C H A P T E R **8**

Configuring BAMS for P01 Output

Overview

This chapter describes how to configure the Cisco Billing and Measurements Server (BAMS) for P01 billing records. You enable P01 output with the NODEPARMS tag ID. For more information, see the "NODEPARMS Tag ID" section on page 5-10.

P01 Output

P01 output files are created by the P01 task. These files are stored in the p001 subdirectory of the data directory. The file layout of the P01 output format includes a header record, call detail record(s), and a trailer record. This data format is binary and is not viewable by a standard text viewer. The P01 file-naming conventions are explained in "File-Naming Conventions" section on page A-4.

Customized MML Parameters

By default, BAMS generates ASCII output records when processing MGC input data. To turn on the generation of P01 data files, set the p01 output parameter in the Node Parameters table to 1.

The P01 filename format is based on the filename of the raw data files from the MGC:

`<p01prefix><raw MGC data filename>`

The default P01 prefix is p01_. You can change this prefix by modifying the p01prefix parameter in the Node Parameters table. For example, suppose that an input MGC file is named cdr_200012252359_012345.bin. The output P01 file is named p01_cdr_200012252359_012345.bin. Setting this parameter to NULL creates an output filename that is the same as the input filename.

Examples:

Change the filename prefix of P01 files to "info_":

```
$ mml

Copyright (C) 1998-2002, Cisco Systems, Inc.
mml:1>prov-sta::srcver=active,dstver=example,confirm
Billing and Measurements Server - BAMS-00 2002-03-27 13:59:06
B  COMPLD
    ;
mml:1>prov-ed:nodeparms:p01prefix="info_"
Billing and Measurements Server - BAMS-00 2002-03-27 13:59:37
B  COMPLD
```

```
        "NODEPARMS"
    ;
mml:1>prov-rtrv:nodeparms:
Billing and Measurements Server - BAMS-00 2002-03-27 14:00:03
B   RTRV
NODEPARMS:statoutput=1,bafoutput=0,asciioutput=0,lookupinfo=1,bafinfo=0,p01output=1,
p01prefix="info_""
    ;
mml:1>prov-dply::
Billing and Measurements Server - BAMS-00 2002-03-27 14:00:23
B   COMPLD
    ;
mml:1>quit
```

Turn off the generation of P01 files:

```
$  mml

Copyright (C) 1998-2002, Cisco Systems, Inc.
mml:1>prov-sta::srcver=active,dstver=example,confirm
Billing and Measurements Server - BAMS-00 2002-03-27 13:59:06
B   COMPLD
    ;
mml:1>prov-ed:nodeparms:p01output=0
Billing and Measurements Server - BAMS-00 2002-03-27 13:59:57
B   COMPLD
        "NODEPARMS"
    ;
mml:1>prov-rtrv:nodeparms:
Billing and Measurements Server - BAMS-00 2002-03-27 14:00:03
B   RTRV
NODEPARMS:statoutput=1,bafoutput=0,asciioutput=0,lookupinfo=1,bafinfo=1,p01output=0,
p01prefix="info_""
    ;
mml:1>prov-dply::
Billing and Measurements Server - BAMS-00 2002-03-27 14:00:23
B   COMPLD
    ;
mml:1>quit
```

Filtering Calls Based on Cause Codes

You can configure the P01 program to filter out certain types of calls based on the cause code of the original MGC data record. The P01FILTER tag ID has four parameters that define the call type: ANSWERED, NOANSWER, BUSY, and OTHER. You can set these parameters to 1 to output CDR records of the specified call type, or to 0 to filter the specified records from the output. The call types are defined by the cause code values (see Table 8-1).

Table 8-1   P01 Call Types and Cause Codes

Cause Code	P01 Call Type
16, 31	ANSWERED
19	NOANSWER
17	BUSY
ALL OTHER CODES	OTHER

You can use the **prov-ed** command in conjunction with the P01FILTER tag ID to edit the default filtering values. For more information about configuring P01 filtering, see the "Updating the P01 Filter Table" section on page 5-15.

The following example shows how to turn off all output except for answered calls:

```
$ mml
mml:1> prov-sta::srcver=active,dstver=example,confirm
Billing and Measurements Server - BAMS-00 2002-03-27 14:02:02
B  COMPLD
   ;
mml:1>prov-rtrv:p01filter:
Billing and Measurements Server - BAMS-00 2002-03-27 14:02:12
B  RTRV
   "P01FILTER:answered=1,noanswer=1,busy=1,other=1"
   ;
mml:1>prov-ed:p01filter:noanswer=0,busy=0,other=0
Billing and Measurements Server - BAMS-00 2002-03-27 14:02:42
B  COMPLD
   "P01FILTER"
   ;
mml:1>prov-rtrv:p01filter:
Billing and Measurements Server - BAMS-00 2002-03-27 14:02:51
B  RTRV
   "P01FILTER:answered=1,noanswer=0,busy=0,other=0"
   ;
mml:1>prov-dply::
Billing and Measurements Server - BAMS-00 2002-03-27 14:02:56
B  COMPLD
   ;
```

P01 Data Format

Table 8-2, Table 8-3, and Table 8-4 define the header, call detail, and trailer data records of the P01 output format. The field name, length, description, format/contents, and MGC mapping for the P01 header record are described in Table 8-2.

