# Web Server Enhancements

Cisco IOS supports HTTP/s server, and Nginx acts as the front-end HTTP/s server. The web server enhancements feature includes serviceability enhancements that are needed for identifying the issues at the customer site. As part of the serviceability, log files collection is supported. Session management resiliency is also supported.

# Feature Information for Web Server Enhancements

The following table provides release information about the feature or features described in this module. This table lists only the software release that introduced support for a given feature in a given software release train. Unless noted otherwise, subsequent releases of that software release train also support that feature.

Use Cisco Feature Navigator to find information about platform support and Cisco software image support. To access Cisco Feature Navigator, go to www.cisco.com/go/cfn. An account on Cisco.com is not required.

*Table 1: Feature Information for Web Server Enhanements*

| Feature Name | Releases | Feature Information | |
|---|---|---|---|
| Web Server Enhancements | Cisco IOS XE Everest 16.6.1 Release | Cisco IOS supports HTTP/s server, and Nginx acts as the front-end HTTP/s server. The web server enhancements feature includes serviceability enhancements that are needed for identifying the issues at the customer site. As part of the serviceability, log files collection is supported. Session management resiliency is also supported.<br><br>This feature is supported on Cisco ASR 1000 Series Aggregation Services Routers, Cisco 4400 Series Integrated Services Routers, Cisco Cloud Services Routers 1000v Series, Catalyst 3650, and Catalyst 3850 Switching Platforms. | |

# Information About Web Server Enhancements

## Session Management Resiliency

After a configuration change, the session details are retained and re-authentication is not needed for web user interface.

## Serviceability Enhancements

Serviceability enhancements improve the debug ability of Nginx (HTTP server) by enabling **btrace** for Nginx debugs or logs. The default btrace log level is **notice**. Use the **set platform software trace nginx R0 btrace** command to change the log level for a particular module or all modules inside the Nginx process.

# Configuring the Nginx Process Trace Level

To modify the trace level to increase or decrease the amount of trace message output, you can set a new trace level using the **set platform software trace nginx** command. Trace levels can be set for each nginx process using the **all-modules** keyword in the **set platform software trace nginx** command, or per module within a process.

## SUMMARY STEPS

1. **enable**
2. **set platform software trace nginx R0 all-modules {debug | emergency | error | info | noise | notice | verbose | warning}**
3. **exit**

## DETAILED STEPS

|        | Command or Action | Purpose |
|--------|-------------------|---------|
| Step 1 | **enable**<br><br>**Example:**<br>`Device> enable` | Enables privileged EXEC mode.<br><br>• Enter your password if prompted. |
| Step 2 | **set platform software trace nginx R0 all-modules {debug | emergency | error | info | noise | notice | verbose | warning}**<br><br>**Example:**<br>`Device# set platform software trace nginx R0 all-modules error` | Sets nginx process trace level.<br><br>The following are the tracing levels and descriptions:<br><br>• **debug –** The message provides debug-level output..<br>• **emergency**—Indicates an issue that makes the system unusable.<br>• **error**—The message is regarding system error messages.<br>• **info**—The message is for informational purposes only.<br>• **noise**—Indicates all possible trace messages for the module are logged.<br>• **notice**—The message is regarding a significant issue, but the device is working normally.<br>• **verbose**—The message provides verbose debug messages.<br>• **warning**—Indicates a system warning message.<br><br>**Note**    By default, trace log severity is notice, and the severity can be modified. |
| Step 3 | **exit**<br><br>**Example:**<br>`Device# exit` | Exits privileged EXEC mode. |

# Enabling Logging Levels for Nginx

## SUMMARY STEPS

1. **enable**
2. **set platform software trace nginx R0 ngx_wsman {debug | emergency | error | info | noise | notice | verbose | warning}**
3. **exit**

## DETAILED STEPS

|        | Command or Action | Purpose |
|--------|-------------------|---------|
| Step 1 | **enable**<br><br>**Example:**<br>`Device>` **`enable`** | Enables privileged EXEC mode.<br><br>• Enter your password if prompted. |
| Step 2 | **set platform software trace nginx R0 ngx_wsman {debug \| emergency \| error \| info \| noise \| notice \| verbose \| warning}**<br><br>**Example:**<br>`Device#` **`set platform software trace nginx R0 ngx_wsman error`** | Sets log level for a particular module or all modules inside the nginx process.<br><br>**Note**  By default, trace log severity is **notice**. |
| Step 3 | **exit**<br><br>**Example:**<br>`Device#` **`exit`** | Exits privileged EXEC mode. |

# Verifying the Trace Level per Module

The following example shows how to view the trace level of Nginx Webserver process for route processer slot 0:

```
Device# show platform software trace level nginx R0

Module Name                     Trace Level
-----------------------------------------------
bipc                               Noise
bsignal                            Noise
btrace                             Noise
cdllib                             Noise
cdlutil                                Noise
chasfs                             Noise
evlib                             Noise
evutil                            Noise
mqipc                              Noise
```

```
nginx                               Noise
ngx_core                  Noise
ngx_wsman                 Noise
prelib                     Noise
rsaios                    Noise
services                  Noise
syshw                     Noise
tdl_aaa_common          Noise
tdl_aaa_proxy                   Noise
tdl_cdlcore               Noise
tdl_ngxws                 Noise
tdl_tps                   Noise
tdl_ui                    Noise
tdllib                    Noise
tps-client                Noise
```

The following example shows how to view the Nginx trace messages:

```
Device# show platform software trace message nginx R0

...................
2017/05/18 00:38:06.809 [btrace] [23315]: UUID: 0, ra: 0, TID: 0 (debug): tracing initialized
 as module 482
--- DECODE 7319:7310:15 DONE ---
2017/05/18 00:38:06.809 [btrace] [23315]: UUID: 0, ra: 0, TID: 0 (note): Successfully
registered module [482] [uiutil]
2017/05/18 00:38:06.809 [btrace] [23315]: UUID: 0, ra: 0, TID: 0 (debug):
[BINOS_BTRACE_LEVEL_MODULE_UIUTIL] is not set
2017/05/18 00:38:06.809 [btrace] [23315]: UUID: 0, ra: 0, TID: 0 (info): Set default level
 for module [482] [uiutil] to [15]
```

# Additional References

**Related Documents**

| Related Topic | Document Title |
|---|---|
| Additional HTTP configuration information | *Using the Cisco Web Browser User Interface* |
| Additional HTTPS configuration information | *HTTPS - HTTP Server and Client with SSL 3.0* |
| Additional HTTP and HTTPS commands | *Cisco IOS Network Management Command Reference* |

**Technical Assistance**

| Description | Link |
|---|---|
| The Cisco Support website provides extensive online resources, including documentation and tools for troubleshooting and resolving technical issues with Cisco products and technologies. To receive security and technical information about your products, you can subscribe to various services, such as the Product Alert Tool (accessed from Field Notices), the Cisco Technical Services Newsletter, and Really Simple Syndication (RSS) Feeds. Access to most tools on the Cisco Support website requires a Cisco.com user ID and password. | http://www.cisco.com/public/support/tac/home.shtml |