NORTEL NETWORKS

SDMC Release Document (SDMC12)

Product Computing Module Load (PCL) Release Document

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DMS* - FAMILY SOFTWARE

PRODUCT COMPUTING MODULE LOAD RELEASE DOCUMENT

(PCL) Release Document

The SDMC Family Software release document is supplied for each Software Stream. This release document provides software feature information pertinent to the new software load.

A status of PRELIMINARY means the final feature content of the software release has not been finalized and features may be added or deleted without notice. A status of STANDARD indicates that the feature content of the software release is firm.

The release document consists of the following sections:

FEATURE CONTENT

This section provides information concerning SDMC Family System features associated with software releases. Each office configuration is customized to meet Telco/Carrier requirements. The following subsections include information necessary to determine that system software changes have occurred since the last software release.

Note: only features NEW or CHANGED in the release(s) covered by the document are included

Cross Reference Tables

This section contains many tables to make it more efficient to find information. A description of the tables precedes them.

The following sections provide information necessary to support changes applicable to the new software release.

Functional Descriptions (FN)   -summarizes the functions of the feature

Data Schema (DS)   -indicates major additions/changes to the Data Schema table

Office Parameters   -indicates major additions/changes to the Office Parameters

Operational Measurements(OM)   -indicates major additions/changes to the OM groups

Logs (LG)   -indicates major additions/changes to the LOGs

Human-Machine interface (MM)   -indicates major additions/changes to the MMs

Alarms   -indicates major additions/changes to the Alarms

Management Information Base (MIB)   -indicates major additions/changes to the MIBs

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The feature content software section contains the documentation for the features new or changed in the release. There are tables included to help in the reading of the feature content section.

The items in the tables are feature numbers and feature functional groups. Features are designed by Nortel Networks against a Nortel Networks featid.

A functional group is made up of several features.

Table 1:   Functional Group to Feature Cross Reference
          This table lists all features new to the release that may be included in the release document. The functional group is indicated along with the Nortel Networks featid against which the documentation has been written.

Table 2:   Documented Feature Functional Groups
          This table lists all documentation listed in the feature content section. As stated above, the documentation is sorted first by feature functional group, and then by featid within the functional group. This table indicates which sections are included in the release document.

Table 3:   Feature to Functional Groups Cross Reference
          This table lists featid and corresponding feature and functional groups.

Table 4:   Feature Title to Feature Cross Reference
          This table lists all features by feature titles.

Table 5:   Project to Feature Cross Reference
          This table lists features sorted by project

Table 6:   History
          This table lists new and changed features by feature ID, sections, stream, and release.

Table 7: NTP to DDoc Mapping

Features	NTP Number	NTP Title
cdrpspec	297-2667-320	SDMC Remote Registration System Application Guide
cdrpspec	297-2667-328	SDMC SBA Billing Application User Guide

Table 8.1: Data Schema Tables

Table Name	Description of Change/Addition/ Removal	Featid
No Data Schema tables affect this release		

Table 8.2: Office Parameters

Parameter Name	Table Name	Description of Change/Addition/Removal	Featid
No Office Parameters affect this release			

Table 8.3: Operational Measurements (OMs)

OM Group Name	Description of Change/Addition/ Removal	Featid
No OMs affect this release		

Table 8.4: Logs

Log Report Name	Change/ Addition/or Removal	Featid
SDMB375	Change	cdrpspec - Section 9
SDMB675	Change	cdrpspec - Section 9

Table 8.5: Human-Machine Interface Commands

Command Name	Change/Addition or Removal and Directory Name	Featid
LISTFIELDS	**Change** - BILLMTX -> TOOLS	cdrpspec - Section 8
REINIT	**New** - BILLMTX -> TOOLS	cdrpspec - Section 8
RTB_BSY	**Change** - BILLMTC-> SCHEDULE -> RTB-	cdrpspec - Section 9
RTB_IPTEST	**Change** - BILLMTC-> SCHEDULE -> RTB-	cdrpspec - Section 9
RTB_OFFL	**Change** - BILLMTC-> SCHEDULE -> RTB-	cdrpspec - Section 9
RTB_QUERY	**Change** - BILLMTC-> SCHEDULE -> RTB-	cdrpspec - Section 9
RTB_RTS	**Change** - BILLMTC-> SCHEDULE -> RTB-	cdrpspec - Section 9
ADD	**Change** - BILLMTC -> SCHEDULE -> RTB -> CONF	cdrpspec - Section 9
CHANGE	**Change** - BILLMTC -> SCHEDULE -> RTB -> CONF	cdrpspec - Section 9
DEL	**Change** - BILLMTC -> SCHEDULE -> RTB -> CONF	cdrpspec - Section 9
QUERY	**New** - BILLMTC -> SCHEDULE -> RTB -> CONF	cdrpspec - Section 9

