SolarWinds® Orion®
Network Atlas Administrator Guide

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Conventions

The documentation uses consistent conventions to help you identify items throughout the printed and online library.

Convention	Specifying
Bold	Window items, including buttons and fields.
Italics	Book and CD titles, variable names, new terms
`Fixed font`	File and directory names, commands and code examples, text typed by you
Straight brackets, as in [*value*]	Optional command parameters
Curly braces, as in {*value*}	Required command parameters
Logical OR, as in *value1|value2*	Exclusive command parameters where only one of the options can be specified

Contents

Introduction

Orion Network Atlas is a powerful tool for creating custom maps and network diagrams. The maps created in Orion Network Atlas enable users to view a graphical depiction of their network in the Orion Web Console. You can also use Orion Network Atlas maps to create your own network documentation, which can then be printed and exported as needed. The following sections provide an introduction to Orion Network Atlas:

- What is in a Map?
- Network Atlas Features
- Example Maps

What is in a Map?

Map objects can be Orion NPM nodes, interfaces, and volumes; Orion APM applications and components; Orion IP SLA operations; other Orion Network Atlas nested maps; and network links. The numerous presentation options for your network maps include:

- a large set of predefined background colors, textures, and images for use in your maps, and the ability to use your own custom background graphics
- the ability to project real-time weather or natural disaster maps onto your network maps using linked web graphics as a background
- the ability to customize the shape, size, color, and style of map links to illustrate the status or the relative bandwidth of associated objects
- the ability to show map objects in multiple styles to display network status
- map nesting that selectively reveals increasing levels of map detail with the status of child objects on nested maps bubbled up to the parent map

Network Atlas Features

Network Atlas gives you the ability to create multi-layered, fully customizable, web-based maps of your network to visually track the performance of network elements, applications, and operations monitored by any of the following Orion applications:

- Orion Network Performance Monitor
- Orion Application Performance Monitor

- Orion IP SLA Manager

- Orion Enterprise Operations Console

The following features are currently available in Network Atlas:

ConnectNow

> The ConnectNow tool in Orion Network Atlas allows you to instantly draw lines between mapped objects that are directly, physically connected. For more information, see "Connecting Objects Automatically with ConnectNow" on page 15.

Linked Backgrounds

> The linked backgrounds feature allows you to create maps with backgrounds sourced directly from the Internet. Using a linked background, you can create maps that include dynamic weather information relevant to your distributed network sites. For more information, see "Selecting a Background Image" on page 18.

AutoArrange

> AutoArrange options allow you to quickly structure or reorganize objects on your map. For more information, see "Selecting Automatic Layout Styles" on page 36.

Example Maps

The following figures are examples of the types of maps you can create using Orion Network Atlas.
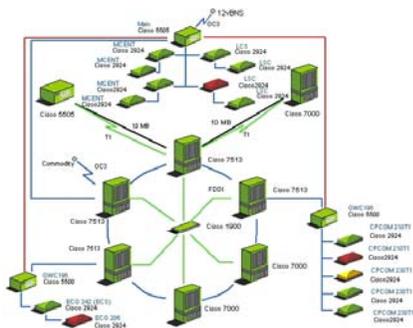
Installing Orion Network Atlas

Orion Network Atlas is pre-installed on Orion EOC v1.1 and Orion NPM 9.5 or later servers, and it can be run as a local application on those Orion servers. Users can also run Orion Network Atlas as a standalone application on any remote computer meeting the stated minimum requirements. The following sections provide more information about installing Orion Network Atlas:

- Orion Network Atlas Requirements

- Installing Orion Network Atlas on a Remote Computer

Orion Network Atlas Requirements

The following table provides the minimum requirements for an Orion Network Atlas installation:

Note: To take full advantage of Orion Network Atlas features, users of Orion Network Atlas must either have node management rights in Orion NPM or be assigned the administrator role in Orion EOC.

Server Component	Requirements
Operating System	Microsoft Windows XP, Windows Vista, Windows 7, Windows Server 2003, or Windows Server 2008 R2.
Memory	1 GB
Hard Drive Space	150 MB
Ports	Remote instances of Orion Network Atlas require TCP on port 17777 to either the Orion NPM or the Orion EOC server.

Installing Orion Network Atlas on a Remote Computer

The following procedure installs Orion Network Atlas on a remote computer.

To install Orion Network Atlas on a remote computer:

1. Log on to your Orion NPM or Orion EOC server.

2. Click **Start > All Programs > SolarWinds Orion > Orion Web Console**.

3. In the Network Map resource, click **Download Network Atlas**.

    Note: If you do not see a **Download Network Atlas** link in your Network Map resource, click **Edit**, and then check the **Show Network Atlas**

Download link option on the Edit Network Map resource page (administrative access may be required).

4. Save the Network Atlas installer (`NetworkAtlas.exe`) to an appropriate location on your remote computer.

5. Run the Orion Network Atlas installer on your remote computer.

6. Click **Next** on the Welcome window.

7. Accept the terms in the license agreement, and then click **Next**.

8. Provide an appropriate installation destination folder, and then click **Next**.

9. Click **Install** on the Ready to Install window.

10. Click **Finish** when the Setup Wizard completes.

For more information about starting Network Atlas and creating a new map, see "Creating a Basic Map" on page 13.

Chapter 3

Creating a Basic Map

Creating a map can be as simple as selecting a background image, dragging network resources onto the drawing area, and connecting the objects with lines.

This chapter provides procedures to accomplish the following tasks:

- Starting Orion Network Atlas
- Adding Map Objects
- Connecting Objects Automatically with ConnectNow
- Connecting Map Objects Manually
- Using Object Links to Represent Interface Status
- Interpreting Map Links
- Using Anchor Points to Reshape Map Links
- Adding a Background
- Saving Maps
- Opening Maps
- Displaying Maps in the Web Console

Starting Orion Network Atlas

The following procedure launches Network Atlas.

Note: To take full advantage of Network Atlas features, users of Orion Network Atlas must either have node management rights in Orion NPM or be assigned the administrator role in Orion EOC.

To start Network Atlas:

1. Log on to the computer hosting your Network Atlas installation.
2. Click **Start > SolarWinds > Network Atlas**.
3. Connect to your Orion server, as directed in the following procedure:
    a. Provide your Orion **Login** and **Password**.

        Note: Your Orion **Login** and **Password** correspond to your Orion Web Console **User Name** and **Password**.
    b. Provide your Orion server IP address or hostname in the **Address** field.

c.   *If you are connecting to an Orion NPM server*, select **Orion** as the **Connect to** target.

d.   *If you are connecting to an Orion EOC server*, select **EOC** as the **Connect to** target.

e.   Click **Connect**.

