



ThousandEyes Enterprise Agent

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ThousandEyes Enterprise Agent Overview

ThousandEyes Enterprise Agent is an enterprise network-monitoring tool that provides you an end-to-end view across networks and services that impact your business. It monitors the network traffic paths across internal, external, carrier, and internet networks in real time, to provide network performance data. Enterprise Agents are commonly installed in branch sites and data centers to provide a detailed understanding of WAN and internet connectivity.

The ThousandEyes Enterprise Agent provides the following:

- Benchmarking the performance of networks and applications.
- Detailed hop-by-hop metrics.
- End-to-end path visualization from branch or campus to data center or cloud.
- Outage detection and resolution.
- User-experience analysis.
- Visualization of the traffic-flow pattern.

Prerequisites for the ThousandEyes Enterprise Agent

- The ThousandEyes Enterprise Agent image available at the ThousandEyes site must be signed by the same certificate authority (CA) that is used by <http://www.cisco.com> for HTTPS downloads; without a username or a password.
- Installation of the Enterprise Agent requires internet connectivity, or a proxy server. For more information, see the *ThousandEyes documentation* at: <https://docs.thousandeyes.com/product-documentation/enterprise-agents>.

- The Enterprise Agent application can only be used after the user's license privileges are validated.
- Only Docker-based applications are supported.

Resources Required for the ThousandEyes Enterprise Agent

This table describes the required resources for installing the ThousandEyes Enterprise Agent:

Table 1: Resources Required for the ThousandEyes Enterprise Agent

App Media	Maximum Resource	Supported Release
Bootflash	<ul style="list-style-type: none"> • CPU: 2 vCPU • Memory: 2G RAM • Storage: 1G for persistent logging by applications. 	Cisco NX-OS Release 10.4(2)F

Installing the ThousandEyes Enterprise Agent

Guidelines and Limitations

ThousandEyes Enterprise Agent has the following guidelines and limitations:

- NX-OS supports ThousandEyes Enterprise Agent version 4.4.2 and above.
- It is recommended to use interface eth0 for the container interface in 10.4(2)F and above. If the interface other than the eth0 is used, the app comes up with proper network configuration right after downgrade, but if the app is stopped, deactivated, or started, the default gateway will not be installed and connectivity to the app is not established. If eth1 is used in 10.4(2)F prior to downgrade, after the downgrade, the runtime configuration incorrectly reflects the VNIC as management instead of gateway (front panel port) even though the configuration within the container is correct.

To troubleshoot the error, reconfigure ThousandEyes Agent. See [Installing the ThousandEyes Enterprise Agent, on page 2](#).

Configuring Application Hosting for the ThousandEyes Enterprise Agent

Beginning with Cisco NX-OS 10.4(2)F, you can configure up to 4 IPv4 and IPv6 interfaces within the ThousandEye agent.

Follow the steps to install the ThousandEyes Enterprise Agent.

SUMMARY STEPS

1. **configure terminal**
2. **app-hosting bridge** *bridge-index*

3. **ip address** *ip-address/mask*
4. **vrf member** *name*
5. **exit**
6. **app-hosting appid** *name*
7. **app-vnic gateway bridge** *bridge-index* **guest-interface** *guest-interface-number*
8. **guest-ipaddress** *ip-address/mask*
9. **exit**
10. **app-default-gateway** *ip-address* **guest-interfacenumber**
11. **nameserver#** *ip-address*
12. **app-resource docker**
13. **run-opts** *options*
14. **prepend-pkg-opts**
15. **end**

