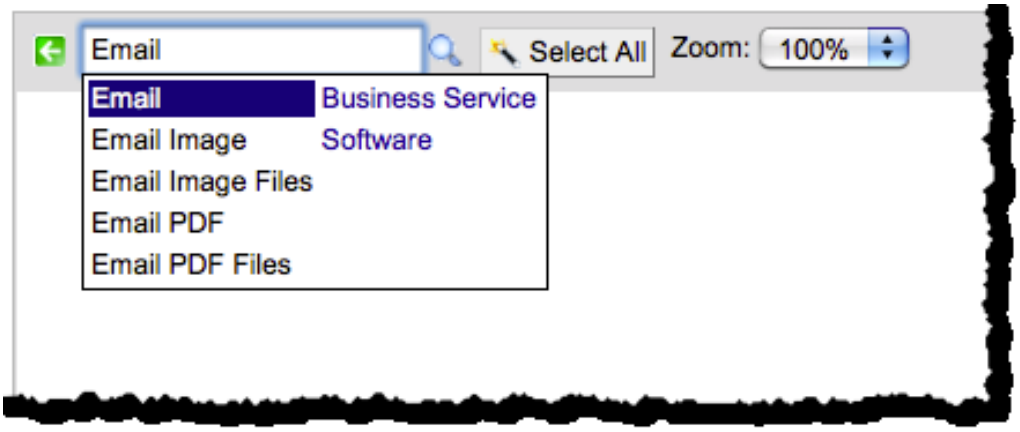


1. Open an incident and add an Affected CI that has an existing map associated with it.

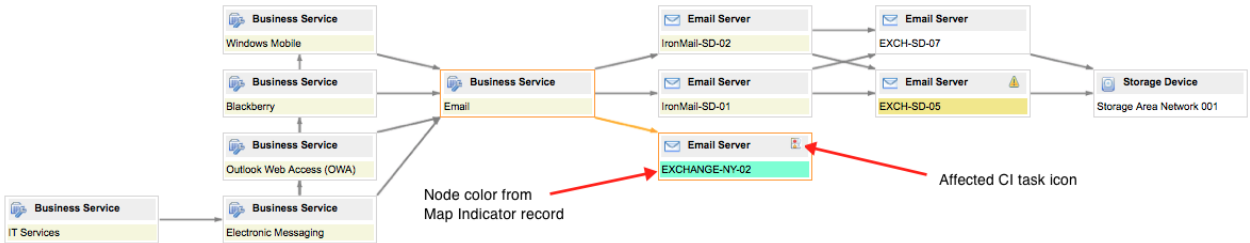
   For our example, we use EXCHANGE-NY-02 as the Affected CI.



2. Navigate to *BSM Map* > *View Map*.
3. Select **Email** in the CI reference picker.



The EXCHANGE-NY-02 node displays the icon created for Affected CI tasks.



4. Click the icon to display the list of tasks for the Affected CI.

Map Related Items - Versions Prior to Eureka

Overview

The **Map Related Items** module relates referenced CIs to one another, which allows them be displayed in **Business Service Management Maps**. The base system configuration includes disks and network adapters and relates them to items in the *cmdb_ci_computer* table or any CIs in tables that extend the *cmdb_ci_computer* table.

- cmdb_ci_disk
- cmdb_ci_network_adapter

Some additional referenced CIs that can be related in this manner are:

