Upgrading IoT FND

This section contains the following IoT FND upgrade topics:

Pre-Upgrade Checklist

The section identifies the tasks that can be performed before you begin your upgrade to ensure a successful upgrade and limited downtime.

- Back up application directory. For example, if you want to upgrade **`cgms RPM`**, then you must back up the **`/opt/cgms`** folder. For more information, refer to Installing or Upgrading the SSM Server

Note After upgrade, the manual changes made to the application scripts are lost.

- Back up database. For more information, refer to Creating a Full Backup of the IoT FND Database, Backing Up the IoT FND Database Incrementally

Verifying Certificates and System Requirements

This section describes how to verify certificates and the system requirements for the upgrade procedure.

- Generating and Exporting Certificates
- System Requirements

Upgrading IoT FND

Note It is not necessary to stop the database during normal upgrades. All upgrades are in-place.

Note For virtual IoT FND installations using custom security certificates, see Managing Custom Certificates before performing an upgrade.

Caution Run the following steps sequentially.

To upgrade the IoT FND application:

Step 1 Obtain the new IoT FND ISO from Cisco.

Step 2 Extract the **`cgms rpms`** into a directory from the FND release ISO file.

Step 3 Run **`rpm -qa | grep cgms`** to get the list of rpms installed in the application server.

Step 4 Run the following command to stop IoT FND.

RHEL Version	Command
8.x	`systemctl stop cgms`
7.x	`service cgms stop`

Note The application typically takes approximately 10 seconds to stop.

Step 5 Run **`ps | grep java`** to verify that no Java processes are running.

Step 6 Run the following command to make sure that the **`cgms`** service has stopped.

RHEL Version	Command
8.x	`systemctl status cgms`
7.x	`service cgms status`

Step 7 Run the following script to upgrade the IoT FND RPM.

IoT FND Release	Command

Upgrade to 4.11.0 from any earlier release.	`rpm -Uvh <new_cgms_rpm_filename> --force`
	For example, to upgrade to IoT FND release 4.11.0, run the following command.
	`rpm -Uvh cgms-4.11.0-46.x86_69.rpm --force`

IoT FND Release	Command
Upgrades prior to release 4.11.0.	`rpm -Uvh <new_cgms_rpm_filename>`

Note We recommend you to upgrade all the installed **rpms** with the same FND version that you will upgrade to. The new *rpm* files overwrite the existing files in **/opt/cgms**.

Step 8 Run **./db-migrate** in **/opt/cgms/bin** directory to upgrade the database.

Note Ensure that you run the **db-migrate** script after each upgrade.

Step 9 Enter the database password when prompted.

Note The default password is **cgms123**.

Step 10 Run the following command to start IoT FND.

RHEL Version	Command
8.x	`systemctl start cgms`
7.x	`service cgms start`

Note You can also use the RHEL (Red Hat Enterprise Linux) GUI to start the IoT FND service (**ADMIN** > **System Management** > **Server Settings** > **Services**).

Upgrading FND TPS Proxy

Note Based on the RHEL version, choose either systemctl or service commands.

For example, to stop tpsproxy services:

RHEL Version	Command
8.x	`systemctl stop tpsproxy.service`
7.x	`service tpsproxy stop`

To upgrade the TPS Proxy server manually:

Step 1 Back up the following config files in the **/opt/cgms-tpsproxy/conf** directory.

- tpsproxy.properties
- cgms_keystore

Step 2 Before starting the upgrade process, ensure that the following services are running.

```
[root@iot-tps opt]# systemctl status tpsproxy.service
● tpsproxy.service - SYSV: CGMS Tunnel Provisioning proxy server
   Loaded: loaded (/etc/rc.d/init.d/tpsproxy; generated)
   Active: active (running) since Mon 2023-11-06 23:51:00 IST; 6 months 2 days ago
     Docs: man:systemd-sysv-generator(8)
  Process: 35730 ExecStart=/etc/rc.d/init.d/tpsproxy start (code=exited, status=0/SUCCESS)
    Tasks: 45 (limit: 152533)
   Memory: 204.1M
   CGroup: /system.slice/tpsproxy.service
           └─35748 java -server -Xms128m -Xmx2g -XX:MaxPermSize=256m -server
-XX:+HeapDumpOnOutOfMemoryError -XX:HeapDumpPath=/opt/cgms-tpsproxy/log -XX:-OmitStackTraceInFastThrow
 -XX:-Use>

Nov 06 23:50:58 iot-tps systemd[1]: Starting SYSV: CGMS Tunnel Provisioning proxy server...
Nov 06 23:50:59 iot-tps runuser[35746]: pam_unix(runuser:session): session opened for user root by
(uid=0)
Nov 06 23:50:59 iot-tps runuser[35746]: pam_unix(runuser:session): session closed for user root
Nov 06 23:51:00 iot-tps tpsproxy[35730]: [36B blob data]
Nov 06 23:51:00 iot-tps systemd[1]: Started SYSV: CGMS Tunnel Provisioning proxy server.
```

