

Cisco PGW 2200 Softswitch – Cause Code Modification

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Introduction

This document describes the Cause Code Analysis functionality of the Cisco PGW 2200 Softswitch both working in Call Control and Signaling mode. A PGW 2200 user may need to change the Cause Value to a value that is appropriate to the customer's network. The PGW 2200 Generic Analysis module can change the Cause value to both New Cause and Location values.

Prerequisites

Requirements

Cisco recommends that you have knowledge of these topics:

- Cisco Media Gateway Controller – Software Release 9
- Internal to Q.761 Protocol Mapping and Cause and Location Codes – Software Release 9
- Cisco Media Gateway Controller Software Release 9 Dial Plan Guide
- Cause value (refer to ITU Q.850)
- Understanding debug isdn q931 Disconnect Cause Codes

Components Used

The information in this document is based on Cisco PGW 2200 Releases 7.x, 9.x, and later.

The information in this document was created from the devices in a specific lab environment. All of the devices used in this document started with a cleared (default) configuration. If your network is live, make sure that you understand the potential impact of any command.

Conventions

Refer to Cisco Technical Tips Conventions for more information on document conventions.

Cause Analysis

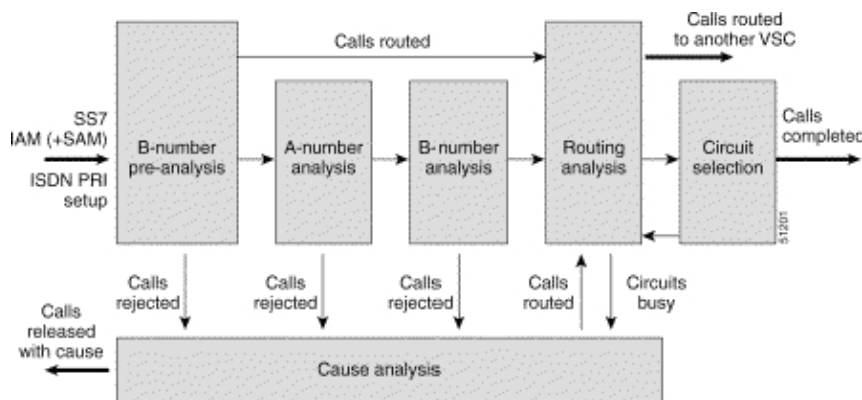
The processes by which the Cisco PGW analyzes and routes calls are illustrated in Figure 1. This document

only describes the working of Cause Analysis in general.

Cause Analysis is performed when a release message is received, or when a failure of some kind (for example, number screen fail) has occurred that implies the call must be released. The Cause Code value or the combined Cause Code and/or Location Code values are used to provide an internal Cause Code that provokes a number of different results including re-routing of the call to another route, or return to analysis to find a different destination.

Note: All external Cause values per protocol are converted to Internal Cause values. It is the Internal values that are used when you populate the dial plan data (refer to Appendix B: Cause and Location Codes for information on Cause Code Mappings).

Figure 1: Call Flow Through Analysis



Cause Code Modification for ITU Q.761

This procedure explains the modification of the cause code for ITU Q.761.

1. Add the Dial Plan to change any release <x> and replace it with Cause value <y>:

```
1-numan-add:resultset:custgrpid="0001",name="chgCause"
```

```
2-numan-add:resulttable:custgrpid="0001",name="ChangeToSubAbsent",
resulttype="CAUSE",dw1=<y>,setname="chgCause"
```

```
3-numan-add:cause:custgrpid="0001",causevalue=<x>,setname="chgCause"
```

2. During Release Cause Analysis, the PGW checks the ss7Patch entry for a custgrpid ID and looks into the Dial Plan where this configuration is done and starts at line 3.
3. In this line, specify the trigger on which Cause value you want to perform an action and then jump to line 1 and 2. At line 2, specify to which Cause value you want to change the Release Cause (dw1).

