

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

## Contents

[Introduction](#)

[Prerequisites](#)

[Requirements](#)

[Components Used](#)

[ISR4Ks Docker installation](#)

[ASR1K Docker Installation](#)

[Catalyst 8K Docker installation](#)

[Catalyst 8200 configuration](#)

[Catalyst 8300 configuration](#)

[Catalyst 8500L configuration](#)

## 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:

The screenshot shows the Cisco Cloud & Enterprise Agents interface. The breadcrumb navigation is: Cloud & Enterprise Agents > Agent Settings. The left sidebar has 'Agent Settings' highlighted. The main content area shows 'Enterprise Agents' with a search bar and '7 Enterprise Agents'. Below this is the 'Add New Enterprise Agent' section with tabs for 'Appliance', 'Custom Appliance', 'Cisco Application Hosting' (highlighted), 'Linux Package', 'Docker', and 'Cloud Templates'. Under 'Cisco Application Hosting', there is an 'Account Group Token' field with a 'Copy' button. Below that are tabs for 'Catalyst Switches', 'Nexus Switches', and 'Routers' (highlighted). Under 'Routers', there is a section for 'Cisco IOS XE Docker Appliance' with sub-sections for 'Catalyst 8000 Series Routers', 'Integrated Services Routers (ISR)', and 'Aggregation Services Routers (ASR)'. A blue button is visible on the right side of the page.

### 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 start
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 'show
```

#### 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.

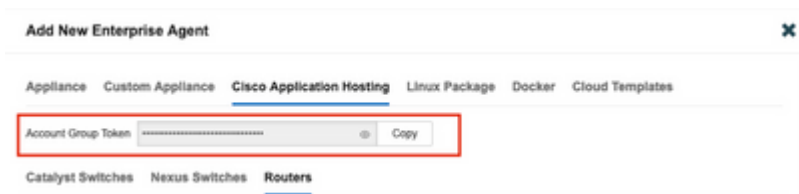
Configure the VNIC for app-hosting.

```
<#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= xxxxxxxxxxxxxxxxxxxxxxxx"
```

```
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 su
```

## 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 C

```
<#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=XXXXXXXXXXXXXXXXXXXX"
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 start
*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 installed

\*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 C8k_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=xxxxxxxxxxxxxxxxxxxxxxxx"
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 start
*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
Libvirt 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=xxxxxxxxxxxxxxxxxxxxxx"
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
```