Step 3 Run the following command to stop the tpsproxy services.

```
systemctl stop tpsproxy
```

Step 4 Copy the `cgms-tpsproxy.rpm` downloaded from software.cisco.com to a directory in the TPS server.

Step 5 Run the following command to upgrade the tpsproxy server.

```
rpm -Uvh cgms-tpsproxy-<fnd-version>.rpm
```

```
[root@iot-tps opt]# rpm -Uvh cgms-tpsproxy-<fnd-version>.rpm
Verifying...                          ################################# [100%]
Preparing...                          ################################# [100%]
Updating / installing...
   1:cgms-tpsproxy-4.12.0-56          ################################# [ 50%]
PSK key already present
05-09-2024 15:36:02 IST: INFO: Looking for /opt/cgms-tpsproxy/conf/tpsproxy.properties
05-09-2024 15:36:02 IST: INFO: cgms-keystore-password-hidden already exists. Doing nothing.
Cleaning up / removing...
   2:cgms-tpsproxy-4.10.0-45          ################################# [100%]
[root@iot-tps opt]#
```

Step 6 Run the following command to start the `tpsproxy services`.

```
systemctl start tpsproxy.service
```

```
[root@iot-tps opt]# systemctl start tpsproxy.service
[root@iot-tps opt]# systemctl status tpsproxy.service
● tpsproxy.service - SYSV: CGMS Tunnel Provisioning proxy server
   Loaded: loaded (/etc/rc.d/init.d/tpsproxy; generated)
   Active: active (running) since Thu 2024-05-09 15:36:45 IST; 4s ago
     Docs: man:systemd-sysv-generator(8)
  Process: 209931 ExecStart=/etc/rc.d/init.d/tpsproxy start (code=exited, status=0/SUCCESS)
    Tasks: 39 (limit: 152533)
   Memory: 71.1M
   CGroup: /system.slice/tpsproxy.service
           └─209949 java -server -Xms128m -Xmx2g -XX:MaxPermSize=256m -server
-XX:+HeapDumpOnOutOfMemoryError -XX:HeapDumpPath=/opt/cgms-tpsproxy/log -XX:-OmitStackTraceInFastThrow
 -XX:-Us>

May 09 15:36:44 iot-tps systemd[1]: Starting SYSV: CGMS Tunnel Provisioning proxy server...
May 09 15:36:44 iot-tps runuser[209947]: pam_unix(runuser:session): session opened for user root by
 (uid=0)
May 09 15:36:44 iot-tps runuser[209947]: pam_unix(runuser:session): session closed for user root
```

```
May 09 15:36:45 iot-tps tpsproxy[209931]: [36B blob data]
May 09 15:36:45 iot-tps systemd[1]: Started SYSV: CGMS Tunnel Provisioning proxy server.
```

a) Run the following command to check the log.

```
tail -f /opt/cgms-tpsproxy/log/tpsproxy.log
```