Table 8.6: Alarms

Alarm Name	Status	Featid
FTP	Changed to indicate the destination for which the error occurred. The logic for raising and lowering the alarm remains unchanged.	cdrpspec - Section 9
FTPW	Changed to indicate the destination for which the error occurred. The logic for raising and lowering the alarm remains unchanged.	cdrpspec - Section 9
RTBCF	Changed to indicate the destination for which the error occurred. The logic for raising and lowering the alarm remains unchanged.	cdrpspec - Section 9

Table 8.6: Alarms

Alarm Name	Status	Featid
RTBFM	Changed to indicate the destination for which the error occurred. The logic for raising and lowering the alarm remains unchanged.	cdrpspec - Section 9
RTBPD	Changed to indicate the destination for which the error occurred. The logic for raising and lowering the alarm remains unchanged.	cdrpspec - Section 9
RTBPW	Changed to indicate the destination for which the error occurred. The logic for raising and lowering the alarm remains unchanged.	cdrpspec - Section 9
RTBST	Changed to indicate the destination for which the error occurred. The logic for raising and lowering the alarm remains unchanged.	cdrpspec - Section 9

Table 8.7: MIB (Management Information Base)

MIB Name	Status	Featid
OFCDR	Change	cdrpspec - Section 8
Base schDestination	New	cdrpspec - Section 9
SBARTB RTBDestination	New	cdrpspec - Section 9
SBARTB RTBFileFormat	New	cdrpspec - Section 9

1. Functional description (FN)

1.1   Feature title

SuperNode Data Manager(SDM) Real Time Billing Delivery (RTB)

1.2   Feature synopsis

SDM Real Time Billing Delivery is a data communications application which allows billing records to be available for transfer from the SDM 5 seconds after disconnecting the call. It does this by downloading a small group of record to the DIRP (Device Independent Recording Package) billing file on the downstream processor as the groups are added to the corresponding open file on the Supernode Data Manager (SDM). It uses File Transfer Protocol (FTP) through an Ethernet connection to deliver the file.

This feature is provided in SDMC11. It is not responsible for providing any software on the customer's downstream processor needed to receive and read the file.

1.3   Functional overview

The SDM Supernode Billing Application (SBA) provides a distributed, high-capacity and scalable generic billing system with the fundamental operations of receiving billing records from the CM, creating files containing the records and making the files available to the operating company's downstream processor(s).

This feature provides the following to SDM customers:

- Use of FTP via TCP/IP through the SDM Ethernet connection to transfer records from an open file on the SDM to the corresponding DIRP file on the customer's downstream processor.

- Records are available for transfer from the SDM port no more than five seconds from the time the call terminates. The transfer time of records from the SDM port to the downstream processor depends on customer network configuration.

It is assumed that the readers of this document are familiar with the SBA system. Detailed information about the architecture of the SBA can be found in document AF7546 "Supernode Billing Application Base Function".

1.3.1 Terminology

The following terminology is used throughout this document.

DIRP File

DIRP (Device Independent Recording Package). A DIRP file is a billing file consisting of 2K byte blocks. See NTP 297-2643-395 UCS DMS-250 Billing Records Application Guide for details.

Stream

A Stream, also know as Billing Stream, can be conceptualized as a pipeline through which CM generated billing records pass. For each stream component that exists on the CM, a corresponding stream component exists on the SDM. Billing records created by calls pass through the stream from their point of origination on the CM to the SDM where they are stored on disk.

SubStream

A Stream is further divided into Primary and Recovery substreams. The Primary substream handles the current records being sent by the CM. The Recovery substream is only active after SBA was unable to transfer records from the CM to the SDM and had to temporarily store the records on the CM ("Backup Mode"). When the CM recovers from "backup mode" by reestablishing the connection to the SDM, the "backup" records are sent to the SDM side in the Recovery stream while, concurrently, the current records are sent in the Primary substream.

Real Time Billing (RTB) will transfer records on the Primary substream only since Recovery substream records are, by definition, not current records.

SDM

The term Supernode Data Manager (SDM) refers to the SDM peripheral as a whole. In other words, it includes SDM hardware, AIX operating system, SDM software, SBA base software, and other applications.

File States on SDM:

Open - Records are written to the SDM file. If RTB is ON, records are also transferred to the active billing file downstream immediately after they are written to the SDM file. The file name on the SDM is prefixed with an "A". While the file is being written to on the downstream processor, that file name is also prefixed with an "A".

Unprocessed - The file is closed, but the file is awaiting processing. Unprocessed files are prefixed with a "U" on the SDM. After transfer is done, the prefix of the file on the downstream processor will also change from "A" to "U".

