UWS – AutoVNF

UWS – AutoVNF Dashboard

The Ultra Web Services (UWS) – AutoVNF dashboard is the initial view displayed upon login. The current version of the AutoVNF software is displayed on the title bar of the AutoVNF UI.

The top of the display provides information on the following:

- Number of Hosts
- Number of VNFs
- Number of VMs
- Number of Service Chains

Below the VNF status indicators, are a number of key performance indicator (KPI) graphs for any given VNF. This view is customizable but available indicators include:

- Card types
- VM state by type
- CPU usage (per second)
- Memory usage (per second)
- Flow-related statistics:
  - Flow terminated (per second)
  - Flow aged (per second)
  - Flow hits (per second)

- Flow miss (per second)

- Subscriber rate (per second)
- Policy Charging Control Rules rate (per second)
- Receive/Transmit statistics

Use the Gear button on the top right of the display to select which graphs to display.

Use the Navigation button on the top left of the display to access functions within UWS – AutoVNF. Click the Navigation button again to close the Navigation pane.

Use the Navigation button on the top right of the display to open a pane for viewing details regarding deployed VNFs. Click the button again to close the Deploy pane.

Click the Home button on the top left of the screen to return to the UWS Dashboard.

Key Performance Indicator (KPI) Graphs

The UWS communicates with the Ultra Element Manager (UEM) and provides aggregated views of KPIs pertaining to the VNFs deployed within the Ultra Service Platform (USP).

At the top of each graph is a VNF label. Click on this label to enable/disable the graph for that VNF.

Click the Gear button at the top of each graph to change the display to a Line graph or Area graph.

Click one of the **Zoom** choices to view:

- The last minute of data
- The last 5 minutes of data
- All data since the VNF was deployed

Select an area in the bottom graph to limit the top graph to a particular timeframe. Do this by moving the scroll bars on either side of the bottom graph sideways to change the display. You can also use the arrow bars at the bottom of the graph to futher specify a particular timeframe.

Move your cursor inside a graph to see the exact point in time that is displayed.

High-level Workflow

Important If you also use the UWS – AutoDeploy user interface to manage VNFs, uploading VNF configurations from the UWS – AutoVNF user interface is not recommended.

The high-level steps below summarize the workflow using the Ultra Web Services (UWS) – AutoVNF interface.

Step 1 Create the components for a VNF:

a) Upload and deploy secure tokens by following the instructions in Upload and Deploy Secure Tokens, on page 3.

b) Upload and deploy a VNF manager by following the instructions in Upload and Deploy a VNF Manager, on page 4.

c) Upload and deploy a VNFM instance by following the instructions in Upload and Deploy a VNFM Instance, on page 5.

d) Upload and deploy a volume by following the instructions in Upload and Deploy a Volume, on page 5.

e) Upload and deploy a VDU by following the instructions in Upload and Deploy a VDU, on page 6.

f) Upload and deploy a network by following the instructions in Upload and Deploy a Network, on page 6.

Step 2 Upload a VNF configuration by following the instructions in Upload VNF Configuration, on page 7.

Step 3 (Optional) Modify the USF configuration by enabling redundancy and number of instances by following the instructions in Modify the USF Configuration, on page 8.

Step 4 (Optional) Add additional service chains or modify existing service chains within an element group by following the instructions in Add or Modify Service Chains, on page 9.

Step 5 (Optional) Customize the logo in the topology screen by following the instructions in Customize the Logo in the Topology Screen, on page 9.

Step 6 Deploy the VNF configuration by following the instructions in Deploy VNF Configuration, on page 10.

Step 7 Once the VNF configuration is deployed, you can monitor the various parameters by following the instructions in Monitor VNF Deployments, on page 10.

Step 8 (Optional) View the operational status of AutoVNF, VNF Element Manager and VNF Manager by following the instructions in View System Status, on page 11.

Step 9 (Optional) Trace subscriber packets by following the instructions in USF Subscriber Tracing, on page 12.