Adding Map Objects

Any objects monitored by SolarWinds Orion NPM or Orion APM may be added to an Orion Network Atlas map, including all of the following:

- Orion NPM nodes, interfaces, and volumes

- Orion APM applications and components

- Orion IP SLA operations

- Network Atlas nested maps; and network links.

For information about populating an Orion database with your network devices, see "Discovering and Adding Network Devices" in the *SolarWinds Orion Network Performance Monitor Administrator Guide*.

For information about monitoring appplications and application components with Orion APM, see the *SolarWinds Orion Application Performance Monitor Administrator Guide*.

The following procedure adds monitored network objects to your Orion Network Atlas map.

To add monitored objects to your map:

1.   *If you are creating a new map,* click the Orion Network Atlas button ( ), and then click **New Map**.

2.   *If you are adding objects to an existing map,* complete the following steps:

a.   Click the Orion Network Atlas button ( ).

b.   Click **Open Map**.

c.   Navigate to your existing map, and then click **Open**.

3.   Expand and navigate the node tree in the left pane to locate the network nodes and monitored objects you want to add to your map.

Note: All monitored applications, application components, interfaces, and volumes, associated with monitored nodes, in addition to other maps listed in

the left pane, are available as map objects. Click **+** to expand any listed node and object types and view associated interfaces, volumes, applications.

4. Drag selected objects onto the drawing area.

   Notes:

   - If you want to add all the objects of a selected type on a selected node to your map in a single operation, click **+** next to the node name to reveal all its associated monitored network objects, and then drag all objects in the desired object group onto the drawing area.

   - A checkmark (✔) next to a node or network resource indicates you have already added it to your map.

   - To view details about a map object, hover over it with the mouse pointer.

   - To locate a specific map object in your map, click its network resource in the left pane. This selects the map object.

Connecting Objects Automatically with ConnectNow

Using the ConnectNow tool, Orion Network Atlas can automatically draw lines between directly connected nodes on your network, as shown in the following procedure.

Notes:

- The ConnectNow tool cannot draw indirect connections between nodes. For example, if nodes A and C are connected indirectly through node B, you must manually add node B to the map to create the connections.

- Because topological data about your network is only generated during Network Sonar Discovery, ConnectNow can only draw lines between discovered nodes. Nodes that are added manually, as in Web Node Management, cannot be connected using ConnectNow. Orion NPM version 10.0 does allow you to schedule network discoveries, so now you can have regularly updated topological information about your network. For more information about network discovery, see "Discovering and Adding Network Devices" in the *SolarWinds Orion Network Performance Monitor Administrator Guide*.

To automatically connect objects using ConnectNow:

1. Add appropriate nodes to an open network map.

   Note: For more information about adding objects to a network map, see "Adding Map Objects" on page 14.

2. Click **Home**.

3. Click **ConnectNow** (🖧).

Connecting Map Objects Manually

You can represent network links in your map by drawing lines between map objects. If a connected object is down, any connected links change color to red.

To manually connect map objects:

1. Click **Home**.

2. Click **Straight** ( ) or **Curved Line** ( ) in the **Lines** group, as appropriate.

3. Click an object with the line drawing tool to begin drawing the link

4. Click and drag as needed to set optional anchor points along the link path.

5. Click a second object to finish drawing the link.

6. *If you want the links connecting your mapped objects to communicate the status of connected interfaces,* complete the following steps:

   a. Right-click a link, and then select **Properties**.

   b. Select **Status** in the left pane of the Link Properties page.

   c. Drag the appropriate interface objects from the left pane of the Orion Network window to the link status assignment areas.

Using Object Links to Represent Interface Status

The following procedure configures an object link to represent the status of its connected interfaces.

To use object links to represent actual interface states:

1. Right-click a link, and then select **Properties**.

2. Select **Status** in the left pane of the Link Properties page.

3. Drag the appropriate interface objects from the left pane of the Orion Network window to the link status assignment areas.

Interpreting Map Links

Links created on Orion Network Atlas maps are not merely connectors between network objects. Map links display the states of the interfaces through which your linked objects are connected. Interface states are determined from Orion NPM polling data. The following table relates how interface states are reflected in the status of a link between NodeA, with InterfaceA, and NodeB, with InterfaceB.

Note: Link status is only shown as either UP or DOWN. To emphasize potential problem links, DOWN status is granted a higher priority.

		InterfaceB Status		
		UP	DOWN	UNKNOWN
InterfaceA Status	UP	UP	DOWN	UP
	DOWN	DOWN	DOWN	DOWN
	UNKNOWN	UP	DOWN	DOWN

Using Anchor Points to Reshape Map Links

You can use anchor points to change the shape of object links on your map, as shown in the following procedure.

Note: Use multiple anchor points to create more complex shapes and curves.

To use object link anchor points:

1. Click **Select** in the **Tools** group or click the middle mouse button.

2. Click and drag the link you want to reshape.

Adding a Background

You can select colors, textures, and locally-hosted or Internet-hosted images to serve as your map backgrounds:

- Selecting a Background Color

- Selecting a Background Texture

- Selecting a Background Image

- Clearing the Background

Selecting a Background Color

Orion Network Atlas supports 24-bit color backgrounds.

To set a map background color:

1. Click **Home**.

2. Click **Background > Background Color** ( ).

3. Select a color from the palette, or click **More Colors** to select a custom color.

Selecting a Background Texture

Orion Network Atlas also provides numerous colored textures that can serve as map backgrounds.

To set a map background textures:

1. Click **Home**.

2. Click **Background** > **Background Texture** ( ).

3. Enter appropriate values for the **Width** and **Height** of your map in the **Map Size in Pixels** area.

    Note: The default values are the smallest area bounding the existing map objects and labels.

4. Select a texture to apply as your map background, and then click **OK**.

Selecting a Background Image

Orion Network Atlas allows you to use images as your map background. The source of the background image can be a graphics file on your hard drive or a URL link to a graphics file on the Internet in any of the following graphics formats:

*   Graphics Interchange Format (.gif, non-animated)

*   Tagged Image File Format (.tiff)

*   Joint Photographic Experts Group (.jpg)

*   Microsoft Windows Bitmap (.bmp)

*   Portable Network Graphics (.png)

Linked backgrounds are updated when the map is accessed or when the browser page is refreshed. In a typical use case, a linked background is used to provide weather data from an Internet weather service on a network map.

Notes:

*   Background images you supply display at their full size in the Orion Web Console, so consider their dimensions. You may rescale images within the application, but images displayed at full scale provide optimal quality.

*   In determining map size and resolution, consider web page layouts and potential display screen resolutions.

