



Network Model Configuration—Cisco WAE UI

This section contains the following topics:

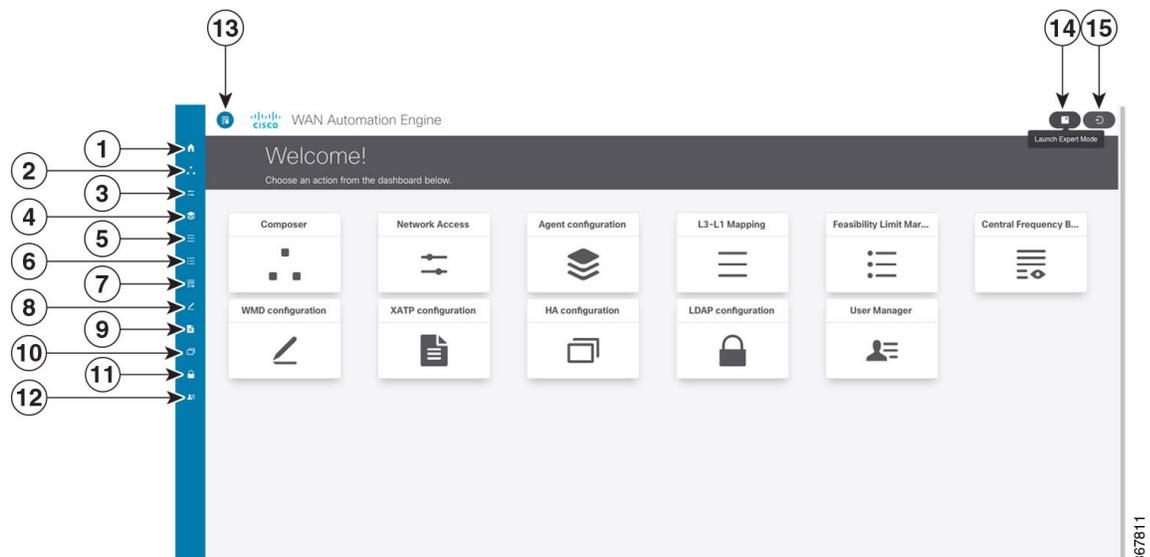
- [Cisco WAE UI Overview, on page 1](#)
- [Important Notes, on page 3](#)
- [Configure a Network Model Using the Cisco WAE UI, on page 3](#)

Cisco WAE UI Overview

The Cisco WAE UI provides an easy-to-use configuration tool for device and network access, network model creation, user management, agent configuration, and so on.

For basic network model configuration we recommend starting with the Network Model Composer. There are certain operations, such as the configuration of telemetry and some scheduler jobs, that cannot be performed using the Cisco WAE UI. For these tasks, you can use the Expert Mode or the Cisco WAE CLI. Regardless of the interface you use, the last committed configuration is saved.

Figure 1: Cisco WAE UI



Callout No.	Description	For more information, see...
1	Returns you to the main Cisco WAE UI landing page.	—
2	Opens the Network Model Composer, which lets you create and build a network model.	Use the Network Model Composer, on page 6
3	Opens the network access configuration page, which lets you configure global device and network credentials.	Configure Network Access Using the Cisco WAE UI, on page 3
4	Opens the agent configuration page, which lets you create and modify agents.	Configure Agents Using the Cisco WAE UI, on page 5
5	Opens the L3-L1 mapping configuration page, which lets you create and modify L3-L1 node and circuit mappings for multilayer collection.	Configure L3-L1 Mapping Information
6	Opens the feasibility limit margin configuration page, which lets you set the acceptable quality of the L1 circuit path.	"L1 Circuit Wavelengths" topic in the Cisco WAE Design User Guide .
7	Opens the central frequency blacklist configuration page, which lets you define the list of frequency IDs that may not serve as central frequency IDs for L1 circuit paths.	"L1 Circuit Wavelengths" and "Central Frequency ID Blacklist" topic in the Cisco WAE Design User Guide .
8	Opens the WMD configuration page, which lets you view WMD options such as debugging, rpc and application subscriber connections, demands, and so on. To edit these options, use the Expert Mode or WAE CLI.	Cisco WAE Modeling Daemon (WMD) Configuration
9	Opens the XTC Agent to Patch module configuration page, which lets you set WMD, XTC agent, and DARE options.	Configure the XTC Agent to Patch Module
10	Opens the high availability (HA) configuration page, which lets you designate which nodes are used for HA.	Configure High Availability
11	Opens the LDAP configuration page, which lets you enable and configure LDAP details.	<ul style="list-style-type: none"> • Configure LDAP • Configure LDAP Using the WAE UI
12	Opens the user management page, which lets you add, modify, and delete users.	Manage Users
13	Toggles the main Cisco WAE UI navigation menu on the left (also called the left sidebar menu).	—
14	Launches the Expert Mode in another window.	Network Model Configuration—Expert Mode
15	Logs the current user out.	—