Step 10 (Optional) Monitor various KPIs for the element group and service chains by following the instructions in Monitor GiLAN, on page 12.

Step 11 (Optional) You can deactivate or stop an active VNF record by following the instructions in Deactivate or Stop a VNF Record, on page 13.

Configuring the Virtual Network Function Sub-Objects

Upload and Deploy Secure Tokens

Use the following task to upload and deploy secure tokens:

Step 1 Click the Left navigation icon in the UWS – AutoVNF user interface.
The left Navigation pane slides out.

Step 2 Click **Automation** to expand the menu.

Step 3 Click **Resource Catalog**.
The Resource Catalog screen appears.

Step 4 Click the **Secure Tokens** tab in the Resource Catalog screen.
The Secure Tokens screen appears with a list of all the configured secure tokens.

Step 5 Click **Add**.
The USP Catalog Deployment screen pops up.

Step 6 Click **Drop File Here** in the USP Catalog Deployment screen.

Step 7 Navigate and select the configuration XML file with the secure token from the local directory.
The XML file will be validated and listed in the USP Catalog Deployment screen on successful validation.

Step 8 Click **Deploy**.

Step 9 (Optional) To add more secure tokens, follow **Steps 5** through **8**.

Step 10 (Optional) To remove secure tokens, use the checkbox for the secure token you want to remove, and click **Delete**.

Upload and Deploy a VNF Manager

Use the following task to upload and deploy a VNF Manager (VNFM):

Step 1 Click the Left navigation icon in the UWS – AutoVNF user interface.
The left Navigation pane slides out.

Step 2 Click **Automation** to expand the menu.

Step 3 Click **VNFM**.
The VNFM screen appears with a list of all the currently configured VNFMs.

Step 4 To add a new VNFM, click **Add**.
The VNFM Deployment screen pops up.

Step 5 Click **Drop File Here** in the VNFM Deployment screen.

Step 6 Navigate and select the configuration XML file with the VNFM from the local directory.
The XML file will be validated and listed in the VNFM Deployment screen on successful validation.

Step 7 Click **Deploy**.
The VNFM will be deployed on the OpenStack. A Logs screen pops up with a real-time status on the deployment.

Step 8 Click **Close** in the Logs screen.

Step 9 (Optional) To remove VNFMs, use the checkbox for the VNFM you want to remove and click **Delete**.

Step 10 (Optional) Click the VNFM on the list to view more information on the configured VFM.

Upload and Deploy a VNFM Instance

Use the following task to upload and deploy a VNFM instance:

Step 1 Click the Left navigation icon in the UWS – AutoVNF user interface.
The left Navigation pane slides out.

Step 2 Click **Automation** to expand the menu.

Step 3 Click **Resource Catalog**.
The Resource Catalog screen appears.

Step 4 Click the **VNFM Instance** tab in the Resource Catalog screen.
The VNFM Instance screen appears with a list of all the configured VNFM instance.

Step 5 To add a new VNFM instance, click **Add**.
The USP Catalog Deployment screen pops up.

Step 6 Click **Drop File Here** in the USP Catalog Deployment screen.

Step 7 Navigate and select the configuration XML file with the VNFM instance from the local directory.
The XML file will be validated and listed in the USP Catalog Deployment screen on successful validation.

Step 8 Click **Deploy**.

Step 9 (Optional) To add more VNFM instances, follow **Steps 5** through **8**.

Step 10 (Optional) To remove a VNFM instance, use the checkbox against the VNFM instance you want to remove and click **Delete**.

Upload and Deploy a Volume

Use the following task to upload and deploy a volume:

Step 1 Click the Left navigation icon in the UWS – AutoVNF user interface.
The left Navigation pane slides out.

Step 2 Click **Automation** to expand the menu.

Step 3 Click **Resource Catalog**.
The Resource Catalog screen appears.

Step 4 Click the **Volume Catalog** tab in the Resource Catalog screen.
The Volume Catalog screen appears with a list of all the configured volumes.

Step 5 To add a new volume catalog, click **Add**.
The USP Catalog Deployment screen pops up.