*   Example background images are in the `NetworkAtlas Backgrounds` folder located in your default shared documents folder. Clicking **Background Image** always starts you in this background images folder.

To select a background image:

1. Click **Home**.

2. *If you want to use a background image from disk,* click **Background > Background Image** ( ), and then navigate to the image you want to use.

3. *If you want to use a background image from the Internet,* complete the following steps:

   Notes:

   - In the web console, map background images linked from the Internet are refreshed with the Orion Web Console refresh.

   - If the Orion NPM server is behind a web proxy, the proxy settings entered into Microsoft Internet Explorer are used to create the Internet connection. If the web proxy requires authentication, you cannot link directly to the background image. A workaround is to write a script that periodically downloads the Internet image and saves it to a folder on the web server. You can then specify the saved image as the linked background image.

   a. Click **Background > Linked Background** ( ).

   b. Type the URL of the image you want to use.

   c. Click **Validate**.

   d. Click **OK**.

Clearing the Background

To clear the current map background, click **Home**, and then click **Background > Clear Background** ( ).

Saving Maps

Orion Network Atlas saves your maps directly to the server to which you are connected.

Note: To save a map to your hard drive instead of your Orion server, click > **Export** > **Export Map**.

To save a map:

1. Click the Orion Network Atlas button ( ), and then click **Save**.

2. *If you are saving the map for the first time*, name the map, and then click **OK**.

3. *If you want to save your map to your hard drive,* complete the following steps:

    a. Click > **Export** > **Export Map**.

    b. Navigate to an appropriate location on your hard drive.

    c. Provide a **File name**, and then click **Save**.

Opening Maps

Maps are loaded from the Orion server to which you are connected. They appear in the left pane of the Orion Network Atlas window.

To open a map,

1. Click **+** to expand the Maps group in the left pane of the Orion Network Atlas window.

2. Double-click the map you want to open.

Displaying Maps in the Web Console

You can display saved maps in the Orion web console Network Map resource. The procedure for selecting Network Maps is different between Orion EOC and Orion NPM, and maps created for one are not compatible with the other. Select either of the following procedures, as appropriate:

*   Map Resources in the Orion NPM Web Console

*   Displaying Maps in the Orion Web Console

*   Displaying Maps in the Orion EOC Web Console

Map Resources in the Orion NPM Web Console

The following map-related resources are available in the Orion NPM Web Console:

Network Map

The Network Map resource displays a selected map within the Orion Web Console. Objectts on the map a user is not permitted to see are hidden from the user, as are any connections to those objects. For more information about including Network Atlas maps in the Orion Web Console, see "Displaying Maps in the Orion Web Console" on page 21.

All Maps

This resource provides a list of all available network maps. Clicking any map name opens a view containing the selected map with a list of the objects

included in the map. Clicking an object name or its description opens the corresponding Orion NPM *device* Details page, providing extensive diagnostic information about the selected map object.

Custom List of All Maps

This resource is a customizable version of the All Maps resource.

List of Objects on Network Map

This resource lists all objects displayed on the map shown in the Network Map resource. Clicking an object name or its description opens the corresponding Orion NPM *device* Details page, providing extensive diagnostic information about the selected map object.

Displaying Maps in the Orion Web Console

The following procedure opens a saved map in the Orion Web Console.

To display a saved map in the Home view of the Orion Web Console:

1. Log on to the Orion Web Console using an account with administrative privileges..

2. Click **Edit** in the Network Map resource.

3. Select your map from the **Select Network Map** list.

4. Click **Submit**.

Displaying Maps in the Orion EOC Web Console

The following procedure opens a saved map in the Orion EOC Web Console.

To display a saved map in the Home view of the Orion EOC web console:

1. Log on to the Orion EOC web console with an Administrator account.

2. Click **Settings**.

3. Click **Manage Views**.

4. Select **Home**, and then click **Edit View**.

5. Click **Resource**.

6. Click **Network Map** in the Added list.

7. Select your map from the **Select Network Map** list, and then click **Save**.

8. Click **OK, Save Changes**.

9. *If prompted to confirm your changes*, click **OK**.

10. Click the **Home** view to see your map.

Chapter 4

Advanced Mapping Techniques

You can apply a number of advanced mapping techniques to enhance the usefulness of your maps. This section discusses the following topics:

- Zooming In and Out of a Map

- Creating Nested Maps

- Displaying Map Object Metrics

- Adding Independent Map Objects and Floating Labels

- Changing the Appearance of Map Objects

- Changing the Appearance of Links

- Changing the Appearance of Labels

- Linking Map Objects to URLs

- Linking or Embedding Maps in Web Pages

Zooming In and Out of a Map

Orion Network Atlas allows you to zoom into a map to enlarge details or to zoom out to reduce its size. Zoom level is a visual aid, and it is not saved with the map. Use any of the following methods to zoom in or out on a displayed map:

- Press and hold CTRL while rotating the mouse wheel button.

- Click the **Zoom** slider on the status bar, and then slide the zoom control to the zoom level you want

- Click **View**, and then select the type of zoom you want to use from the Zoom group.

Creating Nested Maps

Nested maps allow you to navigate through a map to see multiple levels of detail. For example, a map of the United States can include an icon for a child map of Oklahoma. You can then click the Oklahoma object to open the child map.

The map of Oklahoma can then become a parent map to a network diagram.
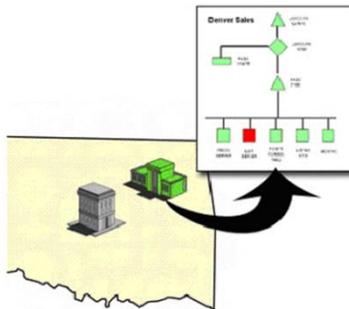
Each child map can include a view of the objects, either devices or other maps, deployed on it. Any nested objects can then be clicked to view the next level of map detail, until the level of the final network device is reached and all available network information is displayed.

Note: The total number of objects on a map, including those displayed on child maps, affects how fast the map loads in the Orion Web Console. If your maps load slowly, decrease the number of map objects.

To create a nested map:

1. Drag a map from the Maps group in the left pane onto the parent map, and then position the map icon appropriately.

2. *If you want the status of a child map to also indicate the status of its child objects,* complete the following steps:

   a. Right-click the child map icon on the map, and then select **Properties**.

   b. Check **Include child status** on the Status properties page, and then click **OK**. The object status icon now includes the secondary status indicator.

Displaying Map Object Metrics

The status of a map object icon reflects its current state, such as up or down. You can add a secondary status indicator to a map object to reflect metrics such as response time, CPU load, or the state of any child objects. This secondary status indicator appears at the bottom right corner of the status icon.