Processed - The file is closed and has been received (i.e. processed) by the downstream processor and is therefore eligible for removal by volume management when disk space needs to be freed. This is a state change meaningful on the SDM only. So the corresponding file name prefix change from "U" to "P" is done on the SDM but not on the downstream processor.

Under normal RTB operation and with the corresponding Schedule Tuple (see "1.4.2 File Transfer Scheduling") not active, files on the SDM reside in the Unprocessed state for only a brief period since, after closing, RTB transfer quickly acknowledges transfer of the file's end. Since RTB is the only application transferring files (the Schedule Tuple is Inactive), the file is considered processed so the state of the file on the SDM is moved to Processed.

If the schedule tuple is active for the stream, there are two applications (Scheduled Transfer and RTB) involved in the transferring of files so both must acknowledge the Unprocessed file before it can become Processed. Therefore, after RTB transfers the file, the file state will remain Unprocessed until the next scheduled transfer event. When that event occurs, the scheduler examines all Unprocessed files and treats them according to whether they have already been transferred by RTB. The files that have not been transferred by RTB are transferred and moved to the Processed state after a successful transfer. The files that have been transferred by RTB are moved directly to the Processed state without retransmission.

1.3.2 **Background**

Currently, SBA files can be scheduled to close automatically at a minimum interval of five minutes. The schedule tuple used to transfer Unprocessed files can be scheduled with a minimum interval of 1 minute. Therefore, the oldest record in the file will be available for transfer after about five to six minutes.

This feature adds the ability to make records available for transfer in "real time" (in 5 seconds).

As shown in Figure 1, this feature is built on top of the Supernode Billing Application (SBA) Base Software.

Figure 1   SDM Software Layout
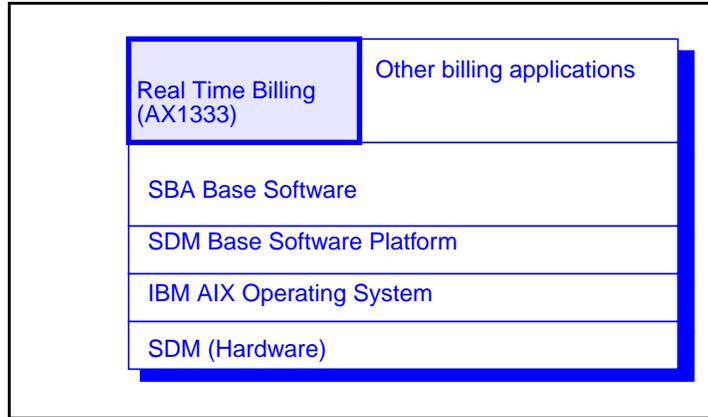
1.3.2.1 **Current SBA File Transfer Subsystem Description**

Currently, the file transfer subsystem uses a schedule tuple for scheduled file transfers. These tuples are specified by stream/file. For each different stream, different file transfer parameters can be specified (e.g., start time, stop time, file transfer interval, etc.). There can only be one tuple per stream.

The tuple contains a field indicating if it is active. Scheduled file transfers occur only if the tuple is active. An interval in the schedule tuple indicates how often SBA checks to see if there are Unprocessed files waiting to be sent downstream. When this interval is exceeded, the list of files is transferred downstream.

1.4   Feature description

1.4.1   Real Time Billing

The RTB Rts command, issued from the RMI, (see MM section for details) is used to initiate the transfer of an open billing file to the downstream customer site on a per stream basis. Note that only the Primary substream can use RTB.

The command must specify the stream. RTB will then use the appropriate fields in the schedule tuple (such as the primary destination IP address - see "1.4.2.1 Scheduling Interface" for details) corresponding to this stream. Note that the schedule tuple does not need to be active to enable RTB, but its protocol must be Real-time File Transfer Protocol Wrapper (RFTPW) and file transfer mode must be Outbound.

RTB will attempt to transfer records to the active billing file at the primary destination IP address of the downstream processor specified in the Schedule tuple. See "1.4.3 Connection Management" for details.

While RTB is transferring the open file, on the downstream processor the file name will begin will an "A" indicating an open file. When the file transfer is complete the file prefix on the downstream processor will be changed to a "U". This is the file prefix also used when scheduled file transfer succeeds.

The RTB Bsy command will stop the current open file transfer by first closing the current open file on the SDM, sending the remainder of the file downstream and closing the FTP connection with the downstream processor.

The RTB Query command will show the user the current status of RTB on a per stream basis.