Step 6 Click **Drop File Here** in the USP Catalog Deployment screen.

Step 7 Navigate and select the configuration XML file with the volume catalog from the local directory.
The XML file will be validated and listed in the USP Catalog Deployment screen on successful validation.

Step 8 Click **Deploy**.

Step 9 (Optional) To add more volumes, follow **Steps 5** through **8**.

Step 10 (Optional) To remove a volume, use the checkbox against the volume you want to remove and click **Delete**.

Upload and Deploy a VDU

Use the following task to upload and deploy a VDU:

Step 1 Click the Left navigation icon in the UWS – AutoVNF user interface.
The left Navigation pane slides out.

Step 2 Click **Automation** to expand the menu.

Step 3 Click **Resource Catalog**.
The Resource Catalog screen appears.

Step 4 Click the **VDU Catalog** tab in the Resource Catalog screen.
The VDU Catalog screen appears with a list of all the configured VDUs.

Step 5 To add a new VDU, click **Add**.
The USP Catalog Deployment screen pops up.

Step 6 Click **Drop File Here** in the USP Catalog Deployment screen.

Step 7 Navigate and select the configuration XML file with the VDU catalog from the local directory.
The XML file will be validated and listed in the USP Catalog Deployment screen on successful validation.

Step 8 Click **Deploy**.

Step 9 (Optional) To add more VDUs, follow **Steps 5** through **8**.

Step 10 (Optional) To remove a VDU, use the checkbox against the VDU you want to remove and click **Delete**.

Upload and Deploy a Network

Use the following task to upload and deploy a network:

Step 1 Click the Left navigation icon in the UWS – AutoVNF user interface.
The left Navigation pane slides out.

Step 2 Click **Automation** to expand the menu.

Step 3 Click **Resource Catalog**.
The Resource Catalog screen appears.

Step 4 Click the **Network Catalog** tab in the Resource Catalog screen.
The Network Catalog screen appears with a list of all the configured networks.

Step 5 To add a new network, click **Add**.
The USP Catalog Deployment screen pops up.

Step 6 Click **Drop File Here** in the USP Catalog Deployment screen.

Step 7 Navigate and select the configuration XML file with the network catalog from the local directory.
The XML file will be validated and listed in the USP Catalog Deployment screen on successful validation.

Step 8 Click **Deploy**.

Step 9 (Optional) Click the network on the list to view the configured subnet, IP prefix, gateway, and DHCP information of the network.

Step 10 (Optional) To add more networks, follow **Steps 5** through **8**.

Step 11 (Optional) To remove an existing network configuration, use the checkbox against the network you want to remove and click **Delete**.

Configuring the Virtual Network Function

Upload VNF Configuration

Important If you also use the UWS – AutoDeploy user interface to manage VNFs, uploading VNF configurations from the UWS – AutoVNF user interface is not recommended.

Use the following task to upload a configuration for a VNF Gateway:

Before You Begin

Ensure that the YANG compliant VNF configuration XML file is available. Refer the *Cisco Ultra Services Platform Deployment Automation Guide* for information on creating the configuration file.

Step 1 Click the Left navigation icon in the UWS – AutoVNF user interface.
The left Navigation pane slides out.

Step 2 Click **Network Functions**.
The VNF Catalog screen appears with a list of all the VNFs currently configured.

Step 3 Click **Upload**.
The Upload VNF screen pops up.

Step 4 Specify the name of the VNF you are uploading.

Step 5 Specify an appropriate description for the VNF you are uploading.

Step 6 Select the type of Gateway.
For USF, select USP-GILAN-TEMPLATE.

For UGP, select USP-VPC-TEMPLATE.

Step 7 Click **Drop File Here** in the Upload VNF screen.

Step 8 Navigate and select the configuration XML file with the VNF from the local directory.
The XML file will be validated and listed in the Upload VNF screen on successful validation.

Step 9 Click **Submit**.
The uploaded VNF will appear as a configuration (config) type, and the tile border at the bottom of the uploaded VNF will be highlighted in yellow.