To add the secondary status indicator:

1. Right-click the map object, and then select **Properties**.
2. Check **Include child status** on the Status properties page, and then click **OK**.

To change the thresholds of the metrics:

1. Right-click the map object, and then select **Properties**.
2. Click **Metrics** to view the Metrics properties page.
3. *If you want to change the warning or critical threshold for a metric,* click the threshold value, and then type a new value.
4. *If you want to ignore a metric,* uncheck the metric.
5. Click **OK**.

Notes:

*   The secondary status indicator respects the Orion web console Status Rollup Mode setting for displaying status.
*   All child objects and selected metric thresholds are taken into account to determine secondary status.

Adding Independent Map Objects and Floating Labels

You can add independent map objects and labels that do not have associations to network nodes or resources.

To add an independent object:

1. Click **Home**.
2. Click **Add Object** in the Objects group to add a gray map object to the map.

Independent labels may also be placed anywhere on your map.

To add an independent label:

1. Click **Home**.
2. Click **Add Label** in the Labels group. A label is added to the map.

Changing the Appearance of Map Objects

Changing the graphics that represent map objects is an excellent way of increasing the information density of your map without increasing the map complexity.

You can set the default representation style for all map object of a certain type, or you can change the appearance of selected map objects.

To set the default representations of map objects:

1. Click the Orion Network Atlas button , and then click **Network Atlas Settings**.

2. Click **Graphic Styles** in the left column.

3. Select an appropriate default style for each available map object.

Changing the representation of selected map objects opens up another level of graphical information. For example, you can set an object icon to display a mainframe graphic, visually designating the type of device being monitored. You can then select a status style, such as 3D Pad Underneath, to illustrate the map object status.

To change the representation of selected map objects:

1. Right-click a map object, and then select **Properties**.

2. Click **Appearance** in the left column of the Properties page.

3. *If you want the map object to appear as a fixed-size, LED-type graphic*, complete these steps:

    a. Select **Orion LED Status Icon**.

    b. Select a style from the Orion LED Status Icon **Style** list, and then click **OK**.

4. *If you want the map object to appear as a scalable shape*, complete these steps:

    a. Select **Shape**

    b. Select a style from the Shape **Style** list, and then click **OK**.

    c. Drag a corner handle on the map object to resize the shape.

5. *If you want the map object to appear as a scalable graphic*, complete these steps.

    a. Select **Graphic**.

    b. Click **Select Graphic**, select an appropriate graphic, and then click **OK**.

c. Select a status style from the Graphic **Style** list, and then click **OK**.

d. Drag a corner handle on the map object to resize the graphic.

Pasting Custom Icons from the Windows Clipboard

You can paste graphics from the Windows clipboard directly into your Orion Network Atlas maps and then display an overlay behind them to depict the status.

Icons that you paste into Orion Network Atlas are saved to the Orion database, and made available for reuse in other maps under the "Imported" icon grouping. Pasted icons saved to the Orion database can be accessed and used by remote instances of Orion Network Atlas.

To paste a custom icon into Orion Network Atlas:

1. Open the icon image in a graphics program such as Visio or Photoshop.

2. Copy the image to the Windows clipboard with the Copy command.

3. Open the desired map in Orion Network Atlas.

4. Paste the image as new object following these steps:

    a. Right-click on the map and then click **Paste**.

    b. Select **Paste the image from the Clipboard as a new object**.

    c. Enter a name for the this new image in the **Please enter a name for the new image** field.

    d. Click **OK**.

Icons added in this manner are also saved on the Orion NPM server in the path `%APPDATA%\SolarWinds\NetworkAtlas\Maps\Orion\<orion server address>\NetObjects\Imported`. `%APPDATA%` is typically `C:\Documents and Settings\<logged on user>\Application Data` for Windows XP, and `C:\Users\<logged on user>\AppData\Roaming` for Windows Server 2008.

To delete a custom icon:

1. Determine which file on the Orion NPM server contains the icon (for example, `mypicture.wmf`).

2. Add `.del` to the file name (for example, `mypicture.wmf.del`)

3. Start Orion Network Atlas on the Orion NPM server to delete the icons from the database.

Adding Custom Icons from Graphics Files

You can use any Windows Media File (`.wmf`) or Graphics Interchange Format (`.gif`) format graphic as a custom icon, but you must name the graphic files according to their roles. The file name must not contain any other dash (-) characters other than depicted in this table.

Role	File name
Down status	*iconName*-down.gif
External status	*iconName*-external.gif
Icon with no status	*iconName*.gif
Unknown status	*iconName*-unknown.gif
Unmanaged status	*iconName*-unmanaged.gif
Unplugged status	*iconName*-unplugged.gif
Unreachable status	*iconName*-unreachable.gif
Up status	*iconName*-up.gif
Warning status	*iconName*-warning.gif

To add custom icons from graphics files:

1. On your Orion NPM server, create the folder:
`%APPDATA%\SolarWinds\NetworkAtlas\Maps\Orion\<orion server addr ess>\NetObjects\User Graphics`.

`%APPDATA%` is typically `C:\Documents and Settings\<logged on user>\Application Data` for Windows XP, and `C:\Users\<logged on user>\AppData\Roaming` for Windows Server 2008.

2. Copy the graphics files to this folder.

3. Start Orion Network Atlas on the Orion NPM server to finalize the additional icons.

After copying the graphics files to their location, you can assign them as an icon as you would any other graphic image.

To assign a custom icon to an object:

1. Right-click the object on the map, and then click **Select Graphic**.

2. Select **User Graphics** in the left pane.

3. Select your desired graphic image, and then click **OK**.

Changing the Appearance of Links

Orion Network Atlas allows you to change the appearance of network links by customizing their width, color, and line styles.

To change the appearance of a link:

1. Right-click a link, and then select **Properties**.
2. Select **Appearance** in the left column of the Properties page.
3. Select a line width in pixels from the **Width** list.
4. Select a line color from the **Color** list.
5. Select a line style from the **Style** list.
6. Click **OK**.

Note: The color setting only changes the color of links that have Up status.

Changing the Appearance of Labels

Orion Network Atlas allows you to change the appearance of labels by changing text attributes, borders, and background colors.

To move a label:

Drag the label to the desired location.

To edit the text in a label:

Double-click the label.

Press SHIFT+ENTER to separate multiple lines within the same label.