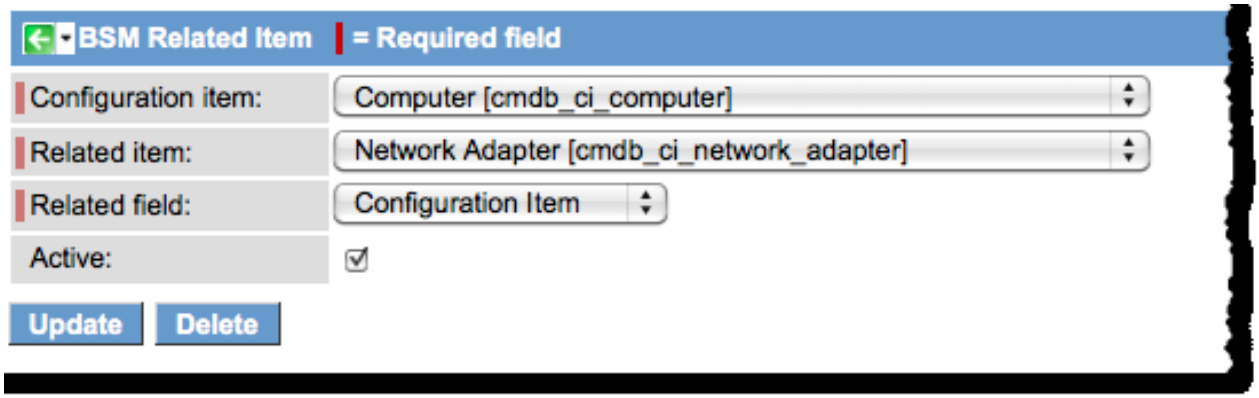
- File systems
- Running processes

Note: *If you are using the Eureka or later version of the ServiceNow platform, see the related documentation in Business Service Management Map.*

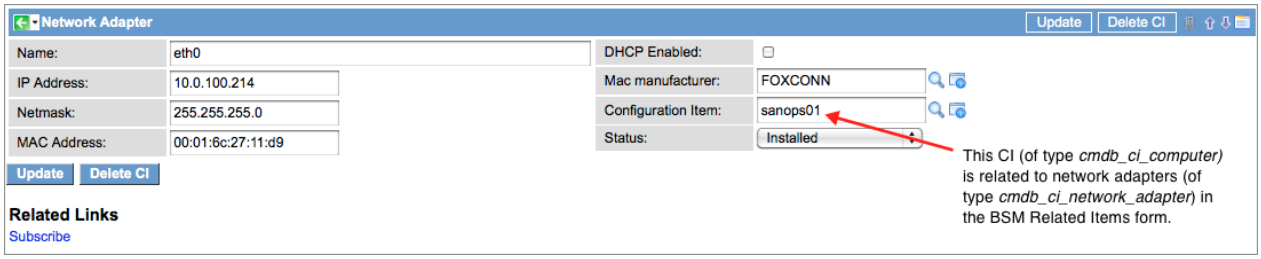
Related Items Form

The Related Item record includes the following fields:

- **Configuration item**: The CI that represents the base node table (or a CI in a table that extends the base node table). In the base system the configuration item representing the base node is *Computer [cmdb_ci_computer]*, which includes all types of workstations and servers.
- **Related item**: The table name of the related item. Only those tables that are, or extend, *cmdb_ci* are displayed in the picklist. In the base system, one of the related items is the network adapter, *Network Adapter [cmdb_ci_network_adapter]*.
- **Related field**: The reference field that links this related item to the configuration item. In many cases, the appropriate value is entered automatically after the other fields are selected. However, there may be additional fields from which to choose.



In this example, computer nodes in a Business Service Map are related to network adapter nodes if the adapter records reference the specific CI node in the **Configuration Item** field of the adapter record. The network adapter and disk records can be accessed through the Related Lists of a *cmdb_ci_computer* record.



Example

On a system with demo data loaded, you can see an example of a related item on a BSM Map by bringing up the BSM Map for the Bond Trading business service and then expanding the cluster on that map. The resulting cluster diagram shows a disk attached to one of the UNIX servers.

Gathering Problem Data Using the BSM

Overview

The quick resolution of problems requires gathering as much information about problems as possible. In addition to the information within the problem ticket itself, there is often useful information that can be gathered in other tables.