When activated, the type changes to a record, and the tile border at the bottom of the uploaded VNF will be highlighted in blue.

Modify the USF Configuration

Certain USF configurations like redundancy can only be modified before the VNF is deployed. These configurations cannot be modified once the configuration is deployed.

Use the following task to modify the USF configuration:

Step 1 Click the Left navigation icon in the UWS – AutoVNF user interface.
The left Navigation pane slides out.

Step 2 Click **Network Functions**.
The VNF Catalog screen appears with a list of all the VNFs currently configured.

Step 3 Click the VNF for which you want to modify the USF configuration.
The Configuration Topology screen for the selected VNF appears.

Step 4 Click **USF Configuration**.
The USF configuration screen appears with a list of all the configured element groups.

Step 5 Click the element group you want to modify.
The Service Chain Configuration screen appears with information on the Element group, redundancy toggle button, total number of instances, and the configured Service Chains.

Step 6 To change the redundancy of the element group, toggle the Redundancy switch as needed.

Step 7 To change the number of instances, use the drop-down to select the necessary instances.

Step 8 To configure service chains, see Add or Modify Service Chains, on page 9.

Add or Modify Service Chains

Use the following task to add or modify new service chains in an element group:

Step 1 Click the Left navigation icon in the UWS – AutoVNF user interface.
The left Navigation pane slides out.

Step 2 Click **Network Functions**.
The VNF Catalog screen appears with a list of all the VNFs currently configured.

Step 3 Click the VNF for which you want to modify the USF configuration.
The Configuration Topology screen for the selected VNF appears.

Step 4 Click **USF Configuration**.
The USF configuration screen appears with a list of all the configured element groups.

Step 5 Click the element group to modify.
The Service Chain Configuration screen appears.

Step 6 To add a new service chain to the element group:

a) Click on the + icon next to the Service Chain section.
The Add Service Chain window pops up.

b) Specify a service chain name.

c) Specify a network forwarding path.

d) Click **Add**.

Step 7 To modify an existing service chain within the element group:

a) Click on the service chain you want to modify.
The Service Chain screen pops up.

b) Update the Service Chain name and/or network forwarding path as needed.

c) Click **Save**.

Customize the Logo in the Topology Screen

Operators can modify the logo in the VNF configuration Topology screen for easy identification of the VNF.

Use the following task to add a custom logo:

Step 1 Click the Left navigation icon in the UWS – AutoVNF user interface.
The left Navigation pane slides out.

Step 2 Click **Network Functions**.
The VNF Catalog screen appears with a list of all the VNFs currently configured.

Step 3 Click the VNF for which you want to customize the logo.
The Configuration Topology screen for the selected VNF appears.

Step 4 Click on the logo that appears on the top right.
A dialog opens for you to browse to the logo file that you want to upload to the Topology screen. The logo file must be smaller than 1 MB and be of a standard graphic format such as PNG, JPG, SVG, or other common web image formats.

Step 5 Select the desired image file and click **Open**.
The uploaded image is displayed on the VNF Configuration Topology screen.

Deploying and Monitoring Your VNF

Deploy VNF Configuration

Use the following task to deploy a VNF configuration:

Before You Begin

Ensure that the VNF you want to deploy is available (as a configuration type).

Step 1 Click the left Navigation icon in the UWS – AutoVNF user interface.
The left Navigation pane slides out.

Step 2 Click **Network Functions**.
The VNF Catalog screen appears with a list of all the VNFs currently configured.

Step 3 Click the VNF you want to deploy.
The Configuration Topology screen for the selected VNF appears.

Step 4 Click **Deploy**.
The VNF Catalog screen appears with the following message “A new deployment has been started. Please use the navigation tab on the top right to monitor the progress.”

Monitor VNF Deployments

If you have configured and deployed a VNF, you can monitor its deployment and status following the task below:

Step 1 Click the right Navigation icon in the UWS – AutoVNF user interface.

