

CSCF AppTrace User Guide

Call Session Control Function

USER GUIDE

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1 Introduction

This document describes how to use and apply the Application Trace (AppTrace) in the Call Session Control Function (CSCF). The document lists the CSCF process types and domains that are applicable for collecting trace information. The AppTrace is a trace service available in the Ericsson runtime environment.

1.1 Prerequisites

It is assumed that users of this document are familiar with performing operations within the area for Operation and Maintenance (O&M) in general.

1.1.1 Documents

For information about how to use the AppTrace, the different states, levels, and commands, refer to *AppTrace User Guide*.





2 AppTrace

The AppTrace is a service available in the runtime environment. The main purpose of the AppTrace is to provide practical assistance in troubleshooting applications on live CSCF systems. By using the AppTrace, an AppTrace end user can gain insight into the current behavior of an application. An AppTrace end user is an Ericsson support staff member that does operation and service provisioning tasks in a live network. Operators are not considered AppTrace end users.

Note: Use the AppTrace with caution, as the inherent problem with observing the behavior of a system by tracing is the consumed capacity of the tracing itself. If the cost is too high, it can interfere with the primary function of the system and at worst even cause system failure.





3 Use AppTrace

This section describes how to use the AppTrace in the CSCF.

3.1 Start AppTrace

To start an AppTrace session:

1. Log on to the CSCF System Controller (SC) node:

```
ssh -A <user>@<Service Controller address>
```

For example:

```
ssh user1@192.168.10.1
```

2. Log on to the CSCF Payload (PL) node:

```
ssh -A <user>@<PL-X address>
```

For example:

```
ssh -A user1@192.168.10.2
```

3. Initiate the AppTrace session:

```
cd /opt/lpmsv/bin/appttrace
```

```
./collect_domains.sh
```

```
./verify_domains.sh
```

```
./begin_session.sh
```

```
./include_processors.sh -a
```

4. Add process types:

```
./add_process_type.sh <PT1> [<PT2> ...]
```

For example:

```
./add_process_type.sh CscfAppProc.1041756
```

For information on process types in the CSCF, see Section 4 on page 7.

5. Add domains:

```
./insert_expression.sh Domains/ims.cscf.*
```



For help, use the command:

```
./insert_expression.sh -h
```

For information on domains in the CSCF, see Section 5 on page 11.

To trace an identity, refer to *CSCF User Tracing*.

6. Start the AppTrace session:

```
./route_output.sh rawconsole
```

```
./display_session.sh
```

```
./upload_session.sh
```

```
./start_trace.sh 64
```

The rawconsole trace files can be found in `/storage/no-backup/cdc
lsv/log/lpmsv/`.

3.2 Stop AppTrace

To stop a started AppTrace session:

1. Log on to the CSCF SC node:

```
ssh -A <user>@<Service Controller address>
```

For example:

```
ssh user1@192.168.10.1
```

2. Stop an AppTrace session:

```
ssh -A <user>@<Service Controller address>
```

```
cd /opt/lpmsv/bin/apptrace
```

```
./stop_trace.sh
```

```
./unload_session.sh
```

```
./end_session.sh
```



4 AppTrace Process Types in CSCF

Different CSCF processes usually start after the system startup has finished, but there is always a possibility that some types of CSCF dynamic processes are started for the first time much later than at system startup.

To print all process types and their corresponding RTID numbers, use the command:

```
/ls_processtypes.sh
```

Table 1 is a sample of AppTrace processes, each with a short description or comment.

Table 1 AppTrace Processes in CSCF

Process Type and RTID (<ProcessName>. <RTID>)	Description or Comment
CscfAppProc.1041756	Handling of SIP traffic
CscfBackupProc.1042482	Storage of offline charging CDRs on file
CscfCallTerminatorProc.1042035	Call termination
CSCFCXDiameterInstallerProc.SWI_CscfCxDiameterInstallerProc.1036920	Installing Diameter stack and AVPs
CscfCxProc_PT.SWI_CscfCxProc.1042272	Request sent and responses received on the Cx interface
CscfCxQuarantinePt.SWI_CscfCxQuarantineProc.1084178	Manages the quarantine state of geographical redundancy of HSS
CscfDbMonitorProc.1034809	Monitoring of registration timers
CscfDbSessionTimerProc.1036809	Monitoring of session timers
CscfDbSweeperProc.1037442	Removing old traffic database objects once a day
CscfExternalNetworkSelectionProc.1042062 CscfExternalNetworkSelection2Proc.1105286	External Network Selection
CscfGaugeReporterProc.1042329	Reporting gauge counters
CscfManagerProc.1042131	Operation & Maintenance (O&M)
CscfOamInstallerProc.1042332	Initiate O&M CM interface
CscfOnlineProc_PT.1042351	Online charging
CscfPerfManagerProc.1042052	Consolidating performance counter information