Table 8-2   PO1 Header Record

Field	Field Name	Length (Bytes)	Description	Format/Contents	MGC Mapping
1	Length	2	Record length	BCD /(= 60)	
2	Record identifier	1	Record identifier	BCD/(= 00)	
3	Switch ID	30	Switch name	ASCII, left aligned filled with spaces	Tag 6000
4	Creation date	4	Logical block creation date	BCD	Tag 4001 is converted from UTC to Local time.
5	Creation time	3	Logical block creation date	BCD	Tag 4001 is converted from UTC to Local time.
6	Spare	20	Spare	(filled with HEX 0xFF)	

The field name, length, description, format/contents, and MGC mapping for the P01 call detail record are described in Table 8-3.

Table 8-3   P01 Call Detail Record

Field	Field Name	Length (Bytes)	Description	Format/Contents	MGC Mapping
1	Length	2	Record length	BCD (= 110)	Fixed
2	Record type	1	Record type	BCD (= 11)	Fixed
3	Called number	12	Called number	BCD (left aligned, filler F)	Tag 4012
4	Called number type	2	Called number type	BCD	Derived from tag 3005 (Dialed Number Nature of Address) and populated as follows: • NoA = international: "0" • NoA = national: "1" • NoA = subscriber: "2"
5	Calling category	2	Calling category	BCD	Derived from tag 3000 (Calling Party Category) populated as follows: • CPC unknown: "0" • Operator, language French: "1" • Operator language English: "2" • Operator language German: "3" • Operator language Russian: "4" • Operator language Spanish: "5" • … • Payphone: "15"
6	Conversation start date	4	Conversation start date	BCD, format yyyymmdd	Tag 4104 or 4105 is converted from UTC to Local time
7	Conversation start time	4	Conversation start time	BCD, format hhmmsst	Tag 4104 or 4105 is converted from UTC to Local time
8	Conversation duration	5	Conversation duration (tenths of seconds)	BCD	Derived, 4106 minus 4104 or 4105
9	Call type	2	Call typology	BCD	If (Tag 4069 ==1) then callType=7; else callType=4
10	Destination	12	Real number used for call	BCD (left-aligned, filler "F")	Tag 4014
11	Destination type	2	Destination number type	BCD	Derived from tag 3007 (Called Number Nature of Address) and populated as follows: • NoA = international: "0" • NoA = national: "1" • NoA = subscriber: "2" • NoA = other values: "1"

Table 8-3   P01 Call Detail Record (continued)

Field	Field Name	Length (Bytes)	Description	Format/Contents	MGC Mapping
12	Incoming trunk	13	Incoming trunk ID	ASCII (left-aligned, filled with spaces)	BAMS augmented
13	Outgoing trunk	13	Outgoing trunk ID	ASCII	This field is populated according to the following conditions: • For nailed mode; that is, if NODEPARMS nailed-cfg = 0, this field is always populated with FF. • For switched mode; that is, if NODEPARMS nailed-cfg = 1, this field is populated with the Egress Trunk Group, which is derived from tag 4015, but only when the trunk group is present in the trunk group table. The field is left blank if the trunk group is not present in the trunk group table.
14	Calling number	12	Calling number	BCD (left-aligned, filler "F")	Tag 4010
15	Calling number type	2	Calling number type	BCD	Derived from tag 3003 (Calling Number Nature of Address) as follows: • NoA = international: "0" • NoA = national: "1" • NoA = subscriber: "2" • NoA = other values: "1"
16	Bearer capability	2	Bearer capability	BCD	Derived from tag 3001 (User Service Information) as follows: • Speech 3.1 kHZ: "0" • Audio 3.1 kHZ: "1" • Digital 64 kbit/s: "2" • Audio 7 kHZ: "6"
17	Call result	2	Call result	BCD	Derived from the last seven bits of tag 3008 as follows: • Call successful with answer: "1" • Call successful without answer (no reply): "4" • Call successful, user busy: "5"

Table 8-3   P01 Call Detail Record (continued)

Field	Field Name	Length (Bytes)	Description	Format/Contents	MGC Mapping
18	Teleservice	2	Teleservice	BCD	This field is hard coded to the value "4"
19	Call connection type	2	Call connection type	BCD	Logic based on Field 16
20	DST indicator	1	DST indicator	BCD	BAMS augmented
21	Partial record	1	Partial record	BCD (= "0")	Default 0
22	LCE-id	3	LCE-id	BCD (filled with HEX "FF")	Hex FF
23	Call identity number	3	Call identity number	BCD (filled with HEX "FF")	Hex FF
24	Restart/reload indicator	1	Restart/reload indicator (future use)	BCD (filled with HEX "FF")	Hex FF
25	Spare	5	Spare	Filled with HEX "FF"	Hex FF

The field name, length, description, format/contents, and MGC mapping for the P01 tail record are described in Table 8-4.

Table 8-4   P01 Tail Record

Field	Field Name	Length (Bytes)	Description	Format/Contents	MGC Mapping
1	Length	2	Record length	BCD (= 18)	18
2	Record identifier	1	Record identifier	BCD (= 90)	90
3	CDR number	5	Number of CDR contained in logical block	BCD	Counted and inserted in BAMS
4	Spare	10	Spare	Filled with HEX "FF"	FF