Configure Thousand Eyes - Enterprise Agent for ASR1k, ISR4k and Cat8k Platforms (Docker Install)

Contents

Introduction

This document describes how to configure ThousandEyes on Cisco IOS-XE® platforms.

Prerequisites

Requirements

Cisco recommends validation of the requirements at the ThousandEyes documentation portal:

[Support Matrix Thousand Eyes](#)

Components Used

The information in this document is based on Routers with Cisco IOS-XE.

The information in this document was created from the devices in a specific lab environment. All of the devices used in this document started with a cleared (default) configuration. If your network is live, ensure that you understand the potential impact of any command.

ISR4Ks Docker installation

Step 1.

Download the ThousandEyes agent from https://app.thousandeyes.com under the menu **Cloud &**

Enterprise Agents > Agent settings > Add New Enterprise Agent > Cisco Application Hosting:

Step 2.

Copy the .tar file to the bootflash of the router. This can be done via TFTP. Or, download the file on a USB flash drive and copy it to the router bootflash.

<#root>

Router#

dir bootflash: | sec .tar

24577 -rw- 186705920 May 19 2022 16:26:31 +00:00 thousandeyes-enterprise-agent-4.2.2.cisco.tar

Step 3.

Enable the IOx daemon on the router with the **iox** command and validate the service status.

```
<#root>

Router(config)#

iox

*May 19 16:40:48.485: %UICFGEXP-6-SERVER_NOTIFIED_START: R0/0: psd: Server iox has been notified to sta
Router#

show iox-service

IOx Infrastructure Summary:
---------------------------
IOx service (CAF)          : Not Running
IOx service (HA)           : Not Supported
IOx service (IOxman)       : Not Running
IOx service (Sec storage)  : Not Supported
Libvirtd 5.5.0             : Running
```

Step 4.

Install the agent previously stored on the bootflash with the command **app-hosting install appid <agent_name> package bootflash:<file.tar>**.

```
<#root>

Router#

app-hosting install appid ISR4k_Agent package bootflash:thousandeyes-enterprise-agent-4.2.2.cisco.tar

Installing package 'bootflash:thousandeyes-enterprise-agent-4.2.2.cisco.tar' for 'ISR4k_Agent'. Use 'sh
```

Step 5.

Verify that the agent is installed correctly with the command **show app-hosting list**.

```
<#root>

Router#

show app-hosting list

App id                         State
--------------------------------------------------------
ISR4k_Agent                    DEPLOYED
```

Step 6.

Configure a Virtual Port Interface.

<#root>

interface VirtualPortGroup1

```
ip address 192.168.2.254 255.255.255.0
no mop enabled
no mop sysid
end
```

Step 8.

Configure the VNIC for app-hosting.

<#root>

```
Router(config)#
```

app-hosting appid ISR4k_Agent

```
Router(config-app-hosting)#
```

app-vnic gateway1 virtualportgroup 1 guest-interface 1

```
Router(config-app-hosting-gateway1)#
```

guest-ipaddress 192.168.2.10 netmask 255.255.255.0

```
Router(config-app-hosting-gateway#)#
```

exit

```
Router(config-app-hosting)#
```

app-default-gateway 192.168.2.254 guest-interface 1

```
Router(config-app-hosting)#
```

name-server1 8.8.8.8

```
Router(config-app-hosting)#
```

end

> **NOTE: The IP Address of the name-server command can be an internal or an external DNS server.**

Step 7.

Set up Docker. The required token can be obtained at https://app.thousandeyes.com under the menu **Cloud & Enterprise Agents > Agent settings > Add a New Enterprise Agent > Cisco Application Hosting**.
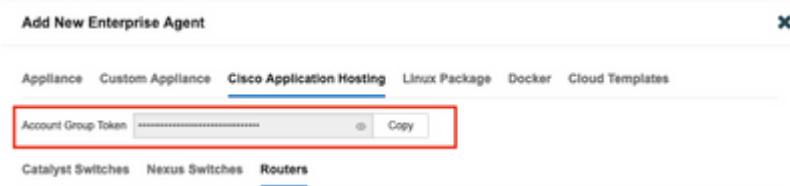
Click on the small eye icon. This displays the Token number unencrypted. Copy the string and proceed with the installation on the router.

