Cisco BTS 10200 Softswitch Support for SIP CPC and OLI Feature, Release 6.0.3

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The Cisco BTS 10200 Softswitch support for SIP Calling Party Category (CPC) and Originating Line Information (OLI) enables processing of CPC or OLI parameters received in the P-Asserted-ID (PAID) header or in the FROM header of a SIP invite message.

Note The implementation of this feature is based on the IETF internet draft—*Uniform Resource Identifier (URI) Parameters for indicating the Calling Party's Category and Originating Line Information (draft-patel-dispatch-cpc-oli-parameter-03.txt).*

Contents

Overview

A CPC is a type of user (or caller) who originates a call. It is used in PSTN for call routing and call screening purposes. The CPC extension values only refer to the common values defined in the ANSI/North American market. In ANSI ISUP, this information pertains to the OLI parameter. The OLI parameter is used to carry information related to the calling party and the class of service for a call.

The primary use for these parameters in BTS 10200 Softswitch is for interworking CPC and OLI information between SIP and ISUP.

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Before release 6.0.3, the BTS 10200 Softswitch supported this feature based on the IETF internet draft—*The Calling Party's Category tel URI Parameter, draft-**mahy**-iptel-cpc-02.txt*. Consequently, the BTS 10200 Softswitch supported sending or receiving of only **CPC** parameter in the PAID header of a SIP invite message.

With the new feature implementation, based on the IETF draft—*draft-**patel**-dispatch-cpc-oli-parameter-03.txt*, the BTS 10200 Softswitch processes both **CPC** and/or **OLI** parameters received in the PAID or the FROM header of SIP invite message.

Note The BTS 10200 Softswitch is also backward compatible, where the OLI information is not sent or received in the SIP invite (as per *draft-mahy-iptel-cpc-02.txt*).

Feature Operation

A new token introduced for this feature is:

- **ENABLE_OLI_PARAM**—Specifies whether to enable or disable processing of a OLI parameter that may be added to the user part of a P-Asserted-ID or FROM header.

Inbound Call Operation

When the BTS 10200 Softswitch SIP interface receives an invite message, it checks if the PAID header support is enabled in the **SOFTSW_TG_PROFILE** table (that is, **USE_PAI_HDR_FOR_ANI**=Y). When enabled, the PAID header parses the **cpc** and **oli** parameters based on the value of **ENABLE_CPC_PARAM** and **ENABLE_OLI_PARAM** tokens in the **SOFTSW_TG_PROFILE** table.

Table 2 provides information on processing of **CPC** and **OLI** parameters based on the values of **USE_PAI_HDR_FOR_ANI**, **ENABLE_CPC_PARAM**, and **ENABLE_OLI_PARAM** tokens.

Outbound Call Operation

When BTS 10200 Softswitch SIP interface sends a SIP invite message, it checks if PAID header support is enabled in the **SOFTSW_TG_PROFILE** table (**USE_PAI_HDR_FOR_ANI**=Y). If enabled, PAID header encodes and sends the **CPC** and **OLI** parameters based on the value of **ENABLE_CPC_PARAM** and **ENABLE_OLI_PARAM** value in **SOFTSW_TG_PROFILE** table.

Table 3 provides more information on encoding of **CPC** and **OLI** parameters based on the values of **USE_PAI_HDR_FOR_ANI**, **ENABLE_CPC_PARAM**, and **ENABLE_OLI_PARAM** tokens.

Example of CPC and OLI Parameters Sent/Received Using PAID Header

When **USE_PAI_HDR_FOR_ANI** is enabled, the CPC and OLI parameters are sent or received using the PAID header as shown below:

```
P-Asserted-Identity: <sip: 17005554141; cpc=payphone; oli=29@example.com>
```

Example of CPC and OLI Parameters Sent/Received Using FROM Header

When **USE_PAI_HDR_FOR_ANI** is disabled, the CPC and OLI parameters are sent or received using the FROM header as shown below:

```
From: <sip:17005554141; cpc=payphone; oli=29@example.com >;tag=1928301774
```

Table 1 lists the description of the possible CPC values.

Table 1 Description of CPC Values

CPC Value	Description
Ordinary	A caller is identified and is not assigned any special feature.
Test	A test call that originates as part of a maintenance procedure.
Operator	A call generated by an operator position.
Payphone	The calling station is a payphone.
Unknown	The CPC is not ascertained.
mobile-hplmn	A call generated by a mobile device in its home Public Land Mobile Network (HPLMN).
mobile-vplmn	A call generated by a mobile device in a visited PLMN.

The North American Numbering Plan Administration (NANPA) assigns and administers the decimal coded values for OLI. These decimal codes are used in the ANI II digits of the ANI sequence for in-band signalling system. For more information on *ANI II Digits Assignments*, see the *NANPA* website.