1.4.2   File Transfer Scheduling
File Transfer scheduling is enhanced in the following ways:

*   Addition of protocol type Real-time File Transfer Protocol Wrapper (RFTPW) specified in the Schedule tuple Protocol field

1.4.2.1   Scheduling Interface

This section contains a table representing the File Transfer Schedule tuple. Fields used by RTB are briefly described below. Refer to the MM section of feature AF7546 for more details.

Stream - Identifies the stream for which RTB will operate on.

File_Format Type - Identifies the file format type of the stream for which RTB will operate on (DIRP only for this release).

Protocol - Identifies which protocol will be used for RTB (RFTPW).

Primary_Destination (IP Address) - Identifies the IP address of the primary destination for RTB.

Alternate_Destination (IP Address) - Identifies the IP address of the alternate destination for RTB.

Filename_Extension - This extension will be added to the file name when the transfer is successfully completed successfully.

Active - Identifies whether the schedule tuple is active and therefore indicates whether scheduled transfer of Unprocessed files will take place. If RTB is INSV, this schedule tuple is used regardless of whether scheduled tuple is active.

The data contained in the schedule tuple is used by the RTB application and by scheduled file transfers and by the SendFile command (see the AF7546 MM for details about SendFile).

Table 1   Schedule Table Fields and Example Datafill

Field Name	Tuple 1
Stream	OCC
File_Format_Type	DIRP
Protocol	**RFTPW**
Primary_Destination (IP Address)	47.30.40.60
Alternate_Destination (IP Address)	47.30.40.50
Start_Time	10:00
Stop_Time	22:00
Interval (minutes)	15
Remote_Storage_Directory	/usr/billing/ data/OCC
Remote_Login	admin
Remote_Password	xxxxxxx
Timeout (seconds)	300
Maximum_Retries	3
Retry_Wait_Time (seconds)	20

The data contained in the schedule tuple is used by the RTB application and by scheduled file transfers and by the SendFile command (see the AF7546 MM for details about SendFile).

Table 1   Schedule Table Fields and Example Datafill

Field Name	Tuple 1
Field_Separator	-
Filename_Extension	pri
Active	Yes

1.4.3   Connection Management

In normal operation, open files will only be sent to the Primary IP destination specified in the Schedule tuple. If a problem occurs with that destination and open file transfer fails, the current file will be closed. RTB will be retried on the next open file(s) based on the RTB MIB value RTBMaxConsecutiveFailures (range from 0 to 10, default 3). Each time there is a failure, the current file will be closed and RTB attempted on a newly opend file until RTBMaxConsecutiveFailures file transfers have been attempted. At that point, a critical alarm will be raised, a log will be printed and RTB will be moved to the SYSB state. While in this state, open file transfer will not be active.

The retry behavior of RTB differs from that of a scheduled transfer. In the case of a scheduled transfer the primary address is tried first and if it fails it attempts to retransmit the file until the number of retries are exhausted. The retry attempts will alternate between the primary and alternate destinations indicated in the schedule tuple. However, RTB will not attempt to re-transmit the file since that impacts the ability to send current records. Instead it closes that file[1] and "retries" on the next file opened. Unlike scheduled transfer, RTB only uses the primary destination.

Therefore, the retry limit indicated by RTBMaxConsecutiveFailures is used to disable RTB to prevent the creation of a large number of very small billing files.

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[1]Files closed by RTB when it cannot send the file downstream will still be transferred from the SDM automatically during the next scheduled transfer if the schedule tuple is Active. They may also be transferred manually with the Sendfile command.

Manual intervention is required to restore RTB once it is in the SYSB state. The trouble is often a network connection that is no longer functioning properly. The craftsperson can use the RTB IPTest command, which "pings" the primary downstream address indicated in the schedule tuple, to determine this. The network connection may require maintenance or if the craftsperson may decide to change the primary address in the schedule tuple to a functioning network connection. A SYSB state may also occur if the protocol has been changed in the Schedule Tuple to something other than RFTPW.

When the problem that forced RTB to the SYSB state appears to be resolved, the RTB Bsy and Rts commands can be issued to bring RTB into service. When "Bsy'ed", the RTB Critical alarm will be removed. If the the problem has been fixed, RTB will return to service when the Rts command is issued. Otherwise, RTB will be moved back to the SYSB state.

Issuing the RTB BSY command places RTB in the MANB state and removes all alarms.

1.4.4 Connection Request

The SDM File Transfer Subsystem makes a TCP/IP request to the well known FTP server port 21 at the downstream processor located at the Primary IP address specified in the Schedule tuple.

The UserID and Password located in the Schedule tuple are used to login to the downstream processor. If either of these 1 to 20 character strings are invalid, the connection will be refused.

1.4.5 Message Protocols

The SBA platform uses an FTP client for open file transmission between SBA and the customer's remote locations.