To change the appearance of a label:

1. Right-click the label, and then select **Properties**.
2. Select **Appearance** in the left column of the Properties page.
3. *If you want to change the font attributes*, click the **…** button, select appropriate font attributes, then click **OK**.
4. *If you want to change the text alignment*, select an alignment from the **Text Alignment** list.
5. *If you want to change the text color*, click the **Text Color** color box, and then select a new color.
6. *If you want to add a label border*, select the border width in pixels from the **Border Width** list.

7. *If you want to change the label border color*, click the **Border Color** color box, and then select a new color.

8. *If you want to remove a label border*, select **0** from the **Border Width** list.

9. *If you want to add a label background*, uncheck **Transparent Background**.

10. *If you want to change the label background color*, click the **Background Color** color box, and then select a new color.

11. *If you want to remove a label background*, check **Transparent Background**.

12. Click **OK**.

Linking Map Objects to URLs

Orion Network Atlas allows users to click on map objects in the Orion web console to see more details. By default, map objects are linked to the most relevant Orion details page for the object. You can customize the URL hyperlink to link to external web sites and pages as necessary.

To link a map object to a URL.

1. Right-click the map object, and then select **Edit Hyperlink**.

2. *If you want to link to the relevant Orion page for the map object*, select **Logical page in Orion**.

3. *If you want to link to a custom URL*, select **Manually set address**, and then type the URL.

4. Click **OK**.

Linking or Embedding Maps in Web Pages

You can link or embed your maps in other web pages by referencing the URL for the map. The map URL is in the form:

```
http://orionServer/Orion/NetPerfMon/MapView.aspx?Map=mapName
```

orionServer

This is the IP address or host name of your Orion NPM server.

mapName

This is the display name of the map. If the map display name contains space characters, substitute `%20` for the spaces when specifying the name.

Customizing Orion Web Console Tooltips

In the web console, hovering over map objects displays a tooltip providing current identification and status information about the object. Tooltips are customizable for all map object types, and you can customize the tooltips in the Orion NPM web console to display additional information by inserting Orion alert variables, custom properties, and other text.

Notes:

- Tooltip customizations are global and affect all maps.

- Orion EOC does not support custom web console tooltips.

- For a complete list of variables available for use in Orion Network Atlas tooltips, see "Orion Network Atlas Tooltip Variables" on page 43.

- Use ${CR} to enter a carriage return.

To add additional information to map object tool tips:

1. Log on to Orion NPM as an administrator.

2. Click **Edit** in the Network Map resource.

3. Click **Customize map tooltips**.

4. Type the variables and any text you want to add in the text field for the appropriate map object type.

5. Click **Submit**.

Example Custom Orion Node Tooltip

Enter this custom node tooltip definition in the **Orion.Nodes** field to display node location and contact information:

Orion.Nodes

```
Location: ${Location}${CR}Contact: ${Contact}
```
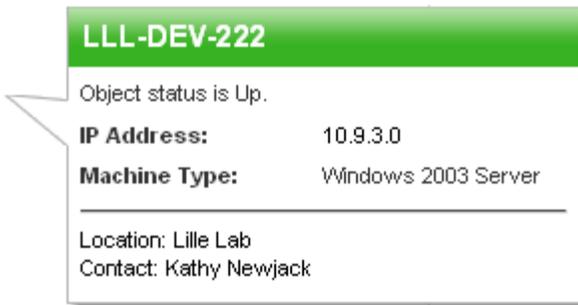
Example Custom Interface Tooltip

Enter this custom interface tooltip definition in the **Orion.NPM.Interfaces** field to display the current bandwidth usage:

Orion.NPM.Interfaces

```
Downlink:${Inbps}${CR}Uplink:${Outbps}
```
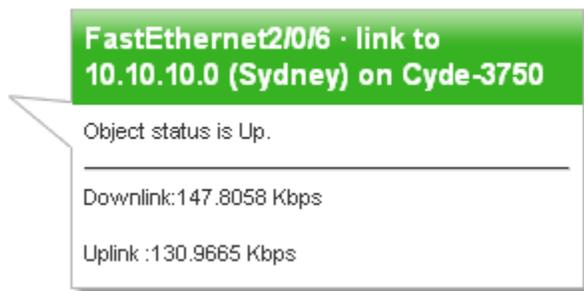

Tooltip variables are available for Orion NPM, Orion APM, Orion EOC, and Orion IP SLA. For more information about available tooltip variables, see "Orion Network Atlas Tooltip Variables" on page 43. For more information about custom properties, see "Creating Custom Properties" in the *SolarWinds Orion Network Performance Monitor Administrator Guide*.

Converting Orion NPM Maps to Orion EOC Maps

Maps created for use in Orion NPM must be converted before they may be used in Orion EOC. SolarWinds provides the following utilities for this conversion:

- The Map Maker to EOC Converter converts maps created using MapMaker in Orion NPM versions 9.1 and earlier for use with Orion EOC version 1.0.

- The Network Atlas to EOC Converter converts maps created using network Atlas with Orion NPM version 9.5 and later for use with Orion EOC versions 1.1 and higher.

The following procedure downloads and installs the required conversion utility, based on your current environment.

Note: You must currently be on maintenance to download from the Customer Portal.

To download and install a required Orion NPM-to-EOC conversion utility:

1. Browse to http://www.solarwinds.com/.

2. Click **Customer Portal**.

3. Log in using your SolarWinds **Customer ID** and **Password**.

4. Click **Additional Components** in the column on the left.

5. Click **Download Orion NPM Components**,

6. *If you are converting maps from Orion NPM version 9.1 or earlier,* click **Map Maker to EOC Converter**.

7. *If you are converting maps from Orion NPM version 9.5 or later,* click **Network Atlas to EOC Converter**.

8. Select **Save File**, and then click **OK**.

9. Right-click the archive you downloaded, and then click **Extract All**.

10. Complete the Extraction Wizard to extract the utility to an appropriate location.

11. Open the extracted folder, and then launch the executable.

Chapter 5

Advanced Map Layouts

You can improve the visual layout and organization of your maps by using the advanced layout tools to help you align and distribute your objects and links. This section discusses the following topics:

- Displaying Grid Guides

- Aligning Map Objects

- Distributing Map Objects

- Selecting Automatic Layout Styles

Displaying Grid Guides

A grid guide helps you maintain structural and spatial relationships as you arrange your map objects. Orion Network Atlas allows you to select two kinds of grids and to change the grid spacing.

Grids are not map objects, and are neither saved with a map nor displayed in the Orion Web Console.

To display a grid:

1. Click **View**.

2. Click **Show Grid** in the Grid group.

To customize the grid:

1. Click **View**.

2. *If you want grid lines*, click **Grid Option > Grid Lines**.

3. *If you want grid points*, click **Grid Options >Grid Points**.

4. *If you want to change the grid size*, click **Grid Options > Grid Size**, and then select a grid size.