In this example, any Release Cause value 31 [internal cause IC_Normal_clearing] or 40 [Recover on timer expiry] is changed and replaced with 147 (IC_Unknown).

```
PGW2200 mml> prov-sta:srcver="active",dstver="cisco1"
MGC-01 - Media Gateway Controller 2004-02-12 15:20:54
M COMPLD
"PROV-STA"
;
```

```
PGW2200 mml> numan-add:dialplan:custgrpid="0001"
.....This step is only necessary when there is not already a dial plan
MGC-01 - Media Gateway Controller 2004-02-12 15:21:13
M COMPLD
"dialplan"
```

```

;
PGW2200 mml> numan-add:resultset:custgrpid="0001",name="chgCause"
MGC-01 - Media Gateway
Controller 2004-02-12 15:21:38
M   COMPLD
    "resultset"
;
PGW2200 mml>
numan-add:resulttable:custgrpid="0001",name="ChangeToSubAbsent",
resulttype="CAUSE",dwl="147",setname="chgCause"
MGC-01 - Media Gateway Controller 2004-02-12 15:22:29
M   COMPLD
    "resulttable"
;
PGW2200 mml> numan-add:cause:custgrpid="0001",causevalue=40,
setname="chgCause"
MGC-01 - Media Gateway Controller 2004-02-12 15:22:59
M   COMPLD
    "cause"
;
PGW2200 mml> numan-add:cause:custgrpid="0001",causevalue=31,
setname="chgCause"
MGC-01 - Media Gateway Controller 2004-02-12 15:23:24
M   COMPLD
    "cause"
;
PGW2200 mml> prov-cpy
MGC-01 - Media Gateway Controller 2004-02-12 15:23:31
M   COMPLD
    "PROV-CPY"
;
PGW2200 mml>

```

4. Check the custgrpid (Dial Plan name) binding to the sigpath or trunk group:

- ◆ For the PGW 2200 in Signaling (Nailed) mode, change it using the **prov-rtrv:ss7path:name="<ss7-path-name>"** command and look for the **CustGrpID** value.
- ◆ For the PGW 2200 in Call Control (Switched) mode, change it using the **prov-rtrv:trnkgrp:name="<trunk-group-number>"** command and look for the **CustGrpID** property.

Location Code Modification

To modify the Location parameter that is sent within the Cause Code, change the ClearingLocation and DefaultLocation. Look for the XECfgParm.dat file under the /opt/CiscoMGC/etc parameters for ClearingLocation and DefaultLocation. You can change the location on a per Cisco PGW 2200 basis. You cannot change the location on a per call basis at this time for Cisco PGW 2200 releases 9.3, 9.4, 9.5, and 9.6.

```

*****  DETAIL  *****
CIC                                50
MESSAGE TYPE                       0x0C REL - Release_Msg
INDEX TO VARIABLE PART             0x02
INDEX TO OPTIONAL PART            0x00
CAUSE IND                          0x12
LENGTH:                            0x02 VAR.  DATA 0x82 0x91
EXTENSION BIT                      1 diagnostic_is_not_included
CODING STANDARD                    0 CCITT_standard
GENERAL LOCATION                 2 Public network serving the local user
EXTENSION BIT                      1 diagnostic_is_not_included
CLASS                              1 Normal event
VALUE IN CLASS                     1
CAUSE VALUE                        17 User_busy

```

The Cisco PGW 2200 does not default to the Location value because no "location values" is specified. Instead, the Cisco PGW 2200 defaults to the general location with value "1010" (network beyond interworking point [BI]). This is part of the ITU Q.850 specification. For Cisco HSI, refer to Cisco bug ID CSCea28559 (registered customers only) . HSI should allow transparency to the Cause location.

Note: If you need to open a case with Technical Support for any help with this configuration, make sure you run an SS7 sniffer or snooper trace in combination with a PGW 2200 MDL trace and attach it to the Technical Support case.

Related Information

- [Cisco PGW 2200 Softswitch Tech Notes](#)
- [Configuration Examples for the PGW 2200](#)
- [Voice Technology Support](#)
- [Voice and IP Communications Product Support](#)
- ***Recommended Reading: Troubleshooting Cisco IP Telephony**
- [Technical Support & Documentation – Cisco Systems](#)

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