Important Notes

When using the Cisco WAE UI, note the following:

- In order for a network model configuration that was created using the Expert Mode or Cisco WAE CLI to appear in the Cisco WAE UI, it should be an aggregated network or added as a source to an aggregated network.
- When using the Network Model Composer, collectors in the Traffic and Demands step should be configured to use the native storage format for better performance.

Configure a Network Model Using the Cisco WAE UI

This workflow describes the high-level steps to create a network model using the Cisco WAE UI and the Network Model Composer.

Step	For more information, see...
1. Configure device credentials (network authgroups and SNMP groups).	Configure Network Access Using the Cisco WAE UI, on page 3
2. (Optional) Create agents to collect specific information. Agents are needed for collecting information using XTC or for multilayer collection.	Configure Agents Using the Cisco WAE UI, on page 5
Use the Network Model Composer to do the following:	
3. Create a network model and run topology collection.	Create a Network and Configure Topology Collection, on page 7
4. Configure additional data collections using NIMOs.	Configure Additional NIMOs Using the Network Model Composer, on page 8
5. Aggregate NIMOs to build a network.	Consolidate NIMO Collections Using the Network Model Composer, on page 9
6. (Optional) Configure traffic collection and customer scripts to run in your network.	Run Traffic Collection or a Custom Script Using the Network Model Composer, on page 10
7. (Optional) Create scheduling jobs to run network collections and agents.	Schedule Jobs Using the Network Model Composer, on page 11
8. (Optional) Configure archives.	Configure the Archive Using the Network Model Composer, on page 12

Configure Network Access Using the Cisco WAE UI

In this task, you are defining global device credentials by creating a network access profile.

Before you begin

Know the global network device credentials.

-
- Step 1** From the WAE UI, click the Network Access icon (.
- Step 2** Click **+ Create Network Access**.
- Step 3** Enter the global device credentials:
- **Name**—Enter a name for the network access profile.
 - **Login Type**—Choose which login protocol to use: SSH or Telnet. The SSH protocol is more secure. The Telnet protocol does not encrypt the username and password.
 - **Authorization Group**—Choose default or create a new authorization group. If creating a new authorization group, enter a name for it and applicable information in the fields that follow.
- Step 4** Choose default or create a new SNMP group. If creating a new SNMP group, enter a name for it and select either SNMPv2c or SNMPv3.
- If SNMPv2c, enter the SNMP RO community string that acts as a password. It is used to authenticate messages sent between the node and the seed router.
 - If SNMPv3, enter the following default credentials:
 - **Security Level**—Select one of the following:
 - **noAuthNoPriv**—Security level that does not provide authentication or encryption. This level is not supported for SNMPv3.
 - **authNoPriv**—Security level that provides authentication but does not provide encryption.
 - **authPriv**—Security level that provides both authentication and encryption.
 - **Authentication Protocol and Password**—Select one of the following:
 - **md5**—HMAC-MD5-96 authentication protocol
 - **sha**—HMAC-SHA-96 authentication protocol
 - **Encryption Protocol and Password**—The priv option offers a choice of DES or 128-bit AES encryption for SNMP security encryption. The priv option and the aes-128 token indicates that this privacy password is for generating a 128-bit AES key #. The AES priv password can have a minimum of eight characters. If the passphrases are specified in clear text, you can specify a maximum of 64 characters. If you use the localized key, you can specify a maximum of 130 characters.
- Step 5** Click **Save**.
- Step 6** (Optional) To add or edit nodes associated with these network access credentials, do the following:
- a) Click the **Edit Node Access** button and do one of the following:
 - To download/export a node list, click .
 - To import a node list, click , and navigate to the CSV file that contains a list of nodes. This overwrites nodes that were previously configured.