1.4.6 Alarms

1. A critical alarm will be raised RTB is not able to transfer an open file after RTBMaxConsecutiveFailures. At this point, RTB will move to the SYSB state and stop transferring open files. The alarm is cleared by using the RTB BSY command. Once RTB is in the MANB state it can be restarted by issuing the RTS command.

2. A critical alarm is raised if the schedule tuple is deleted or altered in a way incompatible with real time billing. RTB will move to the SYSB state. The alarm is cleared by using the RTB BSY command. Once RTB is in the MANB state it can be restarted by issuing the RTS command.

3. A critical alarm is raised if the communication with the file manager is lost. RTB will move to the SYSB state. The alarm is cleared by using the RTB BSY command. Once RTB is in the MANB state it can be restarted by issuing the RTS command.

4. A critical alarm is raised in the event that a controlling process dies to notify the craftsperson that RTB has been halted. RTB will move to the SYSB state. The alarm is cleared by using the RTB BSY command. Once RTB is in the MANB state it can be restarted by issuing the RTS command.

5. A critical alarm is raised if the process performing real time billing dies more than three times in any fifteen second period. RTB will move to the SYSB state. The alarm is cleared by using the RTB BSY command. Once RTB is in the MANB state it can be restarted by issuing the RTS command.

1.5   Supplementary information: Engineering/Hardware

1.5.1   Engineering hardware information

N/A

1.6   Supplementary information: DDOC sections

1.6.1   Logs (LG)

This feature generates SDMB logs. Please refer to the LG section for detailed information.

1.6.2   Data schema (DS)

1.6.3   Service orders (SO)

1.6.4   Man machine interface (MM)

Refer to the MM section.

1.6.5 Operational measurements (OM)

1.6.6 AMA/Billing information (AM)

1.7 Feature impact

1.7.1 Interactions

1.7.2 Restrictions/limitations

- These restrictions are in addition to all restrictions already present in the SBA application (see AF7546).
- After the last record of the open file has been transferred downstream, the file is renamed on the downstream side, which indicates that the current open file is finished transferring. The renaming of the file is not a problem on UNIX based systems, but may be a problem for non-Unix based systems.
- If a file transfer is interrupted just after renaming a file to indicate that it is processed but before the File Manager has been notified, the downstream processor considers the file to be transferred but the SDM will not. The file will therefore remain in the unprocessed state on the SDM. If the schedule tuple is active, the file be re-transmitted at the next scheduled interval.
- RTB open file and Scheduled file transfers may fail to complete under some circumstances (e.g., a broken connection, an inaccurate login Id or password, etc.) In some cases, completion of a scheduled file transfer session (event) may not successfully transfer all files that it should. Automated recovery of such conditions is not provided for in this release. However if the schedule tuple is active, an attempt to re-transmit any unsent files will occur at the next scheduled file transfer interval.
- SBA allows only one schedule tuple, and therefore only a primary and a single alternate destination, per stream.
- RTB may be used only on the primary substream and only with the standard DIRP file format.
- To activate RTB for a stream, a Schedule Tuple must exist for that stream.
- RTB protocol must be RFTPW.

- If very short files are created by repeatedly manually closing the files with the "CloseC" command, a condition may result where RTB has two files it believes are active. In such a case, RTB will transfer only the newest file. The remaining file can be removed by Scheduled File Transfer or by the manual Sendfile command.

1.8   Definitions & abbreviations

AMA

Automatic Message Accounting. The stream name is datafilled in Tables CRSFMT and SDMBILL and usually refers to BAF records.

BAF

Bellcore AMA Format.

CDR

Call Detail Recording. CDR refers to a record format that is commonly used in carrier network switches.

DIRP

Device Independent Recording Package. One of the file formats that the SBA uses in SDM (disk) storage.

FTP

File Transfer Protocol.

RFTPW

Real-time File Transfer Protocol Wrapper.

MIB

Management Information Base. Configuration and other run-time information that is globally available to the billing platform and platform applications. The MIB includes user command and application programming interfaces.

OCC

Other Common Carrier billing stream. The stream name is datafilled in Tables CRSFMT and SDMBILL and usually refers to CDR records.

RMI

Remote Maintenance Interface.

RTB

Real Time Billing.

SBA

SuperNode Billing Application.

SDM

SuperNode Data Manager.

Stream

Within the SuperNode Billing Application context, refers to the generation of CM billing records of a specific type routed to the SDM and transferred downstream to a customer location.

SubStream

Within the SuperNode Billing Application context, refers to a subdivision of SBA streams. The Primary substream delivers current records generated by a stream. The Recovery substream exists only when recovering from CM backup (CM to SDM transfer may fail under extreme conditions in which case records are backed up on the CM until CM to SDM communication is reestablished). It will transfer the "backed up" records concurrently with the Primary substream until there are no more "backed up" records.

