Simple INAP

Document Release History

Publication Date	Comments
August 16, 2011	Initial version of the document.

Feature History

Release	Modification
Initial release	This feature was introduced on the PGW 2200 (MGC) in software Release 9.4(1).

The Simple INAP Feature is described in the following sections.

- Feature Overview, page 1
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Feature Overview

Simple INAP is required to support functionality within MML that allows for the simple provisioning of some of the message sending parameters within the trigger.dat table that mainly affect Signaling Connection Control Part (SCCP).

The Service Key value is not standard in EMEA and depends on the SCP and the defined services.

For EMEA, the SCCP default values for routing for should be set to be SSN and not set to Global Title.

Benefits

Customizing the trigger.dat Entries

The generic customizable trigger.dat entry is added with a simple EMEA format for sending and receiving. For example, for a generic translation type service that is similar to TT17.

Configuring Fields within the Message Sending Table

This feature allows the user to configure the parameters F6 Service Key or Trigger Criteria value, F9 gtSSN, and F16 gtFormat within the Message Sending (MS) table data in the additional IN Service table in the trigger.dat file.

Removed Unused Fields from the Message Sending.dat File

Table 1 lists the previous Message Sending.dat fields, the fields that have migrated to the STP.dat file, and the fields that exist in the current Message Sending.dat file.

Table 1 Message Sending Table Fields

Previous Fields	Migrated Fields to STP.dat File	Current Fields
Field 1: transport		
Field 2: tcapType		Field 1: tcapType
Field 3: stpScpGroupIndex		Field 2: stpScpGroupIndex
Field 4: msg		Field 3: msg
Field 5: asn1Encoding		Field 4: asn1Encoding
Field 6: triggerCriteriaValue_ serviceKey	Field 6: triggerCriteriaValue_ serviceKey	
Field 7: translationType		Field 5: translationType
Field 8: tcapBodyType		Field 6: tcapBodyType
Field 9: gtSsn	Field 9: gtSsn	
Field 10: dpcPres		
Field 11: ssnPres		
Field 12: dpcNetwork		
Field 13: dpcCluster		
Field 14: dpcMember		
Field 15: ssn	Field 15: ssn	
Field 16: gtFormat	Field 16: gtFormat	
Field 17: OS1		Field 7: OS1
Field 18: OS2		Field 8: OS2
Field 19: OS3		Field 9: OS3
Field 20: OS4		Field 10: OS4
Field 21: OS5		Field 11: OS5

Restrictions

This feature has following restrictions:

- Support for Field 15 SSN has moved to the STP.dat file that currently configurable. If Field 11 SSNPRES is enabled, data from Field 15 is migrated to the STP.dat file.
- PGW doesn't support multiple dialogues in INAP call flows.(CSCtr04052)

Caution Improperly editing of the trigger.dat file can cause service interruption and prevent the Cisco MGC from correctly performing SCP database queries.

Related Documents

This document contains information that is related strictly to the <feature> Feature. The documents that contain additional information related to the Cisco Media Gateway Controller (MGC) are listed below:

- *Release notes for Cisco Media Gateway Controller Software Release 9.4(1)*
- *Cisco Media Gateway Controller Hardware Installation Guide*
- *Regulatory Compliance and Safety Information for the Cisco Media Gateway Controller*
- *Cisco Media Gateway Controller Software Release 9 Installation and Configuration Guide*
- *Cisco Media Gateway Controller Software Release 9 Provisioning Guide*
- *Cisco Media Gateway Controller Software Release 9 Dial Plan Guide*
- *Cisco Media Gateway Controller Software Release 9 MML Command Reference Guide*
- *Cisco Media Gateway Controller Software Release 9 Messages Reference Guide*
- *Cisco Media Gateway Controller Software Release 9 Billing Interface Guide*
- *Cisco Media Gateway Controller Software Release 9 MIB Guide*
- *Cisco Media Gateway Controller Software Release 9 Operations, Maintenance, and Troubleshooting Guide*

Supported Platforms

The hardware platforms supported for the Cisco MGC software are described in the *Release Notes for Cisco Media Gateway Controller Software Release 9.4(1).*

Supported Standards, MIBs, and RFCs

Standards

No new or modified standards are supported by this feature.

MIBs

No new or modified MIBs are supported by this feature.

For more information on the MIBs used in the Cisco MGC software, refer to the *Cisco Media Gateway Controller Release 9 MIB Guide*.

RFCs

No new or modified RFCs are supported by this feature.

Reference Information

The following sections contain reference material related to this feature. Information is included on the following areas:

- Components, page 4

Components

The following components are added for this feature.

Intelligent Network Service (INSERVICE) Table

This section is used to show the configurable components of the INSERVICE table. Its MML name is as follows:

- MML Name – INSERVICE

The structure of this component is shown in the following table.