Table 1 AppTrace Processes in CSCF

Process Type and RTID (<ProcessName>. <RTID>)	Description or Comment
CscfPotManipulatorProc.1042033	Database handling of call termination
CscfRxDiaClientProc.1084001	Rx interface client
CscfRxDiaServerProc.1084058	Rx interface server
CscfSessionProc.1042488	Offline charging and SDP policing
CscfTimerProc.1042477	General timer process used by offline charging for interim timers
CxDiameterAppServiceProc.1042102	Code that receives requests from HSS, for example, RTR or PPR
DnsCacheProc.1041760	Manages DNS cache
DnsTransportProc.1042512	Handles DNS client sockets
ExtNetSelOamInstallerProc.1042091	O&M for External Network Selection
HTTP_TransportProc.1105060	Handles HTTP traffic over TCP
IpmmNumNormOamInstallerProc.1041979	Handles Number Normalization configuration
IpmmNumNormConfigSyncProc.1105066	
Ipmm_NumberNormalization_Proc.1041857	Performs Number Normalization
SigComp_DecompressorProc.1041691	Decompresses SigComp compressed SIP messages
SigComp_OamInstallerProc.1041963	Handles Signal Compression configuration
SIP_OamInstallerProc.1041944	Handles legacy trace profiles
SIP_ServerControllerProc.1041625	Provisioning of SIP Ports
SIP_TcpServerProc.1041617	Accepts SIP TCP Session requests
SIP_TcpInboundSessionProc.1105830	Handles SIP Traffic over TCP
SIP_TcpOutboundSessionProc.1105833	
SIP_UdpServerProc.1041614	Handles SIP Traffic over UDP
SIP_MsgParsingProc.1105954	Handles SIP Message Parsing
CscfDrfOamInstallerProc.1105873	Handles for OAM parameter for Domain Routing
CscfDomainRoutingProc.1105881	Handles for Domain Routing
CscfCxServerProc.1084385	Handles traffic for Cx Server
CscfEosOamInstallerProc.1105373	Handles for OAM parameter for End-Of-Selection



Table 1 AppTrace Processes in CSCF

Process Type and RTID (<ProcessName>. <RTID>)	Description or Comment
CscfLdapDispatcherProc.1108367 CscfLdapWorkerProc.1108364 LdapClientOamInstallerProc.1105447	Handles for DUA-R and its configuration
ICMP_ControllerProc.1084198 ICMP_OamInstallerProc.1084211 ICMP_Traffic_Proc.1105036	Handles Internet Control Message Protocol
NETMON_MonitorProc.1105325	Handles network monitoring





5 AppTrace Domains in CSCF

To collect trace output from a trace domain, the name of the domain is added to the trace session as shown in Section 3.1 Start AppTrace on page 5.

To list all domains

1. Run `./collect_domains.sh`
2. Run `./ls_domains.sh`

Table 2 lists a sample of AppTrace domains in CSCF, each with a short description or comment.

Table 2 AppTrace Domains in CSCF

Domain	Description or Comment
CSCF Charging	
ims.cscf.charging	Charging-related code
ims.charging.backup	Storage of offline ACRs on file-related code
ims.charging.diafw.msg	Code that handles Diameter messages
ims.charging.online.callterminator	Code that handles online charging call terminator
ims.charging.online.capsule	Code that handles online charging capsule
ims.charging.online.diareceive	Code that handles online charging Diameter receives messages
ims.charging.online.diasend	Code that handles online charging Diameter send messages
ims.charging.online.fsm	Code for the FSMs within diaon
ims.charging.online.mgr	Code for DiaOn_Mgr and DiaOn_PerfCounterMgr
CSCF Cx/Dx	
ims.cscf.cxdx	Code for communication to HSS
CSCF CM	
ims.cscf.configuration	CSCF configuration code
ims.cscf.oam	Operation and maintenance code
CSCF Authentication	
ims.cscf.authentication	Code related to SIP authentication
CSCF Number Normalization	