TCP

Transmission Control Protocol.

1.9 References

AF7546 - SuperNode Billing Application Base Billing Platform

NTP 297-2643-395 - UCS DMS-250 Billing Records Application Guide

8. Log changes (LG)

8.1 Summary

Table 16

LOG NAME	LOG NUMBER	NEW/MOD DELETED	SYSTEM (SOS/UNIX)
SDMB	375	MOD	UNIX
SDMB	675	MOD	UNIX

It is assumed that the readers of this section are familiar with the SBA system. Detail information about SBA can be found in the document AF7546 "Supernode Billing Application Base Function". The log section of AF7546 describes current SBA logs.

8.2 Log report: SDMB375

8.2.1 Format

* SDMB375 <date> <time> <seq #> SDM BILLING FILE TRANSFER STREAM= <stream>: RTB- <specific error>.

8.2.2 Overview

The SDMB375 log is generated whenever RTB (Real Time Billing) encounters a problem. Where appropriate, it raises a major or critical alarm. The TEXT portion of the log provides an explanation of the problem.

The possible text in the "<specific error>" portion of the log format is shown below. Additional explanation of the text is provided where appropriate.

"RTBControl Process Death Detected. RTB is Halting for stream."

This log is output when RTBChild has detected the death of RTBControl process and the alarm RTBPD is raised.

"Exceeded RTBMaxConsecutiveFailures: xx"

This log is output when RTBChild has failed to send the open billing file downstream RTBMaxConsecutiveFailures times and alarm RTBCF is raised.

"File Manager Failed to close current active files."

This log is output when the File Manager Interface in RTBChild has failed to close the current open file so it can start transfer of fresh file and alarm RTBFM is raised. System State is changed to SYSB.

"Unable to get the current Schedule Tuple."

This log is output when RTBChild is unable to get the current Schedule Tuple to check for validity before transferring open billing file and alarm RTBST is raised. System State is changed to SYSB.

"Schedule Tuple is not valid for RTB."

This log is output when RTBChild detects the current Schedule Tuple is not valid for RTB and alarm RTBST is raised. System State is changed to SYSB.

"RTB: Unable to fork child process"

This log is output when the RTBController is unable to fork a RTBChild process during an initiate RTS command or when trying to re-create the RTBChild process.

"Restart count exceeded. RTB moved to SYSB state."

This log is output when the RTB raises the RTBER alarm due to a child process dieing more than three times during any 15 second period.

"RTB: Unable to clean up write active files due too invalid input. Please remove any write active files that are associated with this stream and a closed file."

This log is output if the routine to delete the "WriteActive" files is passed a stream name, write active directory name, or file label which is null.

"RTB: Unable to clean up write active files. Please remove file <filename> to ensure correct operation of RTB."

This log is output if the write active files cannot be deleted for the stream.

"RTB: Unable to clean up in use files due too invalid input. Please remove any in use files that are associated with this stream."

This log is output if the routine to delete the "InUse" files is passed a stream name or in use directory name which is null.

"RTB: Unable to clean up in use files. Please remove file <filename> to ensure correct operation of RTB."

This log is output if the "InUse" files could not be deleted.

"RTB: Unable to clean up in use files due too invalid input. Please remove any in use files that are associated with this stream and with files that have been transferred downstream."

This log is output if the routine to delete the "InUse" file is passed a stream name or in use directory name which is null.

"RTB: Unable to clean up rtb done files due too invalid input. Please remove any rtb done files that are associated with this stream."

This log is output if the routine to delete the "RtbDone" file is passed a stream name, in use directory name, or file label which is null.

"RTB: Unable to clean up rtb done files. Please remove file <filename> to ensure correct operation of RTB."

This log is output if the "RtbDone" files could not be deleted

"RTB: Unable to change in use file to rtb done due too invalid input. Please move any in use file associated with this stream and with files that have been transferred downstream."

This log is output if the routine to rename the "InUse" file to "RtbDone" is passed a stream name, in use directory name, or file label which is null.

"RTB: Unable to move an in use file to rtb done. Please move file <<stream><fileLabel>.InUse> to <<stream><fileLabel>.RtbDone> to ensure correct operation of RTB."

This log is output if the "InUse" file could not be renamed to "RtbDone" file.

"RTB: Unable to clean up rtb done files due to invalid input. Please remove all but the most recent files that are associated with this stream."

This log is output if the routine to clean up all but the most recent "RtbDone" files is passed a stream name or in use directory name which is null.

"RTB: rtbFTPClient transfer rate exceeded!. Ftp of current open file <filename> aborted."

