



## Status Monitoring Using Commands

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## Feature Summary and Revision History

### Summary Data

*Table 1: Summary Data*

Applicable Product(s) or Functional Area	5G-PCF
Applicable Platform(s)	SMI
Feature Default Setting	Enabled – Configuration Required
Related Changes in this Release	Not Applicable
Related Documentation	Not Applicable

### Revision History

*Table 2: Revision History*

Revision Details	Release
Introduced procedure to view the NF connection status	2020.03.0
First Introduced.	2020.01.0

## Feature Description

PCF allows you to view the Diameter peer, LDAP connection, and NRF registration status using the PCF Ops Center. Alternatively, you can access this information from the Grafana dashboard. For information on Grafana, see the *Ultra Cloud Core 5G Policy Control Function Statistics Reference*.

PCF provides an in-depth information about the NF endpoint that it has discovered through NRF. PCF discovers an NF endpoint only when both, PCF and the NF are registered with the same NRF. PCF also lets you view the subscriber session details across the configured regions.

## Viewing the Connection and Registration Status

This section describes how to view the Diameter peer, LDAP connection, and NRF registration status.

Based on the component that you want to view the status for, use the following configuration:

- To view the status of the configured Diameter peers, use the following configuration:

```
show diameter peer-status
```

The output of this command displays the peer hostname, peer realm, and the peer status.

The following is a sample output of the **show diameter peer-status** command.

```
pcf# show diameter peer-status
PEER HOSTNAME    PEER REALM                                PEER
STATUS
-----
site-host-rx2    site-rx-client-mob-1.com                  Connected
site-host-rx1    site-rx-client-mob-2.com                  Connected
```

- To view the status of the LDAP connection, use the following configuration:

```
show ldap connection-status
```

The output of this command displays the ServerSet, maximum number of available connections, and the number of available connections.

The following is a sample output of the **show ldap connection-status** command.

```
pcf# show ldap connection-status
SERVERSET  METRIC                                VALUE
-----
USD        MaximumAvailableConnections          10
USD        NumAvailableConnections              0
```

- To view the NRF registration status, use the following configuration:

```
show rest-endpoint registration-status
```

The output of this command displays the IP address of the pod, registration status, and the registered NRF URI.

The following is a sample output of the **show rest-endpoint registration-status** command.

```
pcf# show rest-endpoint registration-status
POD IP          REGISTERED    NRF URI
-----
192.0.2.19:8486 Registered    http://192.0.2.12:8001/
```

## Viewing the NFs Connected to PCF

This section describes how to view the NFs that are presently connected to PCF.

- To view the NFs that are currently connected to PCF, use the following configuration:

```
show rest-endpoint peer-status
```

The command displays the mapped port numbers only if you have configured the ports for the interface. After you configure the port and send a request to that port, then on running the **show rest-endpoint peer-status** command, the PCF displays the mapping details. If the request comes to the pcf-rest-ep external port, which is not associated with any configured interface port, then the NFName is displayed as “UNKNOWN”.

For information on how to configure the NFs and the corresponding port numbers with PCF, refer to the *Configuring the External IP Address* section in the *Multiple Virtual IP Address* chapter.

The output of this command displays NF name, peer details, pod IP address, peer IP address, and the duration for which the connection is active.

```
pcf# show rest-endpoint peer-status
PEER  NF
PORT  NAME  POD IP          PEER IP          CONNECTION DURATION
-----
8142  AMF   192.0.2.255    192.0.2.254     1 days 17 hours 44 minutes 38 seconds
8147  AMF   192.0.2.255    192.0.2.254     1 days 17 hours 44 minutes 13 seconds
6082  CHF   192.0.2.255    192.0.2.254     1 days 17 hours 44 minutes 22 seconds
8042  SMF   192.0.2.255    192.0.2.252     1 days 17 hours 44 minutes 17 seconds
8043  SMF   192.0.2.255    192.0.2.252     1 days 17 hours 44 minutes 38 seconds
8044  SMF   192.0.2.255    192.0.2.252     1 days 17 hours 44 minutes 17 seconds
8045  SMF   192.0.2.255    192.0.2.252     1 days 17 hours 44 minutes 17 seconds
8046  SMF   192.0.2.255    192.0.2.252     1 days 17 hours 44 minutes 17 seconds
8047  SMF   192.0.2.255    192.0.2.252     1 days 17 hours 44 minutes 17 seconds
```

## Viewing the Discovered Endpoint

This section describes how to view the discovered endpoint details such as the NF type, IP address, and the port number of the endpoint.

Based on the endpoint that you want to view, use the following configuration:

- To view the discovered endpoints associated to the CHF service, use the following configuration:

```
show rest-endpoint discover-cache chf
```

The output of this command displays the NF type, NF instance ID, NF status, IPv4 address, port number, and the expiry date of the CHF’s discovered profiles.

The following is a sample output of the **show rest-endpoint discover-cache chf** command.

```
pcf# show rest-endpoint discover-cache chf
NF Type  NF INSTANCE ID          NF STATUS  IPV4 ADDRESS  PORT  EXPIRY
CHF      6DDF833D6-b0c9-5503-9800=e806cff43941 Registered  192.0.2.18   4001.0  0.0
CHF      6DDF833D6-b0c9-5503-9800=e806cff43943 Registered  192.0.2.19   4003.0  0.0
CHF      6DDF833D6-b0c9-5503-9800=e806cff43942 Registered  192.0.2.20   4002.0  0.0
```



**Note** The NF Status indicates the discovered NFs registration status with NRF.

- To view the discovered endpoints associated to the UDR service, use the following configuration:

```
show rest-endpoint discover-cache udr
```

The output of this command displays the NF type, NF instance ID, NF status, IPv4 address, port number, and the expiry date of the UDR's discovered profiles.