Checking Related Records

Information pertinent to the problem may be found in related records. Common related records include changes (through the **RFC** field) and incidents in the incident related list. All of the directly related records are accessible through related lists. If the appropriate related list does not appear on the form, add it by configuring the form.

Checking Known Errors and the Knowledge Base

Information on already known issues can be found in two places: the **Known Errors** module in the **Problem Management** application, or in the Knowledge Base. The **Known Errors** module filters the problem table to present all of the problems whose cause has been identified, but cannot be fixed. The Knowledge Base may have information gathered from incidents, and may also have useful workarounds for problems.

Using the CDMB

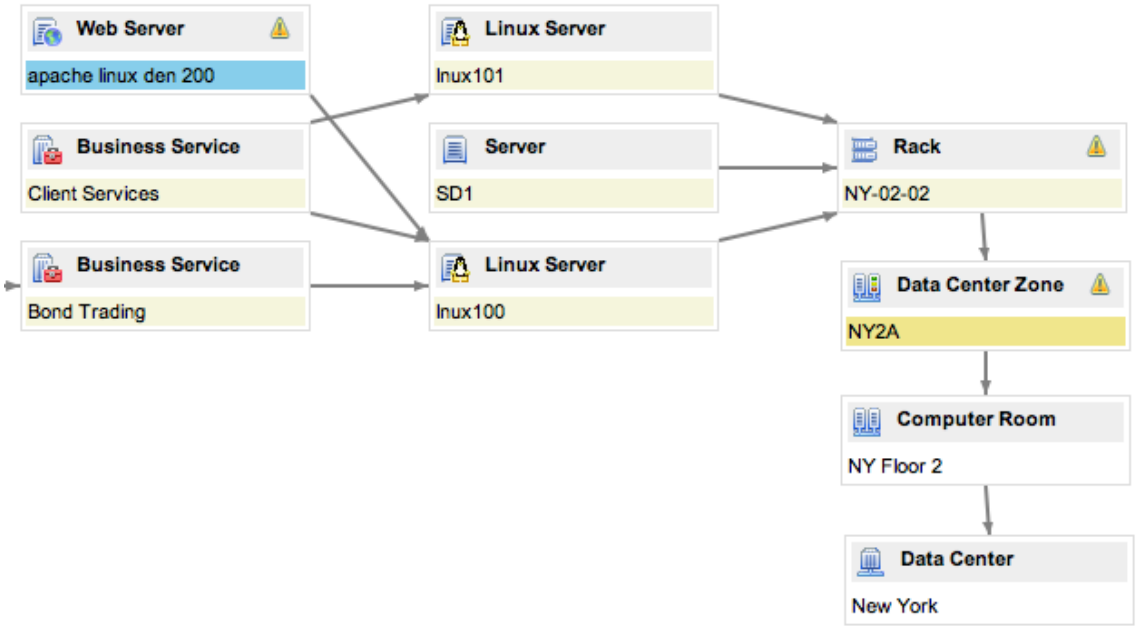
The Configuration Management Database stores information on all of the configuration items and their relationships. In addition to providing basic information about the configuration item to serve as a reference, there are two tools within the CMDB that can provide important information on problems:

- The Business Service Map, which can help isolate problems caused by problems in related items
- The CMDB Baseline, which can help track planned and unplanned changes