This log is output by the RTB File Transfer whenever the rtbFTPClient reports that the maximum lag time to transfer records in billing file has been exceeded. This will stop the transfer of the current file.

8.2.3   Examples

Example 1

SDMB375 AUG19 17:51:24 1234 SDM BILLING FILE TRANSFER STREAM= CDR: RTB: File Manager failed to close current active files.

Example 2

SDMB375 AUG19 17:51:24 1234 SDM BILLING FILE TRANSFER STREAM= CDR: RTB- Unable to fork child process

Example 3

SDMB375 AUG19 17:51:24 1234 SDM BILLING FILE TRANSFER STREAM= CDR: RTB- Schedule Tuple is not valid for RTB

8.2.4   Field description

Field name: stream
Field optionality: mandatory variable
Type: Alphanumeric
Size: 4 characters
Value(s): Variable
Descriptions: Identifies the billing stream on which the problem occurred.
NTP table reference: Not applicable.

Field name: specific error
Field optionality: mandatory variable
Type: Alphanumeric
Size: Variable
Value(s): Variable
Descriptions: Provides a brief explanation of the problem.
NTP table reference: Not applicable.

8.2.5   Action to be taken

From the log text, the craftsperson may be able to determine the cause of the problem and may, with manual intervention, solve the problem. Otherwise, the next line of support should be contacted.

8.3   Log report: SDMB675

8.3.1   Format

SDMB675 <date> <time> <seq #> SDM BILLING FILE TRANSFER STREAM= <stream>: RTB- <specific resolution>.

8.3.2   Overview

The SDMB675 log is generated whenever RTB (Real Time Billing) displays an informative message. The "specific resolution" portion of the log provides an explanation of the information.

The possible text in the "<specific resolution>" portion of the log format is shown below. Additional explanation of the text is provided where appropriate.

"File Manager alarm cleared."

This log is output when RTBFM alarm is raised and the craftsperson either Bsys RTB for the stream or Bsys the SBA application.

"RTBControl Process Death alarm cleared."

This log is output when RTBFM alarm is raised and the craftsperson either Bsys RTB for the stream or Bsys the SBA application.

This log is output when RTB is Bsyed for a stream or the SBA application is Bsyed while the RTBPD alarm is raised.

"Schedule Tuple alarm cleared."

This log is output when RTBFM alarm is raised and the craftsperson either Bsys RTB for the stream or Bsys the SBA application.

"Consecutive Failures alarm cleared."

This log is output when RTBFM alarm is raised and the craftsperson either Bsys RTB for the stream or Bsys the SBA application.

"RTB: Session started by command."

This log is output when the craftsperson brings RTB INSV for a stream.

"RTB: Session stopped by command."

This log is output when the RTB is INSV for a stream and the craftsperson Bsys RTB for that stream .

"RTB: Restart count reset, clearing alarm."

This log is output when RTBFM alarm is raised and the craftsperson either Bsys RTB for the stream or Bsys the SBA application.

8.3.3   Example

SDMB675 AUG19 17:51:24 1234 SDM BILLING FILE TRANSFER
STREAM= CDR: RTB- Session started by command

8.3.4   Field description

Field name: stream
Field optionality: mandatory, variable
Type: Alphanumeric
Size: 4 characters
Value(s): Variable
Descriptions: Identifies the stream which has been transfered successfully
NTP table reference: N/A

Field name: specific resolution
Field optionality: mandatory
Type: text
Size: variable
Value(s): variable
Descriptions: Identifies the result of the RTB
NTP table reference: N/A

8.3.5   Action to be taken

No action needs to be taken as the log indicates normal operation.

7. Man machine interface (MM)

7.1 Directories

This feature is implemented on the SuperNode Data Manager (SDM) in SDMC11. The user interface can be accessed through the SDM Billing Application (SBA) command BILLMTC. This starts a remote maintenance interface (RMI) screen. The Real Time Billing (RTB) can then be reached from the SCHEDULE level.

The readers of this document are assumed to be familiar with the features in document AF7546.

7.1.1 Table of new/modified directories

Table 13

DIRECTORY NAME	NEW, CHANGED OR DELETED	NEW NAME (if renamed)	TARGET	RES/ NONRES
RTB	NEW		SDM	RES
CONFRTB (from RTB level)	NEW		SDM	RES

7.1.2 Accessing directory - Real Time Billing (RTB):

The RTB directory resides under the SCHEDULE directory, which in turn can be seen by issuing BILLMTC.

The RTB directory provides the craftsperson with access to commands that are used for the transfer of billing files over TCP/IP through an Ethernet connection.

7.1.2.1 To access

The craftsperson must enter the BILLMTC;SCHEDULE menu in the BILLMTC RMI then type either RTB or the corresponding number in the BILLMTC;SCHEDULE menu.