DETAILED STEPS

	Command or Action	Purpose
Step 1	configure terminal Example: switch# configure terminal	Enters global configuration mode.
Step 2	app-hosting bridge <i>bridge-index</i> Example: switch(config)# app-hosting bridge 1	Configures the App-hosting bridge and enters App Hosting Bridge configuration mode. <1-8> Bridge index
Step 3	ip address <i>ip-address/mask</i> Example: switch(config-app-hosting-bridge)# ip address 172.25.44.1/30	Configures the App Bridge IPv4 address which acts as the gateway to the Application Container.
Step 4	vrf member <i>name</i> Example: switch(config-app-hosting-bridge)# vrf member overlay-VRF	Sets the VRF context. If not configured, it would be part of VRF default.
Step 5	exit Example: switch(config-app-hosting-bridge)# exit	Exits App Bridge configuration mode and returns to global configuration mode.
Step 6	app-hosting appid <i>name</i> Example: switch(config)# app-hosting appid te_app	Configures an application and enters application-hosting configuration mode.
Step 7	app-vnic gateway bridge <i>bridge-index</i> guest-interface <i>guest-interface-number</i> Example:	Configures the guest VNIC interface for an application and enters application-hosting vnic interface mode.

	Command or Action	Purpose
	switch(config-app-hosting)# app-vnic bridge 1 guest-interface 0	
Step 8	guest-ipaddress <i>ip-address/mask</i> Example: switch(config-config-app-hosting-app-vnic)# guest-ipaddress 172.25.44.2/30	Configures one of the available IPv4 address from the bridge 1 subnet.
Step 9	exit Example: switch(config-config-app-hosting-vlan-access-ip)# exit	Exits App vnic interface configuration mode and returns to app-hosting configuration mode.
Step 10	app-default-gateway <i>ip-address guest-interfacenumber</i> Example: switch(config-app-hosting)# app-default-gateway 172.25.44.1	Configures the available IPv4 address from the bridge1 subnet.
Step 11	nameserver# <i>ip-address</i> Example: Device(config-app-hosting)# name-server0 10.2.2.2	Configures the DNS server.
Step 12	app-resource docker Example: switch(config-app-hosting)# app-resource docker	Enters application-hosting docker-configuration mode to specify application resource updates.
Step 13	run-opts <i>options</i> Example: switch(config-app-hosting-docker)# run-opts 1 "-e TEAGENT_ACCOUNT_TOKEN=[account-token]" run-opts 10 "-e TEAGENT_DEF_IPV4_GW_ETH1=172.25.44.65" run-opts 11 "-e TEAGENT_DEF_IPV6_GW_ETH1=2001:420:287:2003:7:110:1205:1" run-opts 12 "-e TEAGENT_DEF_IPV4_GW_ETH2=172.25.44.73" run-opts 13 "-e TEAGENT_DEF_IPV6_GW_ETH2=2001:420:287:2003:7:110:1206:1" run-opts 14 "-e TEAGENT_DEF_IPV4_GW_ETH3=172.25.44.81" run-opts 15 "-e TEAGENT_DEF_IPV6_GW_ETH3=2001:420:287:2003:7:110:1207:1"	Specifies the Docker run time options. You can configure additional default gateways through the run-opts option. The TEAGENT_DEF_IPV[4/6]_GW_ETH[0-3] command is used to indicate IPv4 and IPv6 and the index is between 0-3. You can only configure 1 gateway using the app-default-gateway command.
Step 14	prepend-pkg-opts Example: switch(config-app-hosting-docker)# prepend-pkg-opts	Merges the package options with the Docker runtime options. Any duplicate variable is overwritten.
Step 15	end Example:	Exits application-hosting docker-configuration mode and returns to privileged EXEC mode.