Processing CPC and OLI

Table 2 shows how CPC and OLI are processed (decoded) from the PAID or FROM header based on IETF draft—*draft-**patel**-dispatch-cpc-oli-parameter-03.txt.*

Table 2 Processing CPC and OLI

USE_PAI_HDR_FOR_ANI	ENABLE-CPC-PARAM Value	ENABLE-OLI-PARAM Value	CPC/OLI Parameter in the Incoming SIP INVITE
Y	(RECEIVE/ SEND_RECEIVE)	(RECEIVE /SEND_RECEIVE)	CPC and OLI are processed from the PAID header.
Y	(RECEIVE /SEND_RECEIVE)	IGNORE	CPC is processed from the PAID header.
Y	IGNORE	(RECEIVE /SEND_RECEIVE)	OLI is processed from the PAID header.
Y	IGNORE	IGNORE	Neither CPC nor OLI are processed from the PAID header.
N	(RECEIVE /SEND_RECEIVE)	(RECEIVE /SEND_RECEIVE)	CPC and OLI processed from the FROM header.
N	(RECEIVE /SEND_RECEIVE)	IGNORE	CPC processed from the FROM header.

Table 2 Processing CPC and OLI

USE_PAI_HDR _FOR_ANI	ENABLE-CPC-PARAM Value	ENABLE-OLI-PARAM Value	CPC/OLI Parameter in the Incoming SIP INVITE
N	IGNORE	(RECEIVE /SEND_RECEIVE)	OLI is processed from the FROM header.
N	IGNORE	IGNORE	Neither CPC nor OLI are processed from the FROM header.

Encoding CPC and OLI

The following table shows encoding of CPC and OLI parameters in the PAID or FROM header based on internet IETF draft—*draft-patel-dispatch-cpc-oli-parameter-03.txt.*

Table 3 Encoding CPC and OLI

USE_PAI_HDR _FOR_ANI	ENABLE-CPC-PARAM Value	ENABLE-OLI-PARAM Value	CPC/OLI Parameter in the Outgoing SIP INVITE
Y	(SEND /SEND_RECEIVE)	(SEND /SEND_RECEIVE)	CPC and OLI are encoded in the PAID header.
Y	(SEND /SEND_RECEIVE)	IGNORE	CPC is encoded in the PAID header.
Y	IGNORE	(SEND /SEND_RECEIVE)	OLI is encoded in the PAID header.
Y	IGNORE	IGNORE	Neither CPC nor OLI are encoded in the PAID header.
N	(SEND /SEND_RECEIVE)	(SEND /SEND_RECEIVE)	CPC and OLI are encoded in the FROM header.
N	(SEND /SEND_RECEIVE)	IGNORE	CPC encoded in the FROM header.
N	IGNORE	(SEND /SEND_RECEIVE)	OLI encoded in the FROM header.
N	IGNORE	IGNORE	Neither CPC nor OLI are encoded in the FROM header.

When the **USE_PAI_HDR_FOR_ANI** token is set to '*Y*' in **SOFTSW_TG_PROFILE** table, the BTS 10200 Softswitch sends the **CPC** and **OLI** parameters in the PAID header. Otherwise, BTS 10200 sends the **CPC** and **OLI** parameters in the FROM header. Note that CPC and OLI parameters are encoded or decoded only when the **ENABLE_CPC_PARAM** and **ENABLE_OLI_PARAM** tokens are set to *RECEIVE*, *SEND*, or *SEND_RECEIVE*. The default value of these tokens is *IGNORE*.

Provisioning the Feature

This section explains how to provision the feature. In this procedure, "you" refers to the service provider.

Note The commands shown in this section are only examples; you need to enter values that are appropriate for your network and service requirements. The CLI syntax allows you to use commands in uppercase or lowercase. It also allows you to enter hyphens (-) or underscores (_) interchangeably. (Exceptions, if any, are noted in the procedures.)

For a complete list of tokens for each CLI table, as well as the allowed values, default values, and detailed descriptions for each token, see the *Cisco BTS 10200 Softswitch CLI Database* at this website: *http://www.cisco.com/en/US/docs/voice_ip_comm/bts/6.0.3/BTS603_Mainpage.html*

SUMMARY STEPS

1. **add ca_config**
2. **add sip_element**
3. **control sip_element**
4. **add softsw_tg_profile**
5. **add trunk_grp**
6. **control trunk_grp**