Docker installation commands:

```
<#root>

Router(config-app-hosting)#

app-resource docker

Router(config-app-hosting-docker)#

prepend-pkg-opts

Router(config-app-hosting-docker)#

run-opts 1 "-e TEAGENT_ACCOUNT_TOKEN= EAGENT_ACCOUNT_TOKEN= xxxxxxxxxxxxxxxxxxxx"

Router(config-app-hosting-docker)#

run-opts 2 "--hostname ISR_Agent"

Router(config-app-hosting)#

start

Router(config-app-hosting)#

end

Router#
*May 30 20:10:00.282: %SYS-5-CONFIG_I: Configured from console by console
*May 30 20:10:06.980: %IM-6-START_MSG: R0/0: ioxman: app-hosting: Start succeeded: ISR_Agent started suc
```

Step 9.

Verify that the agent is active with the command **show app-hosting list**.

```
<#root>

Router#

show app-hosting list

App id                                 State
-----------------------------------------------------------
ISR_Agent                              RUNNING
```

ASR1K Docker Installation

Step 1.
Download the agent .tar archive from the Thousand Eyes website thousandeyes-enterprise-agent-x.x.x.cisco.tar.

Step 2.

Copy the .tar file to the bootflash of the router. This can be done via TFTP. Or, download the file on a USB flash drive and copy it to the router bootflash.

<#root>

Router#

dir bootflash: | sec .tar

16 -rw- 186705920 Sep 21 2022 15:02:21 +00:00 thousandeyes-enterprise-agent-4.2.2.cisco.tar

Step 3.

Enable the IOx daemon on the router with the command **iox** and validate the service status.

<#root>

Router(config)#

iox

Router#

show iox-service

```
IOx Infrastructure Summary:
---------------------------
IOx service (CAF)          : Running
IOx service (HA)           : Not Supported
IOx service (IOxman)       : Running
IOx service (Sec storage)  : Not Supported
Libvirtd 5.5.0             : Running
```

Step 4.

Install the agent previously stored on the bootflash with the command **app-hosting install appid <agent_name> package bootflash:<file.tar>**.

<#root>

Router#

app-hosting install appid ASR_TE package bootflash:thousandeyes-enterprise-agent-4.2.2.cisco.tar

```
Installing package 'bootflash:thousandeyes-enterprise-agent-4.2.2.cisco.tar' for 'ASR_TE'. Use 'show app
*Sep 21 16:10:12.900: %IOXCAF-6-INSTALL_MSG: R0/0: ioxman: app-hosting: ASR_TE installed successfully Cu
```

<#root>

Router#

show app-hosting list

```
App id                                State
---------------------------------------------------------
ASR1k_TE                              DEPLOYED
```

Step 5.

Configure a Virtual Port Interface with a private IP address.

<#root>

interface VirtualPortGroup0

```
ip address 192.168.2.254 255.255.255.0
no mop enabled
no mop sysid
end
```

Step 6.
Configure the VNIC for app-hosting.

<#root>

Router(config)#

app-hosting appid ASR1k_TE

Router(config-app-hosting)#

app-vnic gateway1 virtualportgroup 0 guest-interface 0

Router(config-app-hosting-gateway0)#

guest-ipaddress 192.168.2.1 netmask 255.255.255.0

Router(config-app-hosting-gateway0)#

exit

Router(config-app-hosting)#

app-default-gateway 192.168.2.254 guest-interface 0

Router(config-app-hosting)#

name-server0 8.8.8.8

Router(config-app-hosting)#

```
app-resource docker
```

Router(config-app-hosting-docker)#

```
prepend-pkg-opts
```

Router(config-app-hosting-docker)#

```
run-opts 1 "--hostname ASR1kTE"
```

Router(config-app-hosting-docker)#r

```
un-opts 1 "-e TEAGENT_ACCOUNT_TOKEN=XXXXXXXXXXXXXXXXXX"
```

Router(config-app-hosting-docker)#

```
exit
```

Step 7.