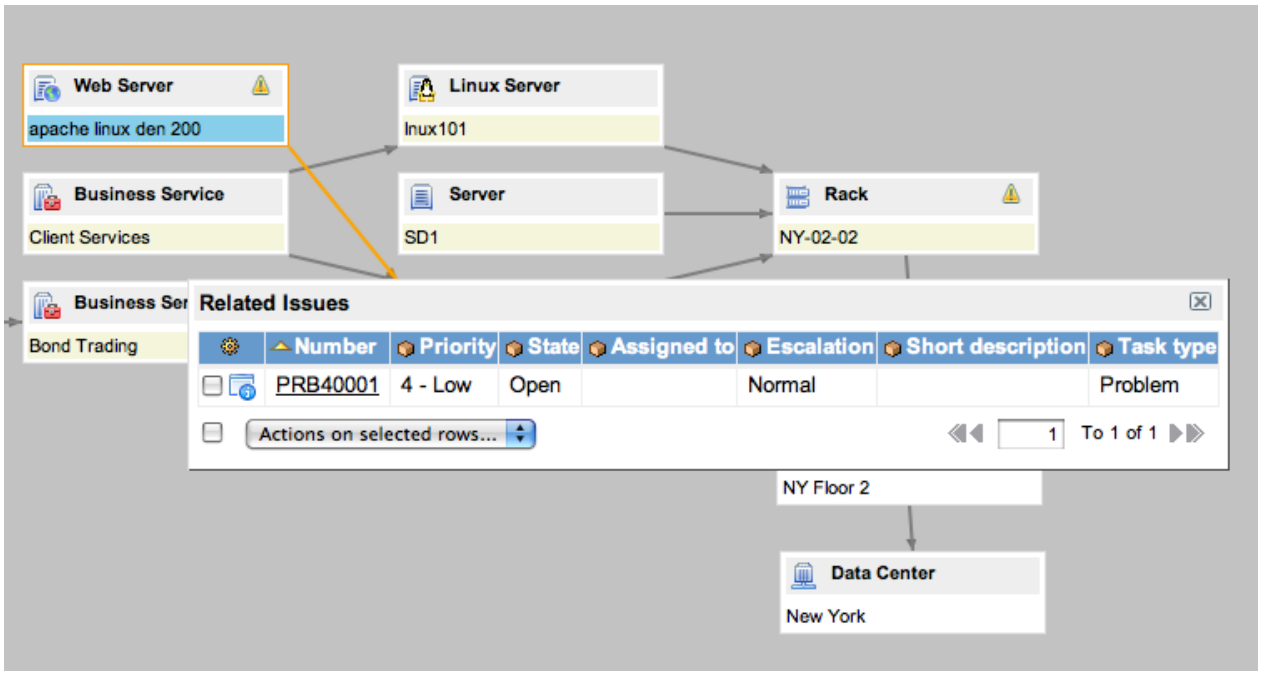
Using the Business Service Map

The Business Service Map provides a visual representation of the configuration items and their relationships, as well as displaying information on related issues.

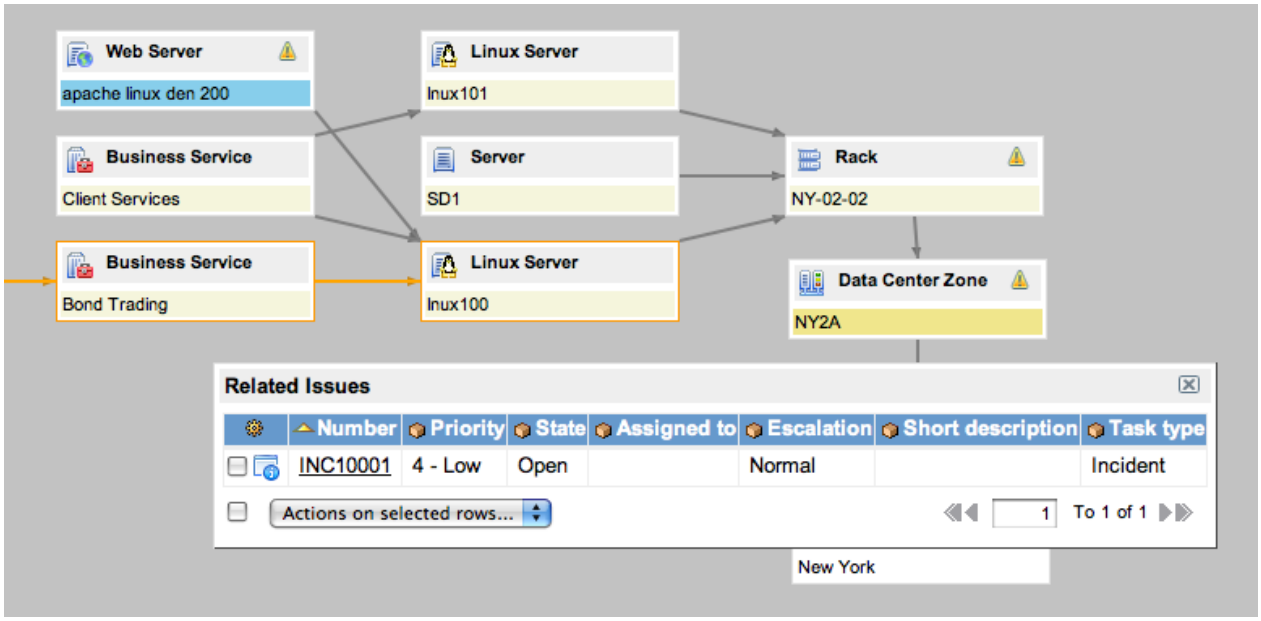
Take, for instance, this BSM for the CI **NY-02-02**, a server rack.