DETAILED STEPS

	Command	Purpose
Step 1	**add ca_config** type=SIA-DRAFT-FOR-CPC; datatype=string; value=DRAFT_PATEL;	Enables support for either MAHY or PATEL draft for the CPC parameter in the SIP PAID or FROM header. • **DRAFT-MAHY**—Represents the *draft-mahy-iptel-cpc-02.txt.* • **DRAFT-PATEL** (Default)—Represents the *draft-patel-dispatch-cpc-oli-parameter-03.txt.*
Step 2	**add sip_element** tsap_addr= sia-hrn7CA146.hrndevtest.cisco.com:5060;	Configures a SIP element.
Step 3	**control sip_element** tsap_address= sia-hrn7CA146.hrndevtest.cisco.com:5060; target_state=INS;	Configures the SIP element in service (INS) state.
Step 4	**add softsw_tg_profile** id=SS_PRO_206; protocol_type=SIP; use_pai_hdr_for_ani=Y; enable_cpc_param=SEND_RECEIVE; enable_oli_param=SEND_RECEIVE;	Adds the SIP (**SOFTSW_TG_PROFILE**) trunk group profile. Also, sets the value of **ENABLE_CPC_PARAM** and **ENABLE_OLI_PARAM** tokens.

	Command	Purpose
Step 5	**add trunk_grp** id=206; tg_type=SOFTSW; softsw_tsap_addr=sia-hrn7CA146.hrndevtest.cisco.com:5180; dial_plan_id=BASIC_DPP; tg_profile_id=SS_PRO_206; call_agent_id=CA146; pop_id=1;	Configures a SIP trunk group.
Step 6	**control trunk_grp** id=206; mode=FORCED; target_state=INS	Configure the control in service state.

The new tokens added for the feature are shown below:

Table 4 New CLI Tokens

Token Name	Table Name	Description	Default Value	Possible Values
SIA-DRAFT-FOR-CPC	CA_CONFIG	Enables support for MAHY or PATEL draft for the CPC parameter in SIP PAID or FROM header. By default, BTS 10200 Softswitch enables the **DRAFT_PATEL**. Permitted values are: • **DRAFT_MAHY**—Represents support for *draft-mahy-iptel-cpc-02.txt*. • **DRAFT_PATEL** (Default)—Represents support for *draft-patel-dispatch-cpc-oli-parameter-03.txt*.	**DRAFT_PATEL**	**DRAFT_MAHY**, **DRAFT_PATEL**
ENABLE_OLI_PARAM	SOFTSW_TG_PROFILE	Specifies whether to enable or disable processing of OLI extension that is added to the user part of a PAID or FROM header. Permitted values are: **SEND_ONLY**—Sends OLI in outgoing invite messages. **RECV_ONLY**—Processes OLI from incoming invite messages. **SEND_RECV**—Sends OLI in the outgoing invite messages and processes OLI received in the incoming invite messages, **IGNORE** (Default)—Disables encoding and decoding of OLI.	**IGNORE**	**SEND_ONLY**, **RECV_ONLY**, **SEND_RECV**, **IGNORE**

Note The **ENABLE_CPC_PARAM** token in **SOFTSW_TG_PROFILE** table is enhanced in Release 6.0.3. It specifies whether to enable or disable processing of CPC extension that is optionally added to the user part of a PAID or FROM header.

Note The **ENABLE_OLI_PARAM** should be set to *IGNORE* in **SOFTSW_TG_PROGILE** table during an upgrade.

Managing the Feature

This section provides information on managing the feature.

Billing Information

Table 5 lists the new values introduced for **CALLINGPARTYCATEGORY** field in the billing record.

For more information on the existing values of the **CALLINGPARTYCATEGORY** field, see the *Cisco BTS 10200 Softswitch Billing Guide*.

Note When the value of **CALLINGPARTYCATEGORY** field is 1, 2, 3, 4, 5, or 127, the BTS 10200 displays **National Operator** as the value of the field in the billing record.

Table 5 New Values of CALLINGPARTYCATEGORY Field

Field Number	Common Name	Potential Values	Field Description
152	Calling Party Category	1 = National Operator (Language French) 2 = National Operator (Language English) 3 = National Operator, (Language German) 4 = National Operator, (Language Russian) 5 = National Operator, (Language Spanish) 127 = National Operator 16 = Mobile Home PLMN (mobile terminal located in the home PLMN (Public Land Mobile Network)) 17 = Mobile Visited PLMN (mobile terminal located in a visited PLMN)	The CPC value that was received in the SS7 IAM. If this field is NULL, data is not captured for this record.

Additional References

Related Documents

Related Topic	Document Title
Summary of features and usage guidelines for this release	*Cisco BTS 10200 Softswitch Release Notes*
Reference listing of all CLI tables and tokens	Cisco BTS 10200 Softswitch CLI Database
Routing, translation, and dial plan information	*Cisco BTS 10200 Softswitch Routing and Dial Plan Guide*

Standards

Standard	Title
IETF Internet Draft—*draft-patel-dispatch-cpc-oli-parameter-03.txt*	*Uniform Resource Identifier (URI) Parameters for indicating the Calling Party's Category and Originating Line Information.*
IETF Internet Draft—*draft-mahy-iptel-cpc-02.txt*	*The Calling Party's Category tel URI Parameter.*