Activate app-hosting for the cited App ID.

<#root>

Router(config)#

```
app-hosting appid ASR1k_TE
```

Router(config-app-hosting)#

```
start
```

Step 8.

Install the ThousandEyes agent and verify that it is active with the command **show app-hosting list**.

<#root>

Router#

```
app-hosting install appid ASR1k_TE package bootflash:thousandeyes-enterprise-agent-4.2.2.cisco.tar
```

Installing package 'bootflash:thousandeyes-enterprise-agent-4.2.2.cisco.tar' for 'ASR1k_TE'. Use 'show a

<#root>

Router#

```
show app-hosting list
```

App id   State

ASR1k_TE   RUNNING

Catalyst 8K Docker installation

Catalyst 8200 configuration

Step 1.

Download the agent .tar file from the ThousandEyes website thousandeyes-enterprise-agent-x.x.x.cisco.tar

Step 2.

Copy the .tar file to the harddisk of the device.

<#root>

C8200k#

dir harddisk:thousandeyes-enterprise-agent-4.3.0.cisco.tar

Directory of harddisk:/thousandeyes-enterprise-agent-4.3.0.cisco.tar

```
12      -rw-        123064320  Nov 12 2022 21:35:06 +00:00  thousandeyes-enterprise-agent-4.3.0.cisco.ta

15239921664 bytes total (14280880128 bytes free)
C8200k#
```

Step 3.
Enable the IOx daemon on the router with the command **iox** and validate the service status.

<#root>

C8200k(config)#

iox

```
*Nov 12 21:46:51.539: %UICFGEXP-6-SERVER_NOTIFIED_START: R0/0: psd: Server iox has been notified to sta
*Nov 12 21:46:52.443: %SYS-5-CONFIG_I: Configured from console by console
*Nov 12 21:47:13.866: %IM-6-IOX_ENABLEMENT: R0/0: ioxman: IOX is ready.
```

C8200k#

show iox-service

```
IOx Infrastructure Summary:
---------------------------
IOx service (CAF)          : Running
IOx service (HA)           : Not Supported
IOx service (IOxman)       : Running
IOx service (Sec storage)  : Not Supported
Libvirtd 5.5.0             : Running
```

Step 4.

Configure **platform resource app-heavy.** Save the configuration changes and reload the chassis.

```
<#root>

C8200k(config)#

platform resource service-plane-heavy

C8200k(config)#

end

C8200k#

wr

C8200k#

reload
```

Step 5.

Configure a Virtual Port Interface.

```
<#root>

interface virtualportgroup 0

ip address 192.168.2.254 255.255.255.0
exit
```

Step 6.
Configure the VNIC for app-hosting.

```
<#root>

C8200k(config)#

app-hosting appid TEcat8k

C8200k(config-app-hosting)#

app-vnic gateway1 virtualportgroup 0 guest-interface 0

C8200k(config-app-hosting-gateway1)#

guest-ipaddress 192.168.2.10 netmask 255.255.255.0

C8200k(config-app-hosting-gateway1)#

exit
```

```
C8200k(config-app-hosting)#

app-default-gateway 192.168.2.254 guest-interface 0

C8200k(config)#

app-hosting appid TEcat8k


C8200k(config-app-hosting)#

app-resource docker

C8200k(config-app-hosting-docker)#

prepend-pkg-opts

C8200k(config-app-hosting-docker)#

run-opts 1 "-e TEAGENT_ACCOUNT_TOKEN=xxxxxxxxxxxxxxxxxxxxx"


C8200k(config-app-hosting-docker)#

run-opts 2 "--hostname TEcat8k"


C8200k(config-app-hosting)#

name-server0 8.8.8.8

C8200k(config-app-hosting)#

end
```

Step 7.