Table 2 AppTrace Domains in CSCF

Domain	Description or Comment
ims.cscf.numnorm	Code that handles Number Normalization
ims.cscf.phonecontext	Code that related to the handling of the phone-context parameter
ims.numnorm.global	Code that handles Number Normalization for global numbers
CSCF DNS	
ims.dns.api	Code for the DNS API
ims.dns.cache	Code for handling of cached DNS entries
ims.dns.oam	Code for handling O&M
ims.dns.transport	Code for handling DNS client sockets
CSCF HTTP	
ims.http.api	Code for HTTP API
ims.http.control	Code for the HTTP controller process
ims.http.transport	Code for handling HTTP client sockets
ims.http.util	All code in utility classes Note: Produces a huge number of traces
CSCF General Session	
ims.cscf.aspectfw	Code for aspect framework handling
ims.cscf.common	CSCF common code
ims.cscf.db	Database code
ims.cscf.dbm	Code for monitoring registration timers
ims.cscf.dbs	Code for removing old traffic database objects
ims.cscf.isc	Code for handling communication with Application Server
ims.cscf.location	Code for location handling
ims.cscf.psidecision	Code for PSI handling
ims.cscf.regvalidation	Code for registration validation
ims.cscf.servercapability	Code for handling telephone numbers
ims.cscf.sip	SIP code that is specific for CSCF
ims.cscf.tel	Code for handling telephone numbers
ims.cscf.traffic	General handling of SIP messages
ims.cscf.userdata	Code for user data handling
CSCF SIP FW	



Table 2 AppTrace Domains in CSCF

Domain	Description or Comment
ims.sip.behavior	Code for handling SIP Behaviors such as UAS, UAC, Proxy, and Forking
ims.sip.control	Code for handling O&M and utilities
ims.sip.management	Code for handling O&M and utilities
ims.sip.parser	Code for handling SIP parsing
ims.sip.transport	Code for handling SIP transport layer
ims.sip.txn	Code for handling SIP transaction layer
CSCF ICMP	
ims.icmp.control	Code for the ICMP Framework controller process
ims.icmp.lookup	Code for the API used to check for unreachable destinations
ims.icmp.messageLib	Code for parsing ICMP messages
ims.icmp.oam	Code for provisioning and statistics O&M
ims.icmp.perfmgmt	Code of the performance management subsystem
ims.icmp.provisioning	Code of the provisioning management subsystem
ims.icmp.traffic	Code handling sockets and events
ims.icmp.util	All code in utility classes Note: Produces a huge number of traces
lms.icmp.blacklist	Code for blacklist handling
CSCF Miscellaneous Features	
ims.cscf.EmergencyGeoLocation	Code handling Emergency Geolocation information
ims.cscf.contacttimeout	Code handling contact time-out
ims.cscf.dialogevent	Code handling dialog events
ims.cscf.drf	Code handling Domain Routing Function
ims.cscf.duar	Code handling Dynamic User Association Router
ims.cscf.eatf	Code handling Emergency Access Transfer Function
ims.cscf.emergencyanchor	Code for emergency anchor handling
ims.cscf.eos	Code handling End-Of-Selection



Table 2 AppTrace Domains in CSCF

Domain	Description or Comment
ims.cscf.ldapcore	Code handling LDAP core
ims.cscf.ldapcomm.async	Code handling LDAP comm async
ims.cscf.ml	Code handling MI interface
ims.cscf.nodeadministration	Code handling node administration
ims.cscf.openldap	Code handling openldap
ims.cscf.pidentityhandling	Code for P-identity handling
ims.cscf.redirect	Code handling redirect
ims.cscf.registrationstatus	Code handling registration status
ims.cscf.suhc	Code handling the SIP URI Header Component
ims.cscf.throttling	Code handling the Cx/Dx throttling
ims.cscf.unallocatedrouting	Code handling unallocated routing

5.1 Check Domain Properties

To check the properties of a specific domain, use the command:

```
./cat_domain.sh <domain>
```

For more information regarding filtering in the AppTrace, refer to *AppTrace User Guide*.