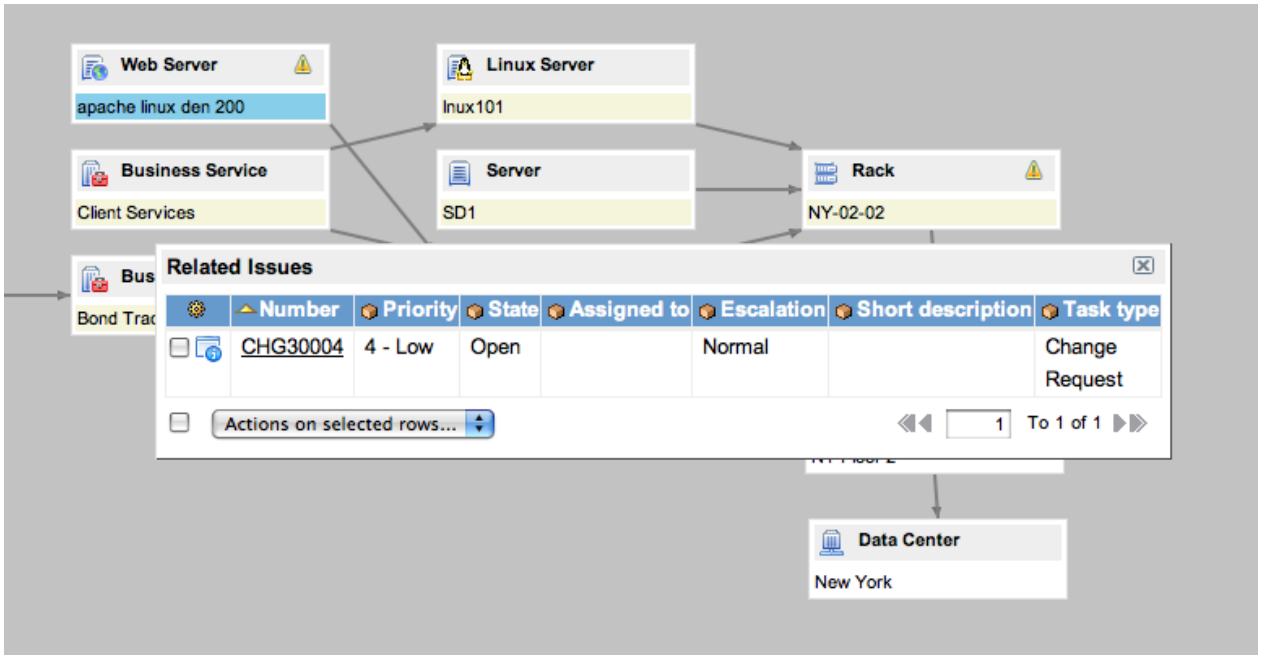
The caution symbol in the top right-hand corner indicates that there is a problem attached.