Aligning Map Objects

You can change the relative alignment of your map objects using the alignment tools.

1. Click **Edit**.

2. Select the map objects you want to align.

3. Click the appropriate button in the Align group to arrange your selected objects

Button	Function	Description
	Align Left	Aligns all selected objects on the left edge of the group
	Align Right	Aligns all selected objects on the right edge of the group
	Align Bottom	Aligns all selected objects on the bottom edge of the group
	Align Top	Aligns all selected objects on the top edge of the group
	Center Vertically	Centers all selected objects vertically
	Center Horizontally	Centers all selected objects horizontally

Distributing Map Objects

You can distribute your map objects evenly across the selection area using the distribution tools.

1. Click **Edit**.
2. Select the map objects you want to distribute.
3. Click the appropriate button in the Distribute group to arrange your selected objects

Button	Function	Description
	Distribute Horizontally	Distributes all objects so that they are equidistant from the left edge of the leftmost object to the right edge of the rightmost object
	Distribute Vertically	Distributes all objects so that they are equidistant from the top edge of the topmost object to the bottom edge of the bottommost object

Selecting Automatic Layout Styles

You can select from the following five styles to automatically change the relative positioning of objects your map:

Circular

Emphasizes the clusters inherent in the topology of a map. It emphasizes prominent links between main objects and its peripherals. Object groups

have radial placements. Use circular layouts for maps containing ring and star network topologies.

Symmetrical

Emphasizes the symmetrical patterns inherent in the map topology. It emphasizes an even distribution of objects, and minimizes edge crossings. Object groups have star spiral placements. Use symmetrical layouts for maps that have fairly homogenous or uniform clusters.

Hierarchical

Emphasizes mapped dependency relationships by placing objects at different levels. Use hierarchical layouts to depict data dependencies.

Orthogonal

Emphasizes compact drawings and uses only horizontal and vertical edges. Objects are enlarged if necessary to provide enough space for edge connections. Use orthogonal layouts for maps that need to depict multiple clusters in a space-efficient manner.

Tree

Emphasizes parent and child relationships. Child objects are arranged farther from the root object than their parent objects. Use tree layouts for maps that have a central control object.

Reorganize

Moves all mapped objects back to the center of the map view.

Arrange Labels

Restores the default relative position of all object labels.

To arrange map objects according to a layout style:

1. Click **Edit**.
2. Click an apprpriate layout style from the AutoArrange group.

Chapter 6

Map Properties

The Map Properties window allows you to configure options regarding the following aspects of your map:

- Setting the Map Up Status Threshold

- Overriding Account Limitations

Setting the Map Up Status Threshold

The UP status threshold is the percentage of map objects that must be in an up state on a given map for the map to be represented as up on the parent map.

To set the percentage of map objects that determine Up status of a map:

1. Right-click any empty portion of the map, and then select **Map Properties**.

2. Slide the **Map status will be UP** slider to configure an appropriate up state threshold on the Map Properties page.

Overriding Account Limitations

For security reasons, you may wish to prevent web console users who have account limitations from seeing network nodes on the map they are not allowed to see. By hiding the restricted nodes and links, users with account limitations remain unaware that the nodes even exist.

To hide nodes from users who have account limitations:

1. Right-click any empty portion of the map, and then select **Map Properties**.

2. Select **Remove nodes that users do not have permission to view**.

If you choose to reveal restricted nodes to all users, all web console users can see the restricted nodes, but users with account limitations cannot retrieve any additional information about the restricted node.

To reveal nodes to all users:

1. Right-click any empty portion of the map, and then select **Map Properties**.

2. Select **Allow all users to view all nodes on this map**.

Note: An Orion NPM user with account limitations, but who has permission to run and use the Orion Network Atlas application, can change this setting in the map and see the presence of restricted nodes. Although the user cannot retrieve any information regarding the restricted nodes, this can still be considered a security

risk. If this is a concern, do not give node management permissions to Orion NPM users who have account limitations.

Chapter 7

Orion Network Atlas Settings

You can customize the default icon styles, map defaults, and node tree specifications from the Orion Network Atlas Settings window.

To open the Orion Network Atlas Settings window, click the Orion Network Atlas button ( ), and then click **Network Atlas Settings**.

The following sections describe the options available in the Orion Network Atlas Settings window.

Connection Settings

The options in this section allow you to select the default Orion server details.

Map Defaults

The options in this section allow you to set a device threshold for the overall map status. The status indicator reflects the state of many objects at once; therefore, SolarWinds recommends that the map status be set at 100%. At this setting, when any device on a map or sub-map is down, the problem status will be indicated.

Node Tree

The options in this section allow you to customize the view of the node tree located on the left pane of the Orion Network Atlas main window. Some users find it helpful to display the status icons of each node and interface, while others find the vendor network node and interface icons more useful. You may also specify that node names and/or IP addresses be included in the display.

Graphic Styles

The options in this section allow you to select the default graphical styles for Orion Network Atlas. You can change the default style types for network objects, and you can select a color scheme for Orion Network Atlas itself.

Orion Network Atlas Tooltip Variables

Many of the variables that are available for use in Orion NPM alerts are also available for use in Network Atlas tooltips. These variables are dynamic, and they parse when the tooltip is opened. For example, the variable ${CPULoad} will parse with the current processor utilization of the node you are viewing. The following sections provide tables of variables corresponding to the types of objects you can map with Network Atlas.

Notes:

- For more information about viewing and customizing Network Atlas tooltips, see "Customizing Orion Web Console Tooltips" on page 31.

- In some cases, the table name may be required for alert variables, as in ${Nodes.Description}. The following tables provide the table name in listed variables when it is required.

- In earlier versions of Network Atlas, variables were referred to as *macros*.

Application Variables

The following application variables are valid for use in Network Atlas tooltips.

Variable	Description
${ApplicationID}	Internal unique identifier of the application
${ApplicationTemplateID }	Internal unique identifier of the parent template
${JobId}	Internal unique identifier of the SolarWinds Orion Job Engine task associated with this application
${Name}	Application name
${NodeID}	Internal unique identifier of assigned node
${Status}	Numerical application status code. For more information see "Status Icons and Identifiers" in the *SolarWinds Orion Network Performance Monitor Administrator Guide*.
${StatusDescription}	User friendly application status
${UnManaged}	States if application is currently unmanaged

Application Component Monitor Variables

The following application component monitor variables are valid for use in Network Atlas tooltips.