Parameter MML Name	Parameter Description	Parameter Values *(default)*
NAME	Intelligent Network Service name	As many as 20 alphanumeric characters.
SKORTCV	Service key	Integer. 0 through 65535 (0). Service key value that specifies the feature that caused the trigger to be hit (ITU / ETSI INAP only). Otherwise it is the trigger criteria value.
GTORSSN	Global title or Sub-System Number.	Text string. Route by global title (ROUTEBYGT) or route by subsystem number (ROUTEBYSSN). 0 = ROUTEBYGT (Route by global title) 1 = ROUTEBYSSN (Sub-System Number)

Parameter MML Name	Parameter Description	Parameter Values *(default)*
GTFORMAT	Global title format	Text string. How to use Global Title; SCCP Called Party Address, Address indicator field. User provisions the string value. For example, NOGT. 0 = NOGT (No global title. Use this when routing by SSN) 1 = GTTTNBRENC (Use global title translation type numbering scheme encoding scheme) 2 = GTTT (Use global title translation type) 3 = GTONLY (Use global title only) 4 = UNKNOWN (Unknown)
MSNAME	Message Sending Name	As many as 20 alphanumeric characters.

Validation Intelligent Network Service Table

The following rules are used to support INSERVICE table provisioning.

- Global title format (GTFORMAT) must be set to NOGT if the GTORSSN parameter is set to ROUTEBYSSN. Otherwise, GTFORMAT must be set to a value other that NOGT.
- The MSNAME must exist in the MessageSendingName table in trigger.dat.
- Only one entry can exist in the INSERVICE table for each MSNAME.

The following components are modified for this feature.

RemoteSSN Added To SS7SUBSYS

SS7SUBSYS represents an SS7 subsystem. It is used for specifying mated STPs and provides LNP support through an SCP. The ssn property is now called LOCALSSN and REMOTESSN has been added. Its MML name is as follows:

- MML Name – SS7SUBSYS

The structure of this component is shown in the following table.

Parameter MML Name	Parameter Description	Parameter Values (default)
NAME	SS7Subsys name	As many as 20 alphanumeric characters.
DESC	Component description	The description can be up to any 128 characters.
SVC	MML name of Adjacent point code or TCAP/IP service	MML name of a previously defined adjacent point code, or MML name of previously TCAP/IP service
PROTO	Protocol family	SS7-ANSI or SS7-ITU when creating an AIN subsystem. SS7-ANSI, SS7-China, SS7-ITU, SS7-Japan, and SS7-UK when mating an STP pair.

Parameter MML Name	Parameter Description	Parameter Values (default)
MATEDAPC	Adjacent point code of the mated STP	MML name of previously defined adjacent point code. It is only used when mating STP pairs. It is not used when creating AIN subsystems.
PRI	Priority	Integer. Any value greater than 0. (1) It is not used when mating STP pairs.
LOCALSSN	Subsystem number	Integer. Any value greater than 2 and less than 254. Can only be set to non-zero for SS7-ANSI, SS7-ETSI, or SS7-ITU. If SSN is set to 0, the subsystem is used for mating 2 STPs. (0)
STPSCPIND	STP/SCP index used for IN triggers	Integer. Any value greater than 0. (0) It is not used when mating STP pairs.
TRANSPROTO	Transport protocol	SCCP or TCPIP. If SVC is an APC, SCCP should be used. If SVC is a TCAP over IP service, then TCPIP should be used. (SCCP) It is not used when mating STP pairs.
REMOTE SSN	Remote subsystem number	Integer. Any value greater than 2 and less than 254. Optional: Use LOCALSSN if not specified. Can only be set to non-zero for SS7-ANSI, SS7-ETSI, or SS7-ITU.

Note SSN has been renamed LOCALSSN to clarify the intent of the parameter. There is continued support of SSN for the MML command line. If both SSN and LOCALSSN are specified, LOCALSSN is used. When using the prov-exp command, LOCALSSN is used.

For information on the rest of the components in the Cisco MGC software, refer to the *Cisco Media Gateway Controller Software Release 9 Provisioning Guide*.

Saving

The data is available for call processing after the session that the messaging sending information is configured in has been made active using either prov-cpy or prov-dply.

Provisioning Example

The intelligent network service can be changed at any time, as it is dynamically re-configurable.

The following MML commands allow you to add, retrieve, edit, and delete information related to the to intelligent network service functionality.

