



## Plan Files and Templates

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This chapter describes plan files and templates so that you understand their structure, and how templates are applied to plan files for visualization in the applications.

- **Plan Files**—Provides a brief description of plan files. For detailed plan file information, see the *WAE Design Integration and Development Guide*.
- **Templates**—Describes how templates apply to plan files, how they integrate with the applications, how the Copy from Template tool works.

Figure 4-1 shows the plan file and template workflow for applications. The recommendation is to open the remote plan file, modify it in the GUI to create the visual template, and save it to the remote archive as a template (where it overwrites the archived template).

Figure 4-1 also shows the workflow of using the WAE Design GUI to open plan files from and save plan files to the remote WAE Core server, wherein they can then be deployed to the network.

## Plan Files

The WAE Live, WAE Design Archive, and WAE Design applications all have interfaces for viewing the network through a *plan file*. A plan file is comprised of a series of tables that store information about a network, including topology, configuration information, traffic, failure state, and visual layout. Additionally, WAE Design uses plan file information to perform simulations.

Plan files are typically created by the WAE Collector discovery process for use by the applications or the WAE Core APIs.

- WAE Live stores plan files in an internal or external archive.
- WAE Design Archive stores plan files in an external archive.
- The WAE Core server contains a working plan file (of the current network) and potentially contains plan files in staging areas.

Plan files can, however, be created using CLI tools or the GUI, and stored locally.

The WAE Design GUI can access remote servers to send and receive plan files. Note the exception is that you cannot save a plan file to a remote WAE Live server.

# Templates

A WAE Design *template* identifies how the plan file visually looks and can contain information that is not discovered. As such, templates are a convenient way to replicate manual changes across multiple plan files. For instance, you can augment newly discovered plans with non-discoverable information.

No matter the discovery method or the web application using the plan files, the way to make further visual enhancements to the plan file is using the WAE Design GUI, which can access remote servers to send and receive templates. Note that the WAE Core server does not contain templates as defined here.

Where templates are created depends on the discovery method.

- For WAE Live, the template location is set on the Settings->General Settings page of the WAE Live UI in the Map Archive field. It is to this location that you are saving a template if saving it from the WAE Design GUI to a remote WAE Live server.

Once WAE Live requests and receives a plan file, it automatically applies its own template that contains the visual elements for laying out the network. If this template has not yet been enhanced using the WAE Design GUI, the plan file is visualized in the default, unprocessed state. If a template does not yet exist in the specified Map Archive location, WAE Live creates one from the latest plan file and stores it that location.

- If using the augmented or manual method of discovery, the `copy_from_template` tool is used within the snapshot process to either include more objects in the template, change the visual representation of them, or both. The resulting snapshot plan file is sent to an external archive. These files are sent to the WAE Design Archive application. WAE Live can retrieve plan files from an external archive. While those plan files might already have visualization enhancements (via `copy_from_template`) WAE Live will still apply its own template as described in the previous bullet.

Note that when saving a template from WAE Design to either the WAE Live or WAE Design Archive application, template changes apply only to plan files collected after that template is saved. That is, those templates changes do not apply to historical plan files.



The selected properties or objects are copied from the template to the open plan file, and a report is displayed. If there are nodes or interfaces in the plan file that are not in the template, this might indicate that the discovered network has been changed, and the template is out of date. In this case, the report states that the template should be updated.

Note that you can individually import SRLGs, a Layer 1 model, a QoS model, demand groupings, external endpoints, and tags from one plan file to another, all from the File->Import menu. For information, see the *WAE Design Integration and Development Guide*.

## Assigning Nodes to Sites

In the WAE Design GUI, the visual layout is based on the schematic or geographic arrangement of sites and nodes. If nodes are within sites, this node-to-site assignment is not discoverable.

When layouts are copied from the template, nodes that are discovered are placed in the plan file as follows.

- Each existing node without a parent site continues to exist without a parent.
- If a discovered node is matched to a node within a site in an existing template, it is assigned to the same site.
- If the node is new, it is assigned to a site based on the Node-to-Site Mapping (<NodeSiteMappingRules>) table in the template. For information on how these tables are created, see the [Visualizing a WAE Network](#) chapter.
- If WAE Design cannot assign the discovered node to an existing site, an ExtraNodes site is created and the unassigned node is placed there. This site appears at the top, right of the plot.

## Copying Missing Information

If any nodes, circuits, L1 nodes, or L1 links are down, the network discovery process omits them from the discovered plan file. Since a template used for network discovery typically contains these objects, it can fill in the missing objects to provide a complete visualization of the network. Whether these objects are set to inactive or active depends on the selected copy method ([Table 4-1](#)).

Errors in network discovery can sometimes prevent node names, interface names, or IP addresses from being discovered correctly. The Copy from Template tool attempts to fill in the missing object information by matching nodes and interfaces in the two plans by name and IP address; for nodes that are in external AS's, it also checks the BGP-ID. For example, if the discovery process finds an IP address of an interface, but not its name, the tool looks for an interface in the template with a matching IP address, and then copies over the name from the template interface.

## Copy Methods

The objects and properties that are copied depends on the selected method ([Table 4-1](#)).