- To add a node, click , and enter node details.
- To edit a node, select a node, click , and enter node details.
- To delete a node, select a node, click .

b) Click **Done**.

Step 7 Click **Save**.

What to do next

Use the Network Model Composer to create a network model.

Configure Agents Using the Cisco WAE UI

Agents perform information-gathering tasks and should be configured before certain network collection operations. This section describes how to configure agents using the Cisco WAE UI.

Step 1 From the Cisco WAE UI, click the Agent Configuration icon (.

Step 2 Click **Create New Agent**.

Step 3 Enter a name for the agent.

Step 4 From the Collector Type drop-down list, select one of the following:

- **xtc-agent**—Collects information from XTC.
- **cisco-wae-optical-ctc-agent**—Collects optical information using Cisco Transport Controller (CTC). It supports Cisco Network Convergence System (NCS) 2000 platforms running releases 10.6, 10.7, and 10.8 for L1 devices.
- **optical-wae-optical-epnm-agent**—Collects optical information and supports Cisco NCS 2000 Series, Release 10.9 devices in your network. You must have EPN-M running on your network to use this agent.
- **cfg-parse-agent**—Collects and parses data from Cisco, Juniper, and Huawei router configuration files. It is used when configuring the following NIMOs:
 - SRLG Configuration Parse (srlg-cfg-parse-nimo)
 - VPN Configuration Parse (vpn-cfg-parse-nimo)
 - Port Configuration Parse (port-cfg-parse-nimo)
 - LSP Configuration Parse (lsp-cfg-parse-nimo)

Step 5 Click **Create Agent**.

Step 6 On the next window, enter applicable agent configuration values. To view field descriptions, hover the mouse pointer over the field name. Also, more details on required fields can be found in the following topics:

- [Configure the Configuration Parsing Agent Using the Expert Mode](#)
- [Configuring XTC Agents Using the Expert Mode](#)
- [Configure Multilayer Collection Using the CTC Agent](#)
- [Configure Multilayer Collection Using the EPN-M Agent](#)

Step 7 Click **Save**.

Step 8 To run the agent, click **Actions > run-collection**.

What to do next

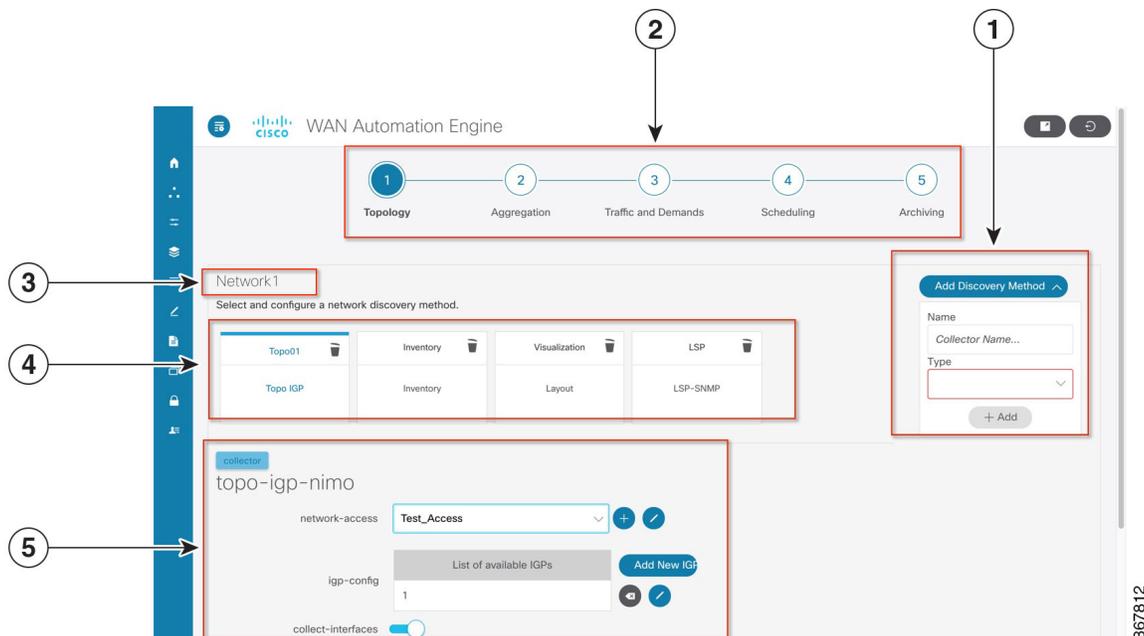
Use the Network Model Composer to configure NIMOs to build a network model. For more information on NIMO types, see [NIMO Descriptions](#).