The light color in on the rack indicates that it is affected by an down-stream CI's incident. In this case, the orange-colored Data Center Zone **NY2A** has the caution symbol, which indicates that there is an incident attached:



Lastly, one of the upstream CI's is colored in blue. This indicates that the CI has a change record attached:

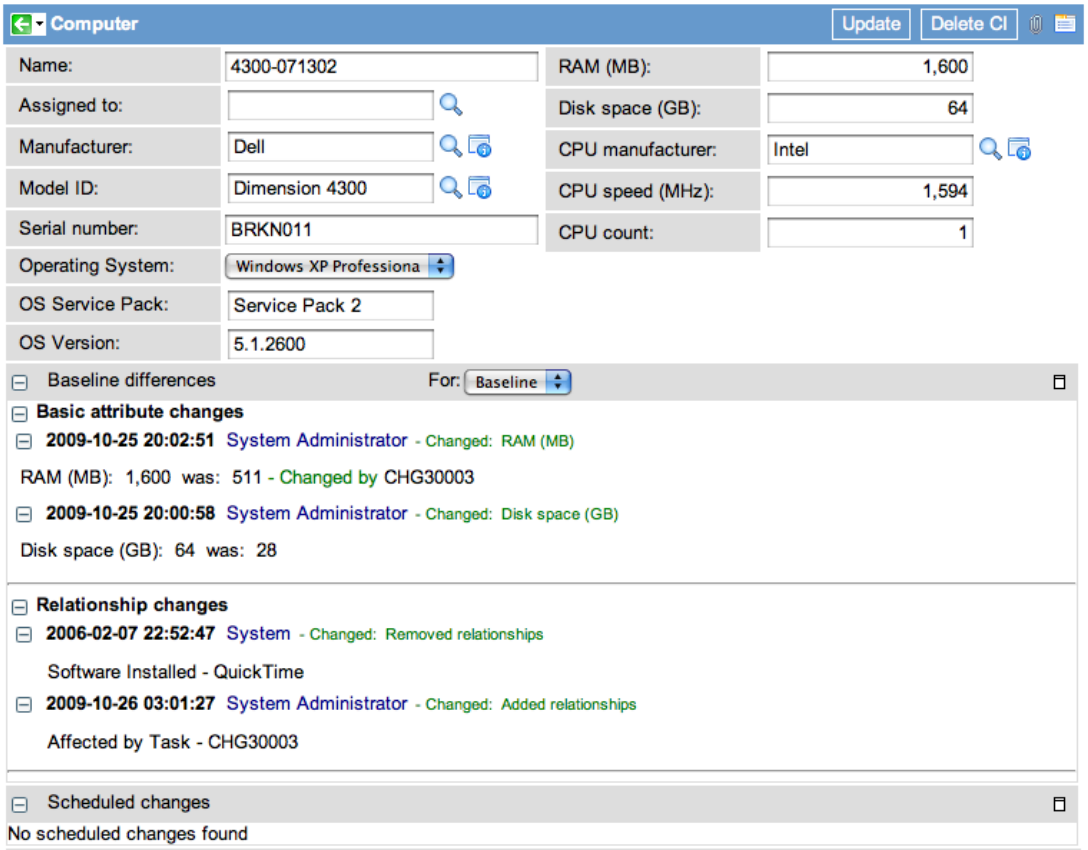


With this information, we can see not only the CI, but also its relationships upstream and downstream. The rack's problem might be caused by an improper change to the Web Server software on one of its Linux Servers, or it might be caused by the incident logged on the Data Center Zone where it resides.

