



CHAPTER 6

Troubleshooting

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Introduction

This chapter describes application programming interface (API) logging for troubleshooting integration with the API. API logging enables you to monitor the operations being called, including the received parameters, at the API client side and at the Service Control Engine (SCE) side.

- [Cisco SCE Logging, page 6-2](#)
- [API Client Logging, page 6-6](#)

Cisco SCE Logging

The SCE platform enables you to log all operations called by the policy server to an SCE user-log file.

This section consists of these subsections:

- [Default Log Messages, page 6-2](#)
- [Subscriber Operation Log Messages, page 6-3](#)

Default Log Messages

The SCE issues the following messages by default without any further configuration:

For connect operation:

```
<client-name>- connect operation was called, registered listeners: <type of the listeners that were registered>
```

For disconnect operation:

```
<client-name>- disconnected
```

For registerLoginPullListener operation:

```
<client-name>- registered a Login Pull Listener
```

For unregisterPullListener operation:

```
<client-name>- unregistered a Pull Listener
```

For registerLogoutListener operation:

```
<client-name>- registered a Logout Listener
```

For unregisterLogoutListener operation:

```
<client-name>- unregistered a Logout Listener
```

For registerQuotaListener operation:

```
<client-name>- registered Quota Listener
```

For unregisterQuotaListener operation:

```
<client-name>- unregister Quota Listener
```

For synchronizePushStart operation:

```
<client-name>- synchronize Push Start
```

For synchronizePushEnd operation:

```
<client-name>- synchronize Push End
```

For synchronizePullStart operation:

```
<client-name>- synchronize Pull Start
```

For synchronizePullEnd operation:

```
<client-name>- synchronize Pull End
```

Subscriber Operation Log Messages

A special parameter activates subscriber operation log messages. To receive these messages, enable the parameter.

To enable logging, issue the following CLI command on the SCE platform:

```
(config)#> management-agent sce-api logging
```

To view the user-log file, issue the following CLI command on the SCE platform:

```
#> logger get user-log file-name <FILE NAME>
```

**Note**

Enabling logging degrades performance. Therefore, use logging only for troubleshooting.

To disable logging, issue the following CLI command on the SCE platform:

```
(config)#> no management-agent sce-api logging
```

To detect whether logging is enabled, issue the following CLI command on the SCE platform:

```
#> show management-agent sce-api
```

When the logging parameter is enabled, for the following subsequent operations:

- login operation
- networkIDUpdate operation
- logout operation
- quotaUpdate operation
- loginPullResponse operation
- profileUpdate operation
- getQuotaStatus operation

The following message is issued:

```
<operation name>operation was called  
with parameters:  
subscriberID - <subscriber ID>  
anonymousSubscriberID - <anonymousSubscriberID >  
mappings - <mappings list>  
mappings types - <mapping types list>  
policy - <policy properties list>  
quota - <quota operation/quota buckets list>
```

For the following bulk operations:

- loginBulk operation
- networkIDUpdateBulk operation
- logoutBulk operation
- quotaUpdateBulk operation
- loginPullBulkResponse operation
- profileUpdateBulk operation
- getQuotaStatuBulkRequest operation
- getSubscribersBulk operation

The following message is issued:

```
<operation name>operation was called with parameters:
bulk size - <bulk size>
```

The following messages are issued for LoginPullListener:

- For loginPullRequest:

```
loginPullRequest operation was called with parameters:
anonymousSubscriberID - <anonymous subscriber ID>
mappings - <mappings list>
mapping types - <mapping types>
```

- For loginPullRequestBulk:

```
loginPullRequestBulk operation was called with parameters:
bulk size - <bulk size>
```

- For getSubscribersBulkResponse:

```
getSubscribersBulkResponse operation was called with parameters:
bulk size - <bulk size>
```

The following messages are issued for LogoutListener:

- For logoutIndication:

```
logoutIndication operation was called with parameters:
subscriberID - <anonymous subscriber ID>
```

- For logoutBulkIndication:

```
logoutBulkIndication operation was called with parameters:
bulk size - <bulk size>
```

The following messages are issued for QuotaListenerEx:

- For quotaStatusIndication:

```
quotaStatusIndication operation was called with parameters:
subscriberID - <Subscriber ID>
quota - <subscriber quota>
```

- For quotaBelowThresholdIndication:

```
quotaBelowThresholdIndication operation was called with parameters:
subscriberID - <Subscriber ID>
quota - <subscriber quota>
```

- For quotaDepletedIndication:
quotaDepletedIndication operation was called with parameters:
subscriberID - <Subscriber ID>
quota - <subscriber quota>
- For quotaStateRestore:
quotaStateRestore operation was called with parameters:
subscriberID - <Subscriber ID>
quota - <subscriber quota>
- For quotaStatusBulkIndication:
quotaStatusBulkIndication operation was called with parameters:
subs - <bulk size>
- For quotaBelowThresholdBulkIndication:
quotaBelowThresholdBulkIndication operation was called with parameters:
subs - <bulk size>
- For quotaDepletedBulkIndication:
quotaDepletedBulkIndication operation was called with parameters:
subs - <bulk size>
- For quotaStateBulkRestore:
quotaStateBulkRestore operation was called with parameters:
subs - <bulk size>

API Client Logging

The API enables the logging of every activated operation in to the `apilog` file located under `${user.home}` directory. Configure the logging parameters by using the Log4J properties files. To enable logging, ensure that this file is in the applications CLASSPATH. This file is read at startup of the application; therefore; after changing it, restart the application.

The following is the content of the `log4j.properties` file:

```
# default Log4j configuration for SCE Subscriber API
log4j.rootCategory=INFO, apiStdout
# In order to enable the logging to the file Replace the above
# line with the following:
# log4j.rootCategory=INFO, files
# stdout is set to be a ConsoleAppender.
log4j.appender.apiStdout=org.apache.log4j.ConsoleAppender
log4j.appender.apiStdout.layout=org.apache.log4j.PatternLayout
log4j.appender.apiStdout.layout.ConversionPattern=%d{dd-MMM HH:mm:ss.SSS} [%t] %-5p
%c%n%m%n
# files is set to be a RollingFileAppender.
#log4j.appender.files=org.apache.log4j.RollingFileAppender
#log4j.appender.files.layout=org.apache.log4j.PatternLayout
#log4j.appender.files.layout.ConversionPattern=%d{dd-MMM yyyy HH:mm:ss.SSS} [%t] %-5p %c
%x\n%m\n
#log4j.appender.files.File=${user.home}/apilog
#log4j.appender.files.Threshold=INFO
#log4j.appender.files.ImmediateFlush=true
#log4j.appender.files.MaxFileSize=1MB
#log4j.appender.files.MaxBackupIndex=4
# In order to enable debug logging uncomment the following line
#log4j.category.com.scms.api.sce.prpc=DEBUG
```

To enable debug logging, uncomment the last line in the file. By default, logging is performed to the standard output. To direct logging to the file, uncomment the “`# log4j.rootCategory=INFO, files`” line as explained in the file.

API Client Log Messages

The API client issues the following messages after properly configuring the `log4j.properties` file:

- For API constructor:

```
PRPC_SCESubscriberApi constructor was called with the following parameters:
apiName - <apiName>
host - <sceHost>
port - <scePort>
auto-reconnect - <autoReconnectInterval>
```

- For init operation:

```
init operation was called with parameters <properties>
```

- For `setConnectionListener`:

```
setConnectionListener operation was called
```

- For `setRedundancyStateListener`:

```
setRedundancyStateListener operation was called
```

- For isConnected:


```
isConnected operation was called
```
- For getAPIVersion:


```
getAPIVersion operation was called
```

For the following operations:

- login operation
- networkIDUpdate operation
- logout operation
- quotaUpdate operation
- loginPullResponse operation
- profileUpdate operation
- getQuotaStatus operation

The following message is issued:

```
<operation name>operation was called with parameters:
subscriberID - <subscriber ID>
anonymousSubscriberID - <anonymousSubscriberID>
mappings - <mappings list>
mappings types - <mapping types list>
policy - <policy properties list>
quota - <quota operation/quota buckets list>
```

For the following bulk operations:

- loginBulk operation
- networkIDUpdateBulk operation
- logoutBulk operation
- quotaUpdateBulk operation
- loginPullBulkResponse operation
- profileUpdateBulk operation
- getQuotaStatusBulkRequest operation
- getSubscribersBulk operation
- getSubscribersBulkIPv6 operation

The following message is issued:

```
operation name>operation was called with parameters:
bulk size - <bulk size>
```

- For connect operation:


```
connect operation was called, registered listeners:
<type of the listeners that were registered>
```
- For disconnect operation:


```
disconnect operation was called
```
- For registerLoginPullListener(LoginPullListener) operation:


```
registerLoginPullListener operation was called
```

- For registerLoginPullListener(DualLoginPullListener) operation:
registerDualLoginPullListener operation was called
- For unregisterLoginPullListener operation:
unregisterLoginPullListener operation was called

or
unregisterDualLoginPullListener operation was called
- For registerLogoutListener operation:
registerLogoutListener operation was called



Note Only one listener can be registered at a time. If you try to register a second listener, the following message is displayed:

Already another login pull listener <type of the login pull listener that was registered> has been registered. Please unregister it.

- For unregisterLogoutListener operation:
unregisterLogoutListener operation was called
- For registerQuotaListener operation:
registerQuotaListener operation was called
- For unregisterQuotaListener operation:
unregisterQuotaListener operation was called
- For synchronizePushStart operation:
synchronizePushStart operation was called
- For synchronizePushEnd operation:
synchronizePushEnd operation was called
- For synchronizePullStart operation:
synchronizePullStart operation was called
- For synchronizePullEnd operation:
synchronizePullEnd operation was called

The following messages are issued for the LoginPullListener listener callback methods:

- For loginPullRequest:
loginPullRequest operation was called with parameters:
anonymousSubscriberID - <anonymous subscriber ID>
mappings - <mappings list>
mapping types - <mapping types>
- For loginPullRequestBulk:
loginPullRequestBulk operation was called with parameters:
bulk size - <bulk size>

- For `getSubscribersBulkResponse`:

```
getSubscribersBulkResponse operation was called with parameters:
bulk size - <bulk size>
```

The following message is issued for the `DualLoginPullListener` listener callback methods:

- For `loginV6PullRequest`:

```
loginV6PullRequest operation was called with parameters:
anonymous subscriber ID - <anonymous subscriber ID>]
mappings: higher octet value-<higher octet value> and lower octet value-<lower octet
value>
mapping types - TYPE_IPV6
```

The following messages are issued for the `LogoutListener` listener callback methods:

- For `logoutIndication`:

```
logoutIndication operation was called with parameters:
subscriberID - <anonymous subscriber ID>
```

- For `logoutBulkIndication`:

```
logoutBulkIndication operation was called with parameters:
bulk size - <bulk size>
```

The following messages are issued for the `QuotaListenerEx` listener callback methods:

- For `quotaStatusIndication`:

```
quotaStatusIndication operation was called with parameters:
subscriberID - <Subscriber ID>
quota - <subscriber quota>
```

- For `quotaBelowThresholdIndication`:

```
quotaBelowThresholdIndication operation was called with parameters:
subscriberID - <Subscriber ID>
quota - <subscriber quota>
```

- For `quotaDepletedIndication`:

```
quotaDepletedIndication operation was called with parameters:
subscriberID - <Subscriber ID>
quota - <subscriber quota>
```

- For `quotaStateRestore`:

```
quotaStateRestore operation was called with parameters:
subscriberID - <Subscriber ID>
quota - <subscriber quota>
```

- For `quotaStatusBulkIndication`:

```
quotaStatusBulkIndication operation was called with parameters:
subs - <bulk size>
```

- For `quotaBelowThresholdBulkIndication`:

```
quotaBelowThresholdBulkIndication operation was called with parameters:
subs - <bulk size>
```

- For `quotaDepletedBulkIndication`:

```
quotaDepletedBulkIndication operation was called with parameters:
subs - <bulk size>
```

- For quotaStateBulkRestore:

```
quotaStateBulkRestore operation was called with parameters:  
subs - <bulk size>
```