Use the Network Model Composer

The Network Model Composer hides the complexity of network model configuration. It provides a visual workflow to guide you from creating a network model using various NIMOs to setting up a schedule to run collections and configuring an archive to store the network model plan files.

The Network Model Composer provides the following general controls.

Figure 2: Cisco WAE Network Model Composer



Callout No.	Description
1	Starts the process of creating a network model, an agent, a NIMO, a scheduled task, or an archive.

Callout No.	Description
2	Displays where you are in the network model configuration process. As you complete each step, you may click on a step that you may want to skip or go back to.
3	Displays the network model you are configuring collections (NIMOs), scheduling tasks, or archives for.
4	Displays configured components (NIMOs, scheduling tasks, or archives) that have been created for the selected network model.
5	Displays the configuration options for the selected component.

Create a Network and Configure Topology Collection

The initial step in configuring a complete network model is to create a new network with topology collection. In this task, you are configuring a topology collection that will be the source network for additional network collections. After the initial collection, the node IP address table is populated and you can add management IP addresses. For more information on basic topology collections, see [Basic Topology Collection](#).



Note It is recommended that you configure network access and any necessary agents as described in [Configure a Network Model Using the Cisco WAE UI, on page 3](#) before you use the Network Model Composer. However, you have the opportunity to configure network access and agents in the Network Model Composer.

Step 1 From the Cisco WAE UI, click the Network Model Composer icon (.

Step 2 Click **+ Create New Network**.

Step 3 Enter a network model name and click **Create Network**.

Note The network model name cannot be changed after it is entered.

Step 4 Click **Add Discovery Method**.

Step 5 Click one of the following NIMOs:

- **Topo IGP**—To collect topology information using the IGP database.
- **Topo BGP/LS XTC**—To collect topology information from a network running XTC. If an XTC agent has not been created, you have the opportunity to create one in the next window. For reference on agent configuration details, see the [Configuring XTC Agents Using the Expert Mode](#) topic.

Step 6 Click **+ Add**.

Step 7 Click the topology icon (Topo IGP or Topo BGP/LS XTC) to configure collection.

Step 8 Enter applicable configuration details. For more information on configuration options, do one of the following.

- Refer to the following Expert Mode topics: [Topology Collection Using the IGP Database](#) and [Topology Collection Using XTC](#).
- Hover the mouse pointer over each field to view field descriptions.

- Step 9** Click **Save**. You are brought back to the main network model window.
- Step 10** Click the topology icon (Topo IGP or Topo BGPLS XTC) again.
- Step 11** Click **Actions** and select one of the following:
- **run collection** or **run-xtc-collection**—Starts collection.
 - **Download Node List**—Downloads a .csv file that contains the list of discovered nodes.
 - **Update Node List**—Allows you to delete, add, or edit existing nodes.
 - **Done**—Takes you back to the previous window.
- Step 12** Click **Save**.

What to do next

You can configure more collections using other NIMOs to create a complete network model.

Configure Additional NIMOs Using the Network Model Composer

This topic describes the general procedure to configure additional NIMOs using the Network Model Composer. For NIMO descriptions, see [NIMO Descriptions](#).



Note

- The term "Collector" is displayed in the Network Model Composer when you are prompted to enter or select a NIMO. The terms NIMO and Collector are used interchangeably in the Network Model Composer.
- Configure additional topology NIMOs at this step. It is recommended that non-topology NIMOs (layout, inventory, demand deduction, and so on) are configured in the external-executable-nimo after topology aggregation.

Before you begin

Confirm that the network model you are working with has a basic topology NIMO configured.