Using the CMDB Baseline

If a Baseline has been generated, any changes (planned or unplanned) will be tracked within the system. Since one major cause of problems is improperly executed changes, seeing the history of changes of a configuration item can help the Problem Management team track problems caused by improper changes.

To check the CMDB Baseline, view the CI's record and check the fields **Baseline Differences** and **Scheduled Changes** (these may need to be added to the form):



In the example above, the computer has recorded both a planned an an unplanned change. System Administrator changed RAM according to CHG30002, changed the disk space, removed QuickTime, and associated the CI with CHG30002.

This information provides a window into the history of the configuration item. The changes are recorded, including the time of change and the person who recorded the change. Because the change in RAM is associated with a Change Record, it is possible to review the change and see what was planned and what was implemented.

Checking Related Incidents Using the BSM

Note: *This article applies to Fuji. For more current information, see Configure Related Incidents* [1] *at* http://docs.servicenow.com
The Wiki page is no longer being updated. Please refer to http://docs.servicenow.com for the latest product documentation.

Overview

You have have these options to discover related incidents from the Incident form:

- The Show Related Incidents icon ( )
- The **Related Incidents** related list
- The Business Services Map.

Using the Show Related Incidents Icon

You can view related incidents by clicking the Show Related Incidents icon ( ). It is a reference icon that appears beside the "Caller" field on the default incident form, when the field is populated. When you click the icon, it displays a list of other incidents for same caller.

Displaying the Show Related Incidents Icon

The **Show Related Incidents** icon (in UI15, in previous UIs) displays other incidents related to the referenced record. Administrators can add this icon to any reference field by modifying the dictionary and adding the `ref_contributions=user_show_incidents` dictionary attribute. The icon appears only for users who have read or write access to this field.

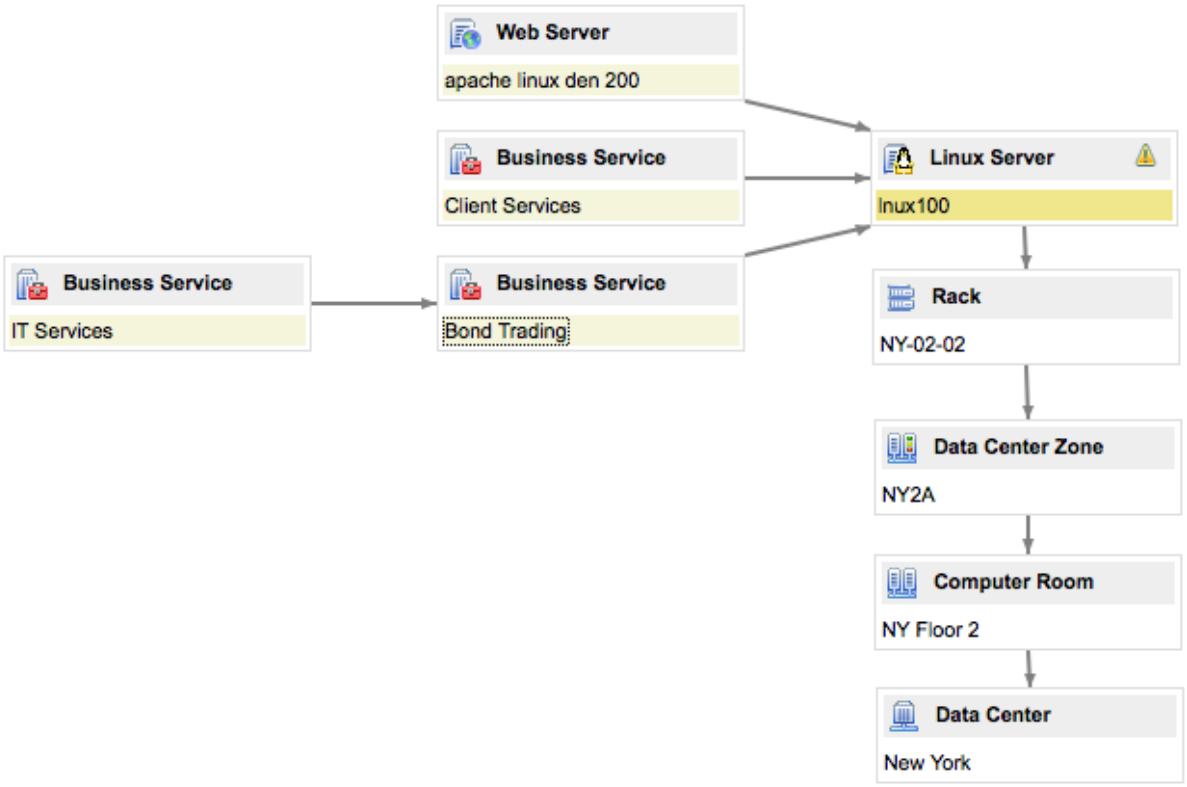
Note: *The icon's behavior is defined by a UI Macro named* ***user_show_incidents****. If this UI Macro is not active in your instance, this reference field decoration will not be displayed.*