Intelligent Network Service Creating Example

Example of creating intelligent network service entries:

```
prov-add:inservice:name="serviceone",skortcv=37,gtorssn="routebygt",gtformat="gttt",msname
="generic_lnp"
prov-add:inservice:name="servicetwo",skortcv=0,gtorssn="routebyssn",gtformat="nogt"
```

Intelligent Network Service Editing Example

To add a entry for intelligent network service one:

```
prov-ed:inservice:name="serviceone",skortcv=255
```

Intelligent Network Service Deleting Example

To delete the intelligent network service:

```
prov-dlt:inservice:name="serviceone"
```

Intelligent Network Service Retrieving Example

To retrieve all of the intelligent network services:

```
prov-rtrv:inservice:"all"
```

To retrieve the intelligent network service one:

```
prov-rtrv:inservice:name="serviceone"
```

Record Type Message Sending (MS) Table

The Message Sending table is a collection of data necessary to send a TCAP message. The previous fields are listed in the first column, the migrated fields are listed in the second column, and the current table fields are listed in the third column of Table 1.

The MDL parameter for ssnPres is always passed to the TCAP with a value of false.

The Message Sending table exists in the trigger.dat file. The Message Sending table has been modified to support the current 11 parameters instead of the 21 parameters it previously supported.

Packaging and Installation Scripts

Currently the trigger.template is installed onto the system during installation. If there is a trigger.dat file currently in the /<BASEDIR>/etc directory then it is left. However, if a trigger.dat file is not present, the trigger.template file is copied to trigger.dat. In the clearcase repository the file is stored as /vobs/NSSU_Main/callproc/Tables.trigger.

To support this feature, information in the trigger.dat file, which is now configurable, is moved to the inService.dat file. The inService.dat file is handled the same as other *.dat files in the system, which is installed into the file /<BASEDIR>/etc/CONFIG_LIB/new/inService.dat.

Migration

When migrating to a software release that supports INAP provisioning, the trigger.dat file is migrated and the inService.dat file is created. Also, the file stp.dat has three more columns added to it.

During installation, the trigger file treatment remains unchanged and is copied from the /<BASEDIR>/etc directory to the /<BASEDIR>/etc/CONFIG_LIB/INSTALL-<version>/previous directory. For example, if the BASEDIR was opt/CiscoMGC and the version was 9.2.2, the directory would be /opt/CiscoMGC/etc/CONFIG_LIB/new/INSTALL-<version>/previous 9.2.2, and the migrated contents of this directory are placed in /<BASEDIR>/etc/CONFIG_LIB/new/INSTALL-<version>/migrated.

When this feature is installed onto the MGC, the trigger.dat message-sending table is migrated to the new format at this time. If the data is migrated successfully, then the directory /<BASEDIR>/etc/CONFIG_LIB/CFG_Migrated becomes the active link with the files from the migrated directory.

When migrating to a software release that supports INAP provisioning, the trigger.dat file is installed in <BASEDIR>/etc as trigger.dat.new. If you do not want to use the migrated trigger.dat and inService.dat files, you can do the following:

- Copy trigger.dat.new to trigger.dat in <BASEDIR>/etc
- Delete all of the entries in the inService.dat file using prov-dlt
- Reprovision the entries in the inService.dat file using prov-add

You can choose to do this if you would like to use the more meaningful names in the trigger.dat file and in the inService.dat file.

Configuring the Translation Type Attribute

Perform the following steps to configure the Translation Type (translationType) attribute:

Step 1 Back up the trigger.dat file.

Step 2 Determine the Trigger Number you are to edit. Get this information from your network administrator.

Step 3 Navigate to directory /opt/CiscoMGC/etc.

Step 4 Open the trigger definition file in an ASCII text editor and search for the string *$TriggerTable*.

Step 5 Starting after the $TriggerTable line, count the number of rows that equal to the TriggerType beginning from the number 1.

Note Do not count any row that is blank or begins with a # (pound sign).

Step 6 When you find your row, write down the second number in that row, which is the index to the $MessageSending table.

Caution You must verify that column 1 is equal to 2 or 3 before changing Translation Type. If column 1 is not equal to 2 or 3, it is not an ANSI trigger and Translation Type is not used.

Step 7 Edit the file as follows:

a. In the $MessageSending table, select translationType, in column 5 (see Table 3).

b. In the table for your translation type, change the value (from 0 through 255) for your translationType, which you can get from your network administrator.

Step 8 Save your changes and close the editor.

Step 9 For your changes to take effect you must reboot the Cisco MGC by entering the following command:

```
# /etc/init.d/CiscoMGC start
```