- Step 1** Click the Network Model Composer icon () and click a network model that you want to configure a NIMO for.
- Step 2** Click **Add Discovery Method**.
- Step 3** Enter a name for the Collector.
- Step 4** From the Type drop-down list, select a NIMO and click + **Add**.
- Step 5** Click the Collector icon to configure collection.
- Step 6** Enter applicable configuration details. Hover the mouse pointer over each field to view field descriptions.
- Note** You can also refer to the [Network Interface Modules \(NIMOs\)](#) topic. This topic links to NIMOs and associated configuration options.
- Step 7** Click **Save**. You are brought back to the main network model window.
- Step 8** Click the Collector icon and click **Actions**.

Step 9 Click the button that will start the NIMO collection (typically "run-collection").

What to do next

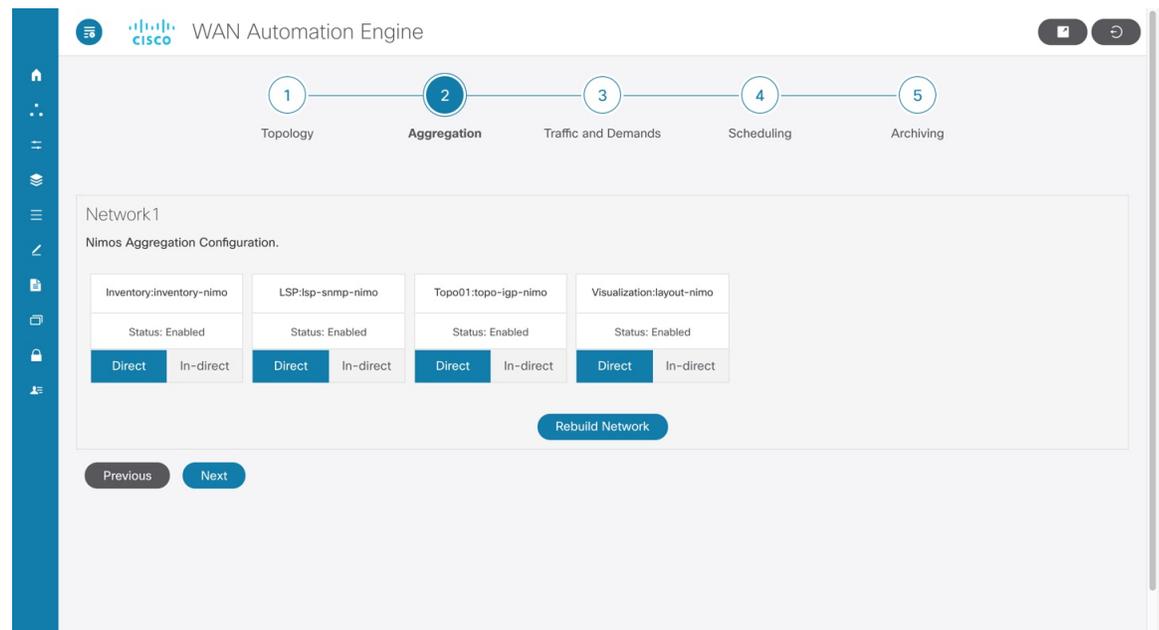
You can do the following:

- Configure and run more collections
- [Consolidate NIMO Collections Using the Network Model Composer](#)

Consolidate NIMO Collections Using the Network Model Composer

After you configure multiple NIMOs, you will want to consolidate all the collection models to build a complete network model. After NIMO aggregation, you can collect traffic statistics (traffic-poll-nimo) and run custom scripts (external-executable-nimo) against your network model.

Figure 3: Network Model Composer—Aggregation



Step 1 Click the Network Model Composer icon () and choose a network model.