Variable	Description
${ApplicationId}	Internal unique identifier of the associated application
${ComponentId}	Internal unique identifier of the component
${ComponentType}	Numerical component monitor type code. For more information, see "Orion APM Alerts" in the *SolarWinds Orion Application Performance Monitor Administrator Guide*.
${Name}	Component monitor name
${Status}	Numerical application status code. For more information see "Status Icons and Identifiers" in the *SolarWinds Orion Network Performance Monitor Administrator Guide*.
${StatusDescription}	User friendly application status
${TemplateID}	Internal unique identifier of the parent template

Date and Time Variables

The following date and time variables are valid for Network Atlas tooltips.

Variable	Description
${AbreviatedDOW}	Abbreviated current day of the week.
${AMPM}	AM/PM indicator
${D}	Current day of the month
${Date}	Current date. (Short Date format)
${DateTime}	Current date and time. (Windows control panel defined "Short Date" and "Short Time" format)
${DayOfWeek}	Current day of the week.
${ DayOfYear}	Numeric day of the year
${DD}	Current day of the month (two digit number, zero padded)
${H}	Current hour
${HH}	Current hour. Two digit format, zero padded.
${Last24Hours}	Time period: the last 24 hours
${Last2Hours}	Time period: the last 2 hours
${Last7Days}	Time period: the last 7 days
${LastHour}	Time period: the last hour

Variable	Description
${LocalDOW}	Current day of the week. Localized language format.
${LocalMonthName}	Current month name in the local language.
${LongDate}	Current date. (Long Date format)
${M}	Current numeric month
${MediumDate}	Current date. (Medium Date format)
${Minute}	Current minute. Two digit format, zero padded.
${MM}	Current month. Two digit number, zero padded.
${MMM}	Current month. Three character abbreviation.
${MMMM}	Full name of the current month
${S}	Current second.
${Second}	Current second. Two digit format, zero padded.
${Time}	Current Time. (Short Time format)
${Today}	Time period: today
${Year}	Four digit year
${Year2}	Two digit year
${Yesterday}	Time period: yesterday

General Variables

The following general variables are valid for use in Network Atlas tooltips.

Variable	Description
${Acknowledged}	Acknowledged status
${AcknowledgedBy}	Who the alert was acknowledged by
${AcknowledgedTime}	Time the alert was acknowledged
${AlertTriggerCount}	Count of triggers
${AlertTriggerTime}	Date and time of the last event for this Alert. (Windows control panel defined "Short Date" and "Short Time")
${Application}	SolarWinds application information
${Copyright}	Copyright information
${CR}	Line Feed – Carriage Return
${ObjectName}	Description/Name of the object in the alert
${Release}	Release information
${Version}	Version of the SolarWinds software package

Interface Variables

The following interface variables are valid for use in Network Atlas tooltips.

Variable	Description
${AdminStatus}	Numeric administrative status of interface. For more information see "Status Icons and Identifiers" in the *SolarWinds Orion Network Performance Monitor Administrator Guide.*
${AdminStatusLED}	Filename of current interface administrative status icon
${Caption}	User friendly description of interface combining name with other identifying information
${Counter64}	States if interface supports IF-MIB high capacity counters
${CustomBandwidth}	Indicates if transmit and receive bandwidth fields are user-controlled (1) or controlled by automated detection via ifSpeed MIB (0)
${CustomPollerLastStatisticsPoll}	Day, date, and time that this interface was last polled by the current poller
${InBandwidth}	Incoming bandwidth of interface
${Inbps}	Current incoming traffic, in bps, to interface
${InDiscardsThisHour}	Number of incoming packets discarded by interface in last hour
${InDiscardsToday}	Number of incoming packets discarded by interface in current day
${InErrorsThisHour}	Number of interface receive errors in last hour
${InErrorsToday}	Number of interface receive errors in current day
${InMcastPps}	Current incoming multicast traffic, in packets per second, to interface
${InPercentUtil}	Current percent utilization of interface receive
${InPktSize}	Average size of incoming packets to interface
${InPps}	Current incoming traffic, in packets per second, to interface
${InterfaceIcon}	Filename of the icon represent the interface type
${InterfaceID}	Internal unique identifier of selected interface
${InterfaceIndex}	Index of selected interface on parent node
${InterfaceLastChange}	sysUpTime value when the interface entered current operational state
${InterfaceMTU}	Interface Maximum Transfer Unit: the largest packet the interface can handle

Variable	Description
${InterfaceName}	User friendly name
${InterfaceSpeed}	Interface bandwidth
${InterfaceType}	IANA type of selected interface
${InterfaceTypeDescription}	User friendly description of interface type
${InterfaceTypeName}	User friendly name of interface IANA type
${InUcastPps}	Current incoming unicast traffic, in packets per second, to interface
${LastSync}	Time and date of last interface database and memory synchronization
${MaxInBpsTime}	Time when ${MaxInBpsToday} was measured
${MaxInBpsToday}	Maximum measured traffic, in bps, into interface
${MaxOutBpsTime}	Time when ${MaxOutBpsToday} was measured
${MaxOutBpsToday}	Maximum measured traffic, in bps, out from interface
${NextPoll}	Day, date and time of next scheduled interface polling
${NextRediscovery}	Next interface rediscovery time
${NodeID}	Internal unique identifier of node that is parent to the selected interface
${ObjectSubType}	States if parent node supports SNMP or is ICMP only
${OperStatus}	Numeric operational status of interface. For more information see "Status Icons and Identifiers" in the *SolarWinds Orion Network Performance Monitor Administrator Guide*.
${OperStatusLED}	Filename of current interface operational status icon
${OutBandwidth}	Outgoing bandwidth of interface
${Outbps}	Current outgoing traffic, in bps, from interface
${OutDiscardsThisHour}	Number of outgoing packets discarded by interface in last hour
${OutDiscardsToday}	Number of outgoing packets discarded by inteNumber of interface transmit errors in last hourrface in current day
${OutErrorsThisHour}	Number of interface transmit errors in last hour
${OutErrorsToday}	Number of interface transmit errors in current day
${OutMcastPps}	Current outgoing multicast traffic, in packets per second, from interface
${OutPercentUtil}	Current percent utilization of interface transmit
${OutPktSize}	Average size of outgoing packets from interface

Variable	Description
${OutPps}	Current outgoing traffic, from interface, in pps
${OutUcastPps}	Current outgoing unicast traffic, in packets per second, from interface
${PhysicalAddress}	Physical address of interface
${PollInterval}	Interval, in seconds, between polling attempts for interface
${RediscoveryInterval}	Interval, in minutes, between rediscovery attempts for interface
${Severity}	A network health score providing 1 point for an interface in a warning state, 1000 points for a down interface, and 1 million points for a down node
${StatCollection}	Interface statistics collection frequency, in minutes
${Status}	Numeric interface status. For more information see "Status Icons and Identifiers" in the *SolarWinds Orion Network Performance Monitor Administrator Guide*.
${StatusLED}	Filename of current interface status icon
${UnManaged}	States if interfacee is currently unmanaged
${UnPluggable}	States if interface is designated as unpluggable

IP SLA Variables

The following variables related to IP SLA operations are valid for use in Network Atlas tooltips.