Table 2 Software Release 9.3(2) Message Sending Table Values

F1	F2	F3	F4	F5	F6	F7	F8	F9	F10	F11	F12	F13	F14	F15	F16	F17	F18	F19	F20	F21
Transport	**tcapType**	**stpScpGroupIndex**	**msg**	**asn1Encoding**	**tcv_sk**	**translationType**	**tcapBodyType**	**gtSsn**	**dpcPres**	**ssnPres**	**dpcNetwork**	**dpcCluster**	**dpcMember**	**ssn**	**gtFormat**	**OS1**	**OS2**	**OS3**	**OS4**	**OS5**
# MS 1: xxxxxx LNP																				
1	2	0	6	0	0	255	1	0	0	1	0	0	0	0	2	1	0	0	0	0
# MS 2: Generic LNP																				
1	2	0	6	0	37	255	1	0	0	1	0	0	0	0	2	2	0	0	0	0
# MS 3: xxxxxxx 800																				
2	1	1	1	0	0	0	1	0	0	1	0	0	0	0	2	3	0	0	0	0
# MS 4: ANSI AIN 800 NPA																				
1	2	0	6	0	4	255	1	0	0	1	0	0	0	0	2	4	0	0	0	0
# MS 5: ANSI AIN 800 NPA-NXX																				
1	2	0	6	0	5	255	1	0	0	1	0	0	0	0	2	4	0	0	0	0
# MS 6: ANSI AIN 800 NPA-NXX-XXX																				
1	2	0	6	0	8	255	1	0	0	1	0	0	0	0	2	4	0	0	0	0
# MS 7: ANSI AIN 800 Termination information																				
1	2	0	5	0	0	255	1	0	0	1	0	0	0	0	2	5	0	0	0	0
# MS 8: ANSI PRE AIN 800																				
1	3	0	6	0	0	254	2	0	0	1	0	0	0	0	2	6	0	0	0	0
# MS 9: ANSI PRE AIN 800 Termination information																				
1	3	0	5	0	0	254	2	0	0	1	0	0	0	0	2	7	0	0	0	0

Table 3 Software Release 9.4(1) Message Sending Table Values

F1	F2	F3	F4	F5	F6	F7	F8	F9	F10	F11
tcapType	**stpScpGroupIndex**	**msg**	**asn1Encoding**	**translationType**	**tcapBodyType**	**OS1**	**OS2**	**OS3**	**OS4**	**OS5**
# MS 1: xxxxxx LNP										
2	0	6	0	255	1	1	0	0	0	0
# MS 2: Generic LNP										
2	0	6	0	255	1	2	0	0	0	0
# MS 3: xxxxxxx 800										
1	1	1	0	0	1	3	0	0	0	0
# MS 4: ANSI AIN 800 NPA										
2	0	6	0	255	1	4	0	0	0	0
# MS 5: ANSI AIN 800 NPA-NXX										

Table 3 Software Release 9.4(1) Message Sending Table Values (continued)

2	0	6	0	255	1	4	0	0	0	0
# MS 6: ANSI AIN 800 NPA-NXX-XXX										
2	0	6	0	255	1	4	0	0	0	0
# MS 7: ANSI AIN 800 Termination information										
2	0	5	0	255	1	5	0	0	0	0
# MS 8: ANSI PRE AIN 800										
3	0	6	0	254	2	6	0	0	0	0
# MS 9: ANSI PRE AIN 800 Termination information										
3	0	5	0	254	2	7	0	0	0	0

Initializing the Call Screening Database

Caution Cisco does not support the direct use of TimesTen commands (files found in **/opt/TimesTen/32/bin**). Incorrect use of these commands can cause database corruption.

During installation, the installation script (install.sh) installs and initializes the Main Memory Database (MMDB) that the Cisco MGC can use for the following:

- Store call-screening information for calling- and called-number analysis
- Ported Numbers
- Number Termination
- Multiple Dial Plan
- Advice of Charge II

You can perform whitelist and black list screening to include or exclude calls from certain numbers. You can provision white lists that specify allowed A-numbers (calling numbers) or B-numbers (called numbers). Black lists block specified A-numbers (calling numbers) or B-numbers (called numbers).

Note When provisioning dial plans, the *.SysConnectDataAccess property (in XECfgParm.dat) must be set to **true** to allow database access for A-number screening, LNP, and other dial plan functions. Refer to the *Cisco Media Gateway Controller Software Release 9 Installation and Configuration Guide* for more information on software configuration settings.

The call screening database is stored in the /opt/TimesTen/datastore directory. The database name is **howdydb**. The maximum database size, 256 MB, is specified in the .odbc.ini file.

Caution Do not change the database name.

Glossary

Table 4 contains acronym definitions and technical terms used in this feature module.

Table 4 Acronyms and Definitions

Acronym	Definition
GTT	Global Title Translation
IN	Intelligent Network
INAP	Intelligent Network Application Part
MGC	Media Gateway Controller. Generic name for the PGW 2200.
MGCP	Media Gateway Control Protocol
MMDB	Main Memory Database
MML	Man-Machine Language
MS	message sending
PSTN	Public switched telephone network
PGW	PSTN Gateway
SCCP	Signaling Connection Control Part
SCP	Service Control Point
SS7	Signaling System Number 7
SSN	subsystem number
STP	Signal Transfer Point
SUA	SCCP User Adaptation
TCAP	Transaction Capabilities Application Part
TT	Trigger table