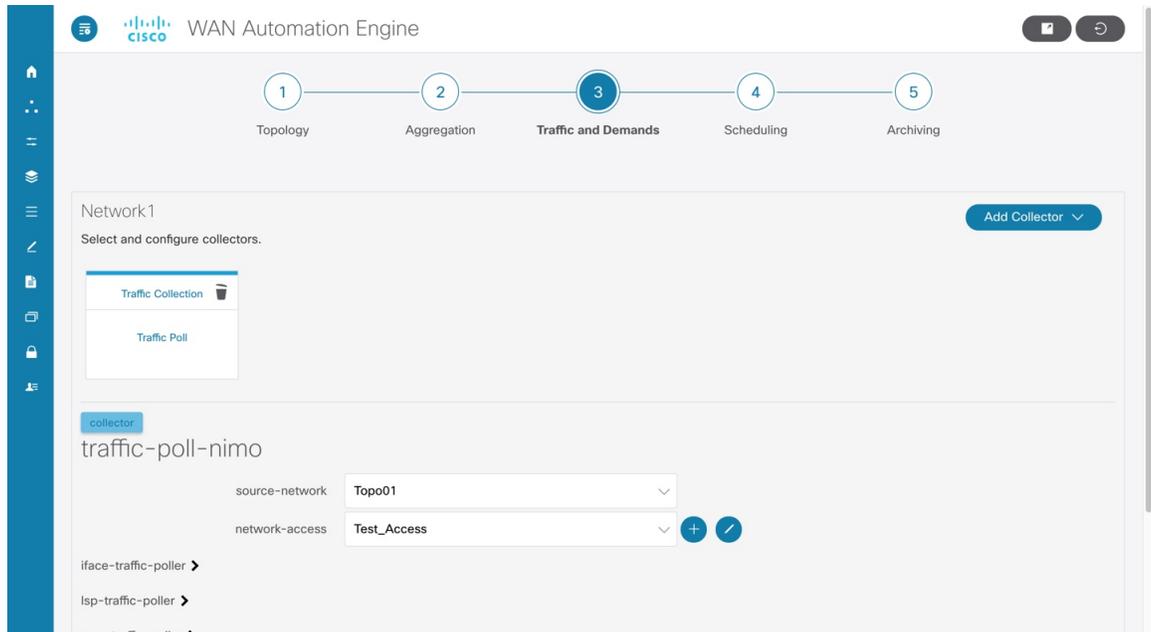
Step 2 Click the **Aggregation** icon from the top navigation bar. The Aggregation page should look similar to the one above.

Step 3 By default, all NIMOs are included in the aggregation. To exclude any NIMOs from aggregation, click **In-Direct**. Any changes on that collection model will not be included during aggregation.

Step 4 To start aggregation, click **Rebuild Network**. For more information on aggregation, refer to the [NIMO Collection Consolidation](#) topic.

Run Traffic Collection or a Custom Script Using the Network Model Composer

Figure 4: Network Model Composer—Traffic and Demands



Before you begin

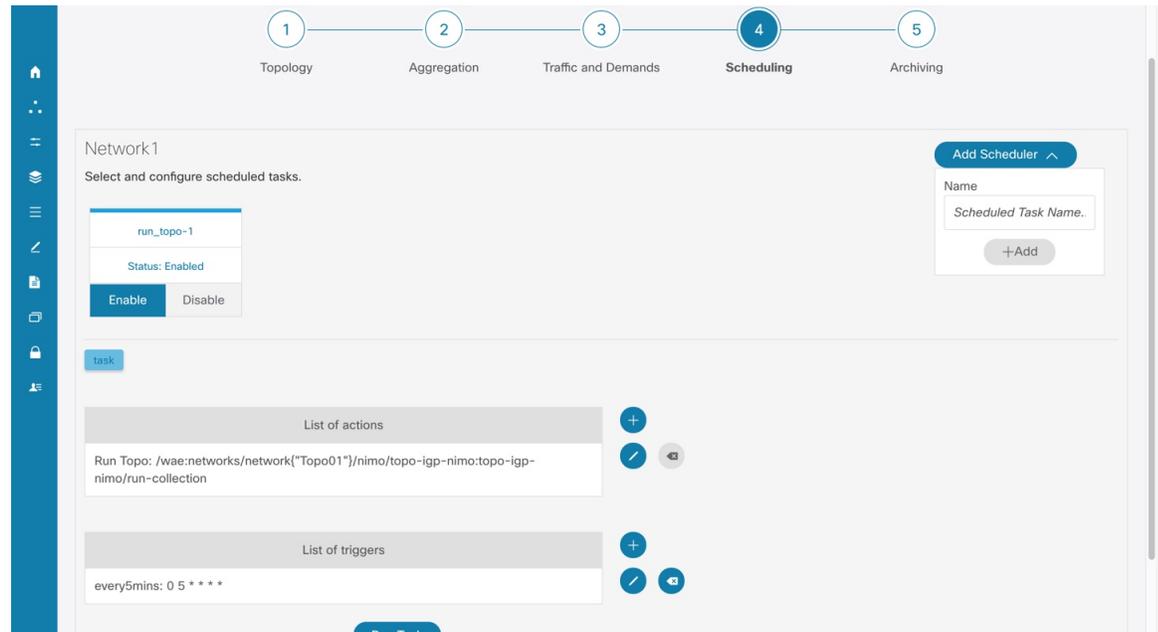
Confirm you have completed the preliminary tasks described in [Configure a Network Model Using the Cisco WAE UI, on page 3](#) and have aggregated collection models.