The following is a sample output of the **show rest-endpoint discover-cache udr** command.

```
pcf# show rest-endpoint discover-cache udr
NF Type  NF INSTANCE ID                               NF STATUS  IPV4 ADDRESS  PORT    EXPIRY
UDR      6DDF833D6-b0c9-5503-9800=e806cff43941  Registered  192.0.2.21   2001.0  0.0
UDR      6DDF833D6-b0c9-5503-9800=e806cff43943  Registered  192.0.2.22   2003.0  0.0
UDR      6DDF833D6-b0c9-5503-9800=e806cff43942  Registered  192.0.2.12   2002.0  0.0
```

- To view the consolidated list of endpoints that PCF has discovered, use the following configuration:

```
show rest-endpoint discover-cache
```

The output of this command displays the NF type, NF instance ID, NF status, IPv4 address, port number, and the expiry date of both, CHF and UDR discovered profiles.

The following is a sample output of the **show rest-endpoint discover-cache** command.

```
pcf# show rest-endpoint discover-cache chf
NF Type  NF INSTANCE ID                               NF STATUS  IPV4 ADDRESS  PORT    EXPIRY
CHF      6DDF833D6-b0c9-5503-9800=e806cff43941  Registered  192.0.2.18   4001.0  0.0
CHF      6DDF833D6-b0c9-5503-9800=e806cff43943  Registered  192.0.2.19   4003.0  0.0
CHF      6DDF833D6-b0c9-5503-9800=e806cff43942  Registered  192.0.2.20   4002.0  0.0

pcf# show rest-endpoint discover-cache udr
NF Type  NF INSTANCE ID                               NF STATUS  IPV4 ADDRESS  PORT    EXPIRY
UDR      6DDF833D6-b0c9-5503-9800=e806cff43941  Registered  192.0.2.21   2001.0  0.0
UDR      6DDF833D6-b0c9-5503-9800=e806cff43943  Registered  192.0.2.22   2003.0  0.0
UDR      6DDF833D6-b0c9-5503-9800=e806cff43942  Registered  192.0.2.12   2002.0  0.0
```

## Fetching the Subscriber Sessions

This section describes how to fetch the subscriber sessions that are configured across regions.

- [Prerequisites for Fetching Subscriber Sessions, on page 4](#)
- [Viewing the Subscriber Session Details, on page 5](#)

## Prerequisites for Fetching Subscriber Sessions

This section describes the prerequisites configuration that you must configure before fetching the subscriber session data across the configured regions.

The prerequisite configuration involves the following step:

- [Configuring the Configuration File, on page 5](#)

## Configuring the Configuration File

This section describes how to configure the cluster name, external IP address, and port number of the unified API service in the configuration file.

The PCF configuration file determines the application servers and their associated configurations.

To configure the cluster and external IP address for the unified API service, use the following configuration:

```
config
deployment add config
  cluster-namecluster_name
  unified-api-external-ipexternal_ip
  portport_number
end
```

### NOTES:

- **cluster-name** *cluster\_name* – Specifies the cluster name where you want to deploy PCF.
- **unified-api-external-ip** *external\_ip* – Specifies the IP address on which the unified API listens.
- **port** *port\_number* – Specifies the port number on which the unified API is exposed.

## Verifying the Contents of the Configuration File

This section describes how to verify the contents of the configuration file.

Use the **deployment show-config** command to view the deployment details.

The following is a sample output of the **deployment show-config** command.

```
pcf# deployment show-config
deploymentInfo:
west-coast, 192.0.2.18, http,9090
east-coast, 192.0.2.22, http,9090
```

## Deleting the Configuration File

This section describes how to delete the configuration file.

You can delete a configuration file when you no longer require any of the configured resources and services.

To delete the configuration file that is currently configured in your deployment environment, use the following configuration:

```
deployment remove-config
```

## Viewing the Subscriber Session Details

This section describes how to view the subscriber session information about the sessions configured.

Before proceeding with the configuration, make sure that you have configured the cluster and external IP for the unified API. For more information, see [Configuring the Configuration File, on page 5](#).

- To view the sessions available on all the configured regions, use the following configuration:

```
show subscriber [ imsi imsi_value | msisdn msisdn_value]
```

### NOTES:

- *imsi\_value*– Displays the subscriber session associated to the specified IMSI value.
- *msisdn\_value*– Displays the subscriber session associated to the specified MSISDN value.

The output of this command displays session details and the interfaces that are involved.

```
pcf# show subscriber imsi 100100222233266
SessionInfo:
```

```
+-----+
| 1: development-session      : ism.3.imsi-10012121212123.133131313.1222.68881149 |
+-----+
| Activity Timestamp          |
+-----+
| Connect Time                : 06-03-2020 04:39:43 AM          |
| Expiration Time            : 29-03-2020 04:39:43 PM remaining: 23 days, 20:04.0 |
|
| Session Detail              |
+-----+
| Bearer Session Type        : STATIC_5G                    |
| External Profile           : No                            |
+-----+
| LDAP                        |
+-----+
| External Profile           : No                            |
|
| N7                           |
+-----+
| mcc,mnc                    : 100, 010                    |
| dnn                        : static.one.5g                    |
| rat-type                   : NR                            |
| access-type                : 3GPP_Access                    |
| pdu-session-id             : 5                            |
| supi                       : imsi-100101222233266            |
| gpsi                       : msisdn-11112433266            |
| framed-ip-v4               : 31.31.154.88                    |
| framed-ip-v6               : 2710:ae00:d2f3:9a78                |
| update-notify-url          : http://192.0.2.12:7010/callbacks/v1/ |
|                               smPoliciesUpdateNotification/i msi-10001011111:5 |
+-----+
```