	Command or Action	Purpose
	switch(config-app-hosting-docker)# end	

Example

Following is the example for ThousandEye multi interface configuration.

```

app-hosting bridge 1
ip address 172.25.44.113/29
ipv6 address 2001:420:287:2003:7:110:1210:1/125
app-hosting bridge 2
vrf member apphosting
ip address 172.25.44.97/30
ipv6 address 2001:420:287:2003:7:110:1208:1/126
app-hosting bridge 3
vrf member te
ip address 172.25.44.105/29
ipv6 address 2001:420:287:2003:7:110:1209:1/125
app-hosting bridge 4
vrf member vxlan_blue
ip address 172.25.44.33/30
ipv6 address 2001:420:287:2003:7:110:1203:1/114
app-hosting appid tea
app-vnic gateway bridge 1 guest-interface 0
guest-ipaddress 172.25.44.114/29
guest-ipv6address 2001:420:287:2003:7:110:1210:2/125
app-vnic gateway bridge 2 guest-interface 1
guest-ipaddress 172.25.44.98/30
guest-ipv6address 2001:420:287:2003:7:110:1208:2/126
app-vnic gateway bridge 3 guest-interface 2
guest-ipaddress 172.25.44.106/29
guest-ipv6address 2001:420:287:2003:7:110:1209:2/125
app-vnic gateway bridge 4 guest-interface 3
guest-ipaddress 172.25.44.34/30
guest-ipv6address 2001:420:287:2003:7:110:1203:2/114
app-default-gateway 172.25.44.97 guest-interface 1
app-default-ipv6-gateway 2001:420:287:2003:7:110:1208:1 guest-interface 1
app-resource docker
prepend-pkg-opts
run-opts 1 "-e TEAGENT_ACCOUNT_TOKEN=[account-token]"
run-opts 2 "--hostname=southlake2-1-Multi-UsrVRF"
run-opts 5 "-e TEAGENT_PROXY_TYPE=STATIC"
run-opts 6 "-e TEAGENT_PROXY_LOCATION=proxy.domainname.com:80"
run-opts 7 "-e TEAGENT_PROXY_BYPASS_LIST=T*.domainname.com"
run-opts 8 "--dns 8:8:8:8"
run-opts 9 "--dns 8::8"
run-opts 10 "-e TEAGENT_DEF_IPV4_GW_ETH0=172.25.44.113"
run-opts 11 "-e TEAGENT_DEF_IPV6_GW_ETH0=2001:420:287:2003:7:110:1210:1"
run-opts 14 "-e TEAGENT_DEF_IPV4_GW_ETH2=172.25.44.105"
run-opts 15 "-e TEAGENT_DEF_IPV6_GW_ETH2=2001:420:287:2003:7:110:1209:1"
run-opts 16 "-e TEAGENT_DEF_IPV4_GW_ETH3=172.25.44.33"
run-opts 17 "-e TEAGENT_DEF_IPV6_GW_ETH3=2001:420:287:2003:7:110:1203:1"

```

Installing the ThousandEyes Enterprise Agent

Before you begin

You can install the ThousandEyes Enterprise Agent either from the URL given below or from the flash file system.

SUMMARY STEPS

1. **enable**
2. **app-hosting install appid** *application-name* **package** *package-path*
3. **app-hosting activate appid** *application-name*
4. **app-hosting start appid** *application-name*
5. **end**

DETAILED STEPS

	Command or Action	Purpose
Step 1	enable Example: switch> enable	Enters privileged EXEC mode.
Step 2	app-hosting install appid <i>application-name</i> package <i>package-path</i> Example: switch# app-hosting install lkeys https://downloads.thousandeyes.com/enterprise-agent/thousandeyes-enterprise-agent-3.0.cat9k.tar Or switch# app-hosting install appid lkeys package flash:/apps/[greenfield-app-tar]	Installs an application from the specified location.
Step 3	app-hosting activate appid <i>application-name</i> Example: switch# app-hosting activate appid lkeys	Activates the application hosting configuration mode
Step 4	app-hosting start appid <i>application-name</i> Example: switch# app-hosting start appid lkeys	(Optional) Starts the application.
Step 5	end Example: switch# end	Exits application hosting configuration mode and returns to privileged EXEC mode.