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- Step 1** Click the Network Model Composer icon () and choose a network model.
- Step 2** Click **Traffic and Demands**.
- Step 3** Click **Add Collector**.
- Step 4** Enter a name for the Collector.
- Step 5** Select **Traffic Poll** or **External executable** from the Type drop-down list.
- Step 6** Click **Add**. The new collector appears.
- Step 7** Click the collector you just created.
- Step 8** Enter applicable configuration details. Hover the mouse pointer over each field to view field descriptions. You can also refer to the following topics: [Traffic Collection](#), [Traffic Poller Advanced Options](#), and [Running External Scripts Against a Network Model](#).
- Note** We recommend to set the storage format to "native" for better performance. For traffic collection, you can set this option in the **advanced > snmp-traffic-population > storage-format** settings.
- Step 9** Click **Save**. You are brought back to the main network model window.
-

Schedule Jobs Using the Network Model Composer

This procedure describes how to schedule different network collections and agents to run using the Network Model Composer. For more information on additional scheduling jobs and configuration options that can be configured using the Expert Mode, see [Scheduler Configuration](#).

Figure 5: Network Model Composer - Scheduling



- Step 1** Click the Network Model Composer icon () and choose a network model.
- Step 2** Click **Scheduling**.
- Step 3** Click **Add Scheduler**.
- Step 4** Enter a name for the scheduling job.
- Step 5** Click **Add**.
- Step 6** Click the scheduling job icon.
- Step 7** To add an action, click  and enter an action name.
- Step 8** Choose whether the action will be performed on a NIMO or agent.
- Step 9** Select the NIMO or agent from the drop-down list.
- Step 10** If the action-type and path fields are not populated, enter applicable values.
- Step 11** Click **Save**.
- Step 12** (Optional) Add more actions.
- Step 13** To add a trigger, click  and enter a trigger name.

Step 14 Configure the time interval to run the actions.

Step 15 Click **Run Task**.

Note Each action is done in the order it is listed and configured.

Configure the Archive Using the Network Model Composer

After creating a network model and running collections, you have the option to retrieve and view plan files. Plan files capture all relevant information about a network at a given time, and can include topology, traffic, routing, and related information.

The Archive is a repository for plan files. See also [Configure the Archive Using the WAE CLI](#), which describes how to configure the Archive using the Cisco WAE CLI.

Figure 6: Network Model Composer - Archiving

The screenshot shows the Cisco WAN Automation Engine interface. At the top, there is a progress bar with five steps: 1. Topology, 2. Aggregation, 3. Traffic and Demands, 4. Scheduling, and 5. Archiving. The 'Archiving' step is currently selected and highlighted in blue. Below the progress bar, the 'Network1' configuration is displayed. Under 'Networks Archive Configuration', there is a table with columns for 'Network1', 'Inventory', 'LSP', 'Topo01', and 'Visualization'. Each column has a sub-column for 'Aggregator Network' and a row of 'Enable' and 'Disable' buttons. The 'Enable' buttons are highlighted in blue. Below the table is the 'Archive configuration form' with fields for 'Name' (Network1), 'Archive Path', 'Archive Every' (Interval), and 'Source' (CDB).

Step 1 Click the Network Model Composer icon () and choose a network model.

Step 2 Click **Archiving**.

Step 3 Click a NIMO or the network model you want to configure the archive for.

Step 4 The Archive path and interval fields might be populated if they were configured when the network was initially created. If not, or if you want to change them, enter new values.

Step 5 Select the source that the Archive will retrieve from.

Step 6 Click **Save**.

Step 7 Click **Enable** to enable the archive.