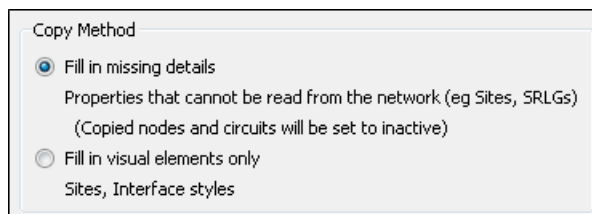
**Table 4-1 Copy from Template Methods**

Copy from Template Method	Description
Fill in missing details	<ul style="list-style-type: none"> <li>Copies L3 template layout, including site assignments for nodes.</li> <li>Copies L3 nodes and circuits, and sets them to inactive.</li> <li>For newly discovered L3 nodes, assigns nodes to sites based on the &lt;NodeSiteMappingRules&gt; table created using the Assign Sites to Nodes feature. For information on creating this table, see the <a href="#">Visualizing a WAE Network</a> chapter.</li> <li>Copies non-discoverable L3 objects, such as SRLGs and AS relationships.</li> </ul>
Fill in visual elements only	<ul style="list-style-type: none"> <li>Copies L3 template layout.</li> <li>For newly discovered L3 nodes, assigns nodes to sites based on the &lt;NodeSiteMappingRules&gt; table created using the Assign Sites to Nodes feature.</li> </ul>
Copy L1 visual layout	<ul style="list-style-type: none"> <li>Copies template layout for L1 objects.</li> <li>Site assignments are based on the site assignments in the template. Any L1 nodes that exist in the plan file but not in the template are placed in an ExtraL1Nodes site that is created for this purpose.</li> </ul>
Copy the L1 model from the template	<p>You cannot copy L1 objects without copying L3 objects (without “Fill in missing details” also being selected).</p> <ul style="list-style-type: none"> <li>Copies template layout, including site assignments for L1 nodes.</li> <li>Copies all L1 objects.</li> <li>Site assignments are based on the site assignments in the template. Any L1 nodes that exist in the plan file but not in the template are placed in an ExtraL1Nodes site that is created for this purpose.</li> </ul>

## Copy from Template Steps

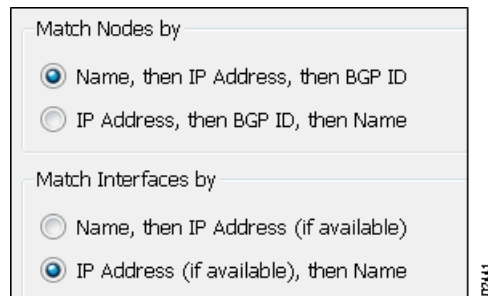
For information on how to copy from template in the CLI, refer to the `copy_from_template -help` output.

- Step 1** Select the File->Copy From Template menu. The Copy Values From Template File dialog box appears.
- Step 2** In the Template File field, enter or browse to the fully-qualified path and filename of the plan you are copying.
- Step 3** Specify how to copy L3 values from the template into the plan. See [Table 4-1](#).



- Step 4** Specify how to match nodes in the plan with those in the template.

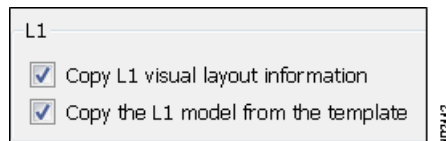
- Name, the IP address, then BGP ID—Select this option to match all nodes by name if possible, then by IP address, and then by BGP ID.
- IP Address, then BGP ID, then Name—Select this option to match all nodes by matching by IP address if possible, then by BGP ID, and then by name.



**Step 5** Specify how to match interfaces in the plan with those in the template.

- Name, then IP Address (if available)—Select this option to match all interfaces and circuits by name if possible, and then by IP address.
- IP Address (if available), then Name—Select this option to match all interfaces and circuits by matching by IP address if possible, and then by name.

**Step 6** Optional: Specify how to copy L1 values from the template into the plan. See [Table 4-1](#).



**Step 7** Optional: Selectively choose which nodes to include by clicking the Preview/Customize button. From here you can click the Edit button to select nodes, as well as set copied nodes to inactive. If the plan file contains nodes that the template does not contain, they are put into a site named ExtraNodes (for L3 nodes) or ExtraL1Nodes (for L1 nodes).

To view which circuits to include, click the Next button. You can click Edit to select specific circuits and/or you can set the circuits to inactive. It is recommended that you not use this option unless you also choose to include nodes associated with these circuits.

**Step 8** Click OK.

**Step 9** Look at the network plot to verify the success of the copied template.

## Related Topics

- [WAE Design GUI and Remote WAE Live](#) chapter
- [WAE Design GUI and Remote WAE Design Archive](#) chapter
- [WAE Design GUI and Remote WAE Core Server](#) chapter
- *WAE Design Integration and Development Guide*

- `copy_from_template` CLI tool in `$CARIDEN_HOME/bin`, where `$CARIDEN_HOME` is the directory in which the WAE Design, WAE Live, and WAE Collector executables and binaries are installed. On Linux, the default `$CARIDEN_HOME` is `/opt/cariden/software/mate/current`.