Using the Related List

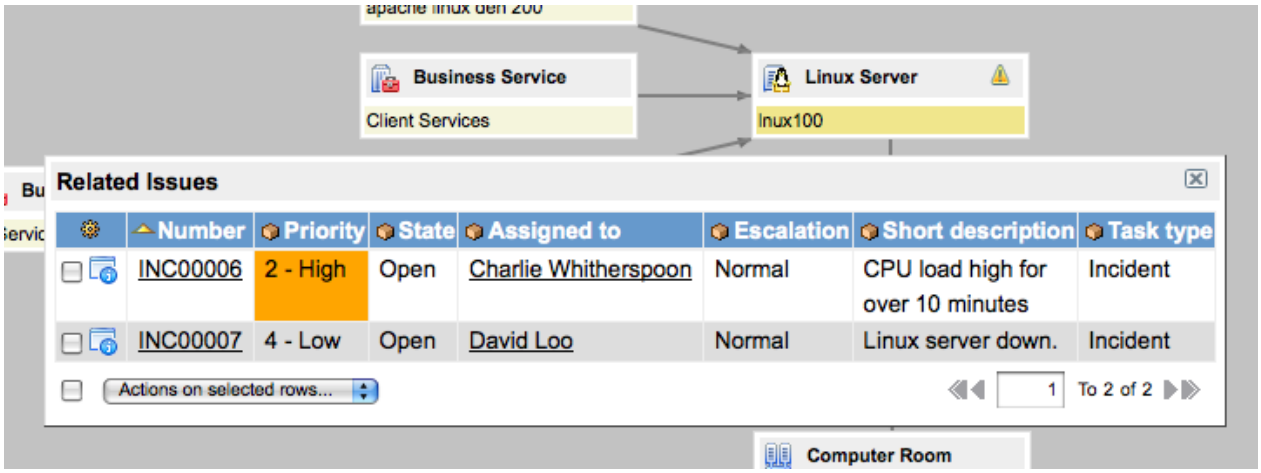
Other incidents by the same caller can also be found using the **Incidents by Same Caller** related list. You may need to add the related list to the form.

Using the Business Service Map

The methods above locate related incidents based on the caller. The Business Service Map can help find related incidents based on Configuration Item. If a Configuration Item is attached to an incident, clicking on the BSM Icon( ) will display the Business Service map. For example, this is the BSM for a server named **linux100**:



The Caution symbol in the CI's top right-hand corner indicates that there are tasks attached to it. Clicking on that icon displays a list of related issues:



In this way, the service desk can find related issues using the information gathered by the CMDB.

References

[1] https://docs.servicenow.com/bundle/istanbul-servicenow-platform/page/administer/field-administration/task/t_ConfigureRelatedIncidentsIcon.html

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