The following is sample output from the **show app-hosting list** command:

```
switch# show app-hosting list
```

App id	State
lkeys	RUNNING

Configuration Examples for ThousandEyes Enterprise Agent

Examples: Installing ThousandEyes Enterprise Agent

The following example shows how to enable apphosting feature:

```
switch> enable
switch# configure terminal
switch(config)# feature app-hosting
switch(config)# end
```

The following example shows how to configure AppHosting:

```
switch> enable
switch# configure terminal
switch(config)# app-hosting bridge 2
switch(config)# vrf member red
switch(config)# ip address 172.25.44.1/28
switch(config)# app-hosting appid lkeys
switch(config-app-hosting)# app-unic gateway bridge 1 guest-interface 0
switch(config-config-app-hosting)# guest-ipaddress 172.25.44.3/28
switch(config-config-app-hosting)# exit
switch(config-app-hosting)# app-default-gateway 172.25.44.1 guest-interface 0
switch(config-app-hosting)# name-server0 10.2.2.2
switch(config-app-hosting)# app-resource docker
switch(config-app-hosting-docker)# run-opts 1 "-e TEAGENT_ACCOUNT_TOKEN=[account-token]"
switch(config-app-hosting-docker)# prepend-pkg-opts
switch(config-app-hosting-docker)# end
```

The following example shows how to configure the SVI:

```
switch(config)# interface Vlan606
switch(config-if)# no shutdown
switch(config-if)# vrf member red
switch(config-if)# no ip redirects
switch(config-if)# ip address 172.30.2.193/26
switch(config-if)# ip proxy-arp
switch(config-if)# ip local-proxy-arp
switch(config-if)# interface Ethernet1/15
switch(config-if)# switchport
switch(config-if)# switchport mode trunk
switch(config-if)# switchport trunk allowed vlan 606
switch(config-if)# no shutdown
```

The following example shows how to install the ThousandEyes Enterprise Agent.



Note You can install the prepackaged Greenfield application from the flash file system.

```
Device> enable
Device# Device# app-hosting install lkeys https://downloads.thousandeyes.com/
enterprise-agent/thousandeyes-enterprise-agent-3.0.cat9k.tar
```

Sample Configuration for ThousandEyes Enterprise Agent

The following is sample output from the **show app-hosting detail** command:

```
switch# show app-hosting detail
App id : tea
Owner : appmgr
State : DEPLOYED
Application
Type : docker
Name : ThousandEyes Enterprise Agent
Version : 4.0.2
Description :
Author : ThousandEyes <support@thousandeyes.com>
Path : /bootflash/thousandeyes-enterprise-agent-4.0.2.cisco.tar.gz
URL Path :
Activated profile name : custom
Resource reservation
Memory : 2048 MB
Disk : 51 MB
CPU : 7400 units
Platform resource profiles
Profile Name CPU(unit) Memory(MB) Disk(MB)
-----
Attached devices
Name Type Alias
-----
iox_trace serial/trace serial3
iox_syslog serial/syslog serial2
iox_console_aux serial/aux serial1
iox_console_shell serial/shell serial0
Network interfaces
-----
Docker
-----
Run-time information
Command :
Entry-point :
Run options in use :
Package run options :
Application health information
Status : 0
Last probe error :
Last probe output :
```

The following sample output from the **show running-configuration** command without proxy server:

```
switch# show running-config | section app-hosting

feature app-hosting
app-hosting signed-verification disable
app-hosting bridge 2
vrf member red
ip address 172.25.44.33/28
app-hosting appid tea
app-vnic gateway bridge 2 guest-interface 0
guest-ipaddress 172.25.44.35/28
app-default-gateway 172.25.44.33 guest-interface 0
name-server0 171.70.168.183
name-server1 173.36.131.10
app-resource docker
prepend-pkg-opts
run-opts 1 "-e TEAGENT_ACCOUNT_TOKEN = [account-token]"
run-opts 2 "--hostname=southlake2-1"
```



```
run-opts 3 "--cap-add=NET_ADMIN"
run-opts 4 "--mount type=tmpfs,destination=/var/log/agent,tmpfs-size=140m"
run-opts 5 "-e TEAGENT_PROXY_TYPE=STATIC"
run-opts 6 "-e TEAGENT_PROXY_LOCATION=proxy.domainname.com:80"
run-opts 7 "-e TEAGENT_PROXY_BYPASS_LIST=T*.domainname.com"
```