Example Output:

```
[root@iot-tps opt]# tail -f /opt/cgms-tpsproxy/log/tpsproxy.log
32: iot-tps: May 09 2024 06:06:45.108 -0400: %CGMS-6-UNSPECIFIED:
%[ch=BootstrapProxy][sev=INFO][tid=main]: bootstrap-proxy-listen-port=9125
33: iot-tps: May 09 2024 06:06:45.108 -0400: %CGMS-6-UNSPECIFIED:
%[ch=BootstrapProxy][sev=INFO][tid=main]: inbound-proxy-destination=http://<fnd hostname/ip
address>:9125
34: iot-tps: May 09 2024 06:06:45.108 -0400: %CGMS-6-UNSPECIFIED:
%[ch=BootstrapProxy][sev=INFO][tid=main]: inbound-proxy-timeout=300000
35: iot-tps: May 09 2024 06:06:45.108 -0400: %CGMS-6-UNSPECIFIED:
%[ch=BootstrapProxy][sev=INFO][tid=main]: inbound-proxy-idle-timeout=300000
36: iot-tps: May 09 2024 06:06:45.108 -0400: %CGMS-6-UNSPECIFIED:
%[ch=BootstrapProxy][sev=INFO][tid=main]: inbound-proxy-connections=30
37: iot-tps: May 09 2024 06:06:45.108 -0400: %CGMS-6-UNSPECIFIED:
%[ch=BootstrapProxy][sev=INFO][tid=main]: inbound-proxy-max-response-timeout=305000
38: iot-tps: May 09 2024 06:06:45.110 -0400: %CGMS-6-UNSPECIFIED: %[ch=Server][sev=INFO][tid=main]:
 jetty-9.2.19.v20160908
39: iot-tps: May 09 2024 06:06:45.111 -0400: %CGMS-6-UNSPECIFIED:
%[ch=ContextHandler][sev=INFO][tid=main]: Started
o.e.j.s.ServletContextHandler@4d41cee{/,null,AVAILABLE}
40: iot-tps: May 09 2024 06:06:45.112 -0400: %CGMS-6-UNSPECIFIED:
%[ch=ServerConnector][sev=INFO][tid=main]: Started ServerConnector@3712b94{HTTP/1.1}{0.0.0.0:9125}
41: iot-tps: May 09 2024 06:06:45.112 -0400: %CGMS-6-UNSPECIFIED: %[ch=Server][sev=INFO][tid=main]:
 Started @697ms
```

Step 7 Check the tpsproxy service status.

```
systemctl status tpsproxy.service
```

Example Output:

```
[root@iot-tps opt]# systemctl status tpsproxy.service
● tpsproxy.service - SYSV: CGMS Tunnel Provisioning proxy server
   Loaded: loaded (/etc/rc.d/init.d/tpsproxy; generated)
   Active: active (running) since Thu 2024-05-09 15:36:45 IST; 1min 52s ago
     Docs: man:systemd-sysv-generator(8)
  Process: 209931 ExecStart=/etc/rc.d/init.d/tpsproxy start (code=exited, status=0/SUCCESS)
    Tasks: 39 (limit: 152533)
   Memory: 71.1M
   CGroup: /system.slice/tpsproxy.service
           └─209949 java -server -Xms128m -Xmx2g -XX:MaxPermSize=256m -server
-XX:+HeapDumpOnOutOfMemoryError -XX:HeapDumpPath=/opt/cgms-tpsproxy/log -XX:-OmitStackTraceInFastThrow
 -XX:-Us>

May 09 15:36:44 iot-tps systemd[1]: Starting SYSV: CGMS Tunnel Provisioning proxy server...
May 09 15:36:44 iot-tps runuser[209947]: pam_unix(runuser:session): session opened for user root by
 (uid=0)
May 09 15:36:44 iot-tps runuser[209947]: pam_unix(runuser:session): session closed for user root
May 09 15:36:45 iot-tps tpsproxy[209931]: [36B blob data]
May 09 15:36:45 iot-tps systemd[1]: Started SYSV: CGMS Tunnel Provisioning proxy server.
```

Post-Upgrade Checklist

This section describes the tasks that you have to perform post upgrade:

Note Any manual changes made to the **cgms** scripts are lost post upgrade; therefore, you have to make the changes again.

- Run **setupCgms** script to reconfigure FND.

Note The **setupCgms** script provides information on new configurations that are part of this FND upgrade.

- Run **DB migrate** script to upgrade the database.
- Start **cgms service** to monitor the status.

Upgrade FND in HA Configuration or Clustered Mode

This section provides the tasks for upgrading IoT FND in high-availability (HA) configuration or clustered mode:

- Upgrade Oracle DB. For more information, refer to Upgrading the IoT FND Database.
- Stop all application servers that are part of the cluster.
- Upgrade all the FND applications.
- Run **db-migrate** post upgrade in one of the application servers.
- Start FND service one by one.