Activate app-hosting for the cited App ID.

```
<#root>

C8200k(config)#

app-hosting appid TEcat8k


C8200k(config-app-hosting)#

start
```

Step 8.

Install the ThousandEyes agent and verify that it is running.

```
<#root>

C8200k#

app-hosting install appid TEcat8k package harddisk:thousandeyes-enterprise-agent-4.3.0.cisco.tar
```

```
Installing package 'harddisk:thousandeyes-enterprise-agent-4.3.0.cisco.tar' for 'TEcat8k'. Use 'show app
```

```
*Jan 21 21:30:17.194: %IM-6-INSTALL_MSG: R0/0: ioxman: app-hosting: Install succeeded: TEcat8k installe
*Jan 21 21:30:41.019: %IM-6-START_MSG: R0/0: ioxman: app-hosting: Start succeeded: TEcat8k started succe
```

```
C8200k#
```

show app-hosting list

```
App id                          State
---------------------------------------------------------
TEcat8k                         RUNNING
```

Catalyst 8300 configuration

Step 1.
Download the agent .tar file from the Thousand Eyes website thousandeyes-enterprise-agent-x.x.x.cisco.tar

Step 2.

Copy the .tar file to the harddisk of the device.

<#root>

```
Router#
```

dir harddisk:thousandeyes-enterprise-agent-4.2.2.cisco.tar

```
Directory of harddisk:/thousandeyes-enterprise-agent-4.2.2.cisco.tar
```

```
12 -rw- 186705920 Sep 14 2022 19:02:02 +00:00 thousandeyes-enterprise-agent-4.2.2.cisco.tar
```

Step 3.
Enable the IOx daemon on the router with the command **iox** and validate the service status.

<#root>

```
Router(config)#
```

iox

```
*Sep 5 17:48:31.952: %UICFGEXP-6-SERVER_NOTIFIED_START: R0/0: psd: Server iox has been notified to start
*Sep 5 17:48:40.953: %IM-6-IOX_ENABLEMENT: R0/0: ioxman: IOX is ready.
Router#
```

show iox-service

```
IOx Infrastructure Summary:
---------------------------
IOx service (CAF)         : Running
IOx service (HA)          : Not Supported
IOx service (IOxman)      : Running
IOx service (Sec storage) : Not Supported
```

```
Libvirtd 5.5.0                   : Running
```

Step 4.

Configure a Virtual Port Interface.

<#root>

interface VirtualPortGroup1

```
ip address 192.168.2.254 255.255.255.0
no mop enabled
no mop sysid
end
```

Step 5.
Configure the VNIC for app-hosting.

<#root>

Router(config)#

app-hosting appid Cat8k_TE

Router(config-app-hosting)#

app-vnic gateway1 virtualportgroup 1 guest-interface 1

Router(config-app-hosting-gateway1)#

guest-ipaddress 192.168.2.1 netmask 255.255.255.0

Router(config-app-hosting)#

app-default-gateway 192.168.2.254 guest-interface 1

Router(config-app-hosting)#

app-resource docker

Router(config-app-hosting-docker)#

prepend-pkg-opts

Router(config-app-hosting-docker)#

run-opts 1 "--hostname C8k_TE"

Router(config-app-hosting-docker)#

run-opts 2 "-e TEAGENT_ACCOUNT_TOKEN=xxxxxxxxxxxxxxxxxxxxx"

Router(config-app-hosting)#

name-server1 8.8.8.8

Router(config-app-hosting)#

start

Step 6.
Configure the **start** command to initiate the application.

```
<#root>

Router(config)#

app-hosting appid Cat8k_TE

Router(config-app-hosting)#

start
```

Step 7.
Install the ThousandEyes agent and verify that it is deployed.

```
<#root>

Router#

app-hosting install appid TEcat8k package harddisk:

thousandeyes-enterprise-agent-4.2.2.cisco.tar


Router#

show app-hosting list

App id                                   State
---------------------------------------------------------
Cat8k_TE                                 DEPLOYED
```

Catalyst 8500L configuration

Step 1.
Download the agent .tar file from the ThousandEyes website thousandeyes-enterprise-agent-x.x.x.cisco.tar

Step 2.