A window slides out with a list of the most recent used VNF records in the system and their current status.

Step 2 Click on the VNF to monitor its status.
The VNF Monitoring screen appears.

This screen displays information on the current status of all the VMs in the VNF arranged in a tile. VMs that are currently active are highlighted in green. VMs that are currently being activated are highlighted in gray. You can hover the mouse pointer over each tile for information on the slot id, VM name, card state, and card type.

More detailed information on the cards and VMs are displayed below the card status tiles.

Step 3 You can suspend a VM by selecting the card, and selecting Suspend Virtual Machine from the drop-down list above it.

Step 4 You can resume a suspended VM by selecting the card, and selecting Resume Virtual Machine from the drop-down list above it.

View System Status

Use the following task to view the operational status of AutoVNF, VNF Element Manager and VNF Manager.

The current version of the AutoVNF is displayed once the AutoVNF configuration is deployed.

Step 1 Click the left navigation icon in the USP UWS – AutoVNF User Interface.
The left Navigation pane slides out.

Step 2 Click **System > Status**.
The System Status screen appears. The banner indicates the virtual IP, software version and operational status of AutoVNF, VNF Element Manager, and VNF Manager.

The following information is displayed for AutoVNF:

- Name
- Instance IP
- Compute Host
- Role
- Operational Status

The following information is displayed for VNF Element Manager and VNF Manager:

- Name
- Instance IP
- Compute Host

USF Subscriber Tracing

If you know the IP address/VLAN ID or the MSISDN information of the subscriber, and want to trace the packets of the subscriber, perform the following task:

Step 1 Click the right Navigation icon in the UWS – AutoVNF user interface.
A window slides out with a list of the most recent used VNF records in the system and their current status.

Step 2 Click on the VNF to monitor its status.
The VNF Monitoring screen opens.

Step 3 Click USF Subscriber Tracing.
The USF Subscriber Tracing screen opens.

Step 4 To trace a subscriber's packet by IP address:

a) Select the **ip-address** radio button.
b) Specify the trace id.
c) Specify the IP address.
d) Specify the VLAN ID.
e) Toggle the **start/stop** switch to Start.

Packet tracing for the subscriber will start on the right side of the screen.

Step 5 To trace a subscriber's packet by the MSISDN:

a) Select the **msisdn** radio button.
b) Specify the trace id.
c) Specify the subscriber's MSISDN.
d) Toggle the **start/stop** switch to Start.

Packet tracing for the subscriber will start on the right side of the screen.

Monitor GiLAN

To monitor various Key Performance Indicators (KPIs) for the element group and service chains, use the following task:

Step 1 Click the right Navigation icon in the UWS – AutoVNF user interface.
A window slides out with a list of the most recent used VNF records in the system and their current status.

Step 2 Click on the VNF to monitor its status.
The VNF Monitoring screen opens.

Step 3 Click GILAN Monitoring.
The GILAN Monitoring screen opens.

Step 4 To monitor the KPIs for the element group:

a) Click **Element Group**.

b) Select the configured element group.

The KPIs for the selected element group will appear on the bottom half of the screen.

Step 5 To monitor the KPIs for the service chains:

a) Click **Service Chains**.

b) Select the configured service chain.

The KPIs for the selected service chain will appear on the bottom half of the screen.

Deactivate or Stop a VNF Record

Use the following task to deactivate or stop a VNF record:

Step 1 Click the left navigation icon in the UWS – AutoVNF user interface.
The left navigation pane slides out.

Step 2 Click **Network Functions**.
The VNF Catalog screen appears with a list of all the VNFs currently configured.

Step 3 Click the VNF record you want to deactivate or stop.
The Configuration Topology screen for the selected VNF appears.

Step 4 To deactivate the VNF record, click **Undeploy**.
The record is deactivated and displayed in the VNF Catalog screen as a VNF configuration.

Or, click **Stop VNF** to stop the VNF record.

Note You can stop the VNF only if the deployment is GiLAN. You will not see the **Stop VNF** button if it is a VPC deployment.