Variable	Description
${DateChangedUtc}	The last time operation information was updated
${Description}	A user defined explanation of the operation
${Frequency}	How often the operation is performed
${IpSlaOperationNumber}	The time between operation executions
${IsAutoConfigured}	This value is True if it was created by IP SLA Manager, False if it was created by the user
${OperationInstanceID}	The internal ID of the operation.
${OperationName}	The name of the operation as it appears in Orion
${OperationTypeID}	Numerical operation status code. 1=DHCP, 2=DNS, 3=FTP, 4=HTTP, 5=ICMP Echo, 8=TCP Connect, 9=UDP Echo, 10=UDP Jitter, 11=VoIP UDP Jitter
${SourceNodeID}	The Orion node ID of the source node

Variable	Description
${Status}	Numerical operation status code. For more information see "Status Icons and Identifiers" in the *SolarWinds Orion Network Performance Monitor Administrator Guide*.
${StatusMessage}	A message that describing the ${Status} value.
${TargetNodeID}	The Orion node ID of the node the operation is targeting

Node Variables

The following node variables are valid for use in Network Atlas tooltips.

Variable	Description
${AgentPort}	Node SNMP port number
${Allow64BitCounters}	Node allows 64-bit counters (1), or not (0)
${AvgResponseTime}	Average node response time , in msec, to ICMP requests
${BlockUntil}	Day, date, and time until which node polling is blocked
${Caption}	User friendly node name
${Community}	Node community string
${CPULoad}	Node CPU utilization rate at last poll
${CustomPollerLastStatisticsPoll}	Day, date, and time of last poll attempt on node
${CustomPollerLastStatisticsPollSuccess}	Day, date, and time that node was last successfully polled
${DateTime}	Current date and time. (Windows control panel defined "Long Date" and "Long Time" format)
${Description}	Node hardware and software
${DNS}	Fully qualified node name
${DynamicIP}	If node supports dynamic IP address assignment via BOOTP or DHCP (1); static IP address return (0)
${EngineID}	Internal unique identifier of the polling engine to which node is assigned
${External}	States if node is currently designated as external
${GroupStatus}	Filename of status icon for node and its interfaces
${IOSImage}	Family name of Cisco IOS on node
${IOSVersion}	Cisco IOS version on node
${IP_Address}	Node IP address
${LastBoot}	Day, date and time of last node boot
${LastSync}	Time and date of last node database and memory

Variable	Description
	synchronization
${MachineType}	Node manufacturer or distributor and family or version information
${MaxResponseTime}	Maximum node response time , in msec, to ICMP requests
${MemoryUsed}	Total node memory used over polling interval
${MinResponseTime}	Minimum node response time , in msec, to ICMP requests
${NextPoll}	Day, date and time of next scheduled node polling
${NextRediscovery}	Time of next node rediscovery
${NodeID}	Internal unique identifier of node
${NodeName}	Node hostname. Defaults to node IP address ${IP_Address} if hostname does not resolve.
${ObjectSubType}	States if node supports SNMP or is ICMP-only
${PercentLoss}	ICMP packet loss percentage when node last polled
${PercentMemoryUsed}	Percentage of total node memory used over polling interval
${PollInterval}	Node polling interval, in seconds
${RediscoveryInterval}	Node rediscovery interval, in minutes
${ResponseTime}	Node response time, in milliseconds, to last ICMP request
${RWCommunity}	Node read/write community string; acts as security code for read/write SNMP access
${Severity}	A network health score providing 1 point for an interface in a warning state, 1000 points for a down interface, and 1 million points for a down node.
${SNMPVersion}	States the version of SNMP used by the node
${StatCollection}	Statistics collection frequency, in minutes
${Status}	Numerical node status. For more information see "Status Icons and Identifiers" in the *SolarWinds Orion Network Performance Monitor Administrator Guide*.
${StatusDescription}	User friendly node status
${StatusLED}	Filename of node status icon
${SysName}	String reply to SNMP SYS_NAME OID request
${SysObjectID}	Vendor ID of the network management subsystem in OID form. Clearly determines the type of node.
${SystemUpTime}	Time, in hundredths of a second, since monitoring started
${TotalMemory}	Total node memory available
${UnManaged}	States if node is currently unmanaged

Variable	Description
${UnManageFrom}	Day, date, and time when node is set to "Unmanaged"
${UnManageUntil}	Day, date, and time when node is scheduled to be managed
${Vendor}	Node manufacturer or distributor
${VendorIcon}	Filename of node vendor logo icon

Volume Variables

The following volume variables are valid for use in Network Atlas tooltips.

Variable	Description
${Caption}	User friendly volume name
${FullName}	User friendly volume name including captions of parent node and interface
${LastSync}	Time and date volume last synchronized in database and memory models
${NodeID}	Internal unique identifier of parent node
${Status}	Numerical volume status: (0="Unknown", 1="Up", 2="Shutdown", 3="Testing")
${StatusLED}	Filename of volume status icon
${VolumeAllocationFailuresThisHour}	Number of volume allocation errors for this volume in last hour
${VolumeAllocationFailuresToday}	Number of volume allocation errors for this volume in current day
${VolumeDescription}	User friendly volume description
${VolumeID}	Internal unique identifier of volume
${VolumeIndex}	Unique index of volume within the parent node
${VolumePercentUsed}	Percentage of volume currently in use
${VolumeResponding}	(Y) = volume is currently responding to SNMP queries
${VolumeSize}	Size of volume, in bytes
${VolumeSpaceAvailable}	Total space available on volume, in bytes
${VolumeSpaceUsed}	Total space used on volume, in bytes
${VolumeType}	Volume type, as reported by hrStorageType OID (Removable Disk/Fixed Disk/Compact Disc/Virtual Memory/RAM/etc)
${VolumeTypeIcon}	Filename of icon for volume type

Wireless Variables

The following wireless variables are valid for use in Network Atlas tooltips.

Variable	Description
${WirelessAP}	States if node is being polled by the wireless poller (1) or not (0)
${ WirelessLastStatPoll }	Date and time node last polled by wireless poller
${ WirelessPollInterval }	Interval, in minutes, between wireless polling attempts on node
${ WirelessStatBlockUntil }	Date and time node may be polled again by wireless poller

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