Copy the .tar file on the harddisk of the device.

```
<#root>

Router#

dir harddisk:thousandeyes-enterprise-agent-4.2.2.cisco.tar

Directory of harddisk:/thousandeyes-enterprise-agent-4.2.2.cisco.tar

12 -rw- 186705920 Sep 14 2022 19:02:02 +00:00 thousandeyes-enterprise-agent-4.2.2.cisco.tar
```

Step 3.

Enable the IOx daemon on the router with the command iox and validate the service status.

```
<#root>

Router#

conf t

Enter configuration commands, one per line. End with CNTL/Z.
Router(config)#

iox

Router(config)#

end

*Sep 15 15:41:23.992: %UICFGEXP-6-SERVER_NOTIFIED_START: R0/0: psd: Server iox has been notified to star
*Sep 15 15:41:25.006: %SYS-5-CONFIG_I: Configured from console by console
*Sep 15 15:41:32.914: %IM-6-IOX_ENABLEMENT: R0/0: ioxman: IOX is ready.

Router#

show iox-service


IOx Infrastructure Summary:
---------------------------
IOx service (CAF)          : Not Running
IOx service (HA)           : Not Supported
IOx service (IOxman)       : Not Running
IOx service (Sec storage)  : Not Supported
Libvirtd 5.5.0             : Running
```

Step 4.

Configure the Virtual Port interface.

```
<#root>

interface VirtualPortGroup1

ip address 192.168.2.254 255.255.255.0
no mop enabled
no mop sysid
end
```

Step 5.

Configure the VNIC for app-hosting.

```
<#root>

Router(config)#

app-hosting appid Cat8500L_TE
```

```
Router(config-app-hosting)#

app-vnic gateway0 virtualportgroup 0 guest-interface 0

Router(config-app-hosting-gateway0)#

guest-ipaddress 192.168.2.1 netmask 255.255.255.0

Router(config-app-hosting-gateway0)#

exit

Router(config-app-hosting)#

guest-gateway 192.168.2.254 guest-interface 0

Router(config-app-hosting)#

app-resource docker

Router(config-app-hosting-docker)#prepend-pkg-opts
Router(config-app-hosting-docker)#

run-opts 1 "--hostname Cat8500L_TE"

Router(config-app-hosting-docker)#

run-opts 2 "-e TEAGENT_ACCOUNT_TOKEN=TEAGENT_ACCOUNT_TOKEN=xxxxxxxxxxxxxxxxxxxx"

Router(config-app-hosting)#

name-server1 8.8.8.8

Router(config-app-hosting)#

start
```

Step 6.

Configure **platform resource app-heavy**. Next, save the configuration changes and reload the chassis.

```
<#root>

Router(config)#

platform resource app-heavy

Please reboot to activate this template
Router(config)#

exit

Router#

wr

Router#

reload
```

Step 7.

Install the ThousandEyes agent and verify that it is deployed.

```
<#root>

Router#

app-hosting install appid Cat8500L_TE package harddisk:thousandeyes-enterprise-agent-4.2.2.cisco.tar

Installing package 'harddisk:thousandeyes-enterprise-agent-4.2.2.cisco.tar' for 'Cat8500L_TE'. Use 'show

Router#

show app-hosting list

App id                              State
---------------------------------------------------------
Cat8500L_TE                         DEPLOYED
```

Note: NAT can be used with ThousandEyes.

The Virtual Port interface can be used as inside interface for NAT.

Example:

```
<#root>

Router(config)#

ip nat inside source list NAT interface gi0/0/0 overload

Router(config)#

ip access-list extended NAT

Router(config-ext-nacl)#

permit ip 192.168.2.0 0.0.0.255 any


interface VirtualPortGroup1


description ThousandEyes
192.168.2.254 255.255.255.0
ip nat inside


interface GigabitEthernet0/0/0


description WAN interface
192.168.114.10 255.255.255.252
ip nat outside
```