7.1.2.2 To return to CI

The craftsperson enters 'quit' or the corresponding number from the RTB menu to go back to the SCHEDULE menu.

The craftsperson has the option of entering 'quit all' to exit all menus.

7.2 RTB Commands

7.2.1 Table of New/modified commands
Table 14

COMMAND NAME	NEW, CHANGED OR DELETED	NEW NAME (if renamed)	DIRECTORY NAME
RTS	NEW		BILLMTC->SCHEDULE->RTB
BSY	NEW		BILLMTC->SCHEDULE->RTB
QUERY	NEW		BILLMTC->SCHEDULE->RTB
IPTEST	NEW		BILLMTC -> SCHEDULE->RTB
SET	NEW		BILLMTC->SCHEDULE->RTB
CONFRTB	NEW		BILLMTC->SCHEDULE->RTB

7.2.2 Command name - SET:

<u>7.2.2.1</u> Command type

MENU command from the RTB level.

7.2.2.2 Command target

SDM

7.2.2.3 Command availability

RES

7.2.2.4 Command description

The SET command is used to set the RTB session to a default stream or, if no stream is provided, to clear the previously set default stream.

This command is useful because when a default stream name is set, other RTB commands will automatically use the default stream if one is not explicitly specified for that command.

7.2.2.5   Warning

There are no warnings associated with this command.

7.2.2.6   Command syntax

SET {stream} <streamName>

7.2.2.7   Parameter definitions

Table 15

PARAMETER	VALUE	DEFINITION
streamName	Alphanumeric String SIZE (4) Range - max of 16 streams	This REQUIRED parameter specifies the name of the stream that originates the billing data. This is a string that matches the stream name in table SDMBIL and CRSFMT on the DMS CM. If the stream name is not specified the default stream name is cleared. Subsequent commands in the RTB map level requiring a stream will use the default stream unless a stream is explicitly specified for that command.

7.2.3   Responses

The SET command can generate the following responses.

7.2.3.1   Response - SET

RTB stream context now set to: <StreamName>

Explanation:

This message is in response to a craftsperson invoking the SET command successfully.

System action:

User action:

No action is required.

7.2.3.2   Response - Invalid streamName

```
ERROR: Invalid Stream Name. Valid streams are
*** {<stream1, stream2...}.
Command aborted.
```

Explanation:

This message is generated in response to a craftsperson invoking the SET command using an invalid stream name.

System action:

Prompt is returned to craftsperson, execution of the command ends and the SET command terminates execution.

User action:

The craftsperson must re-enter the command providing a valid stream name.

7.2.3.3   Response - Invalid keyword

```
Invalid keyword. Valid keywords for set are: {stream }.
```

Explanation:

This message is generated in response to a craftsperson invoking the SET command without the keyword "stream".

System action:

Prompt is returned to craftsperson, execution of the command ends and the SET command terminates execution.

User action:

The craftsperson must re-enter the command providing a keyword stream.

7.2.3.4   Response - Clear stream context

```
*** Stream context is now cleared.
```

Explanation:

This message is in response to a craftsperson invoking the SET command without an argument.

System action:

User action:

No user action is required.

7.2.4   Notes

Not applicable.

7.2.5   Examples

Example - SET

```
RTB
 0 Quit
 2 Set
 3
 4
 5
 6
 7 Rts
 8 Bsy
 9 Offl
10 Query
11 IPTest
12 CONFRTB
13
14
15
16
17 Help
18 Refresh
 maint
Time  17:03  > 2 stream OCC
```

```
RTB                     RTB stream context now set to : OCC
 0 Quit
 2 Set
 3
 4
 5
 6
 7 Rts
 8 Bsy
 9 Offl
10 Query
11 IPTest
12 CONFRTB
13
14
15
16
17 Help
18 Refresh
 maint
Time  17:03  >
```

Example - Invalid Stream name

```
RTB
 0 Quit
 2 Set
 3
 4
 5
 6
 7 Rts
 8 Bsy
 9 Offl
10 Query
11 IPTest
12 CONFRTB
13
14
15
16
17 Help
18 Refresh
 maint
Time  17:03  > 2 stream AAA
```

ax1333mm.aa18

```
RTB                  ERROR : Invalid stream name. Valid streams are {OCC,..}.
  0 Quit             Command aborted.
  2 Set
  3
  4
  5
  6
  7 Rts
  8 Bsy
  9 Offl
 10 Query
 11 IPTest
 12 CONFRTB
 13
 14
 15
 16
 17 Help
 18 Refresh
  maint
Time  17:03  >
```

Example - Clear stream context

```
RTB
  0 Quit
  2 Set
  3
  4
  5
  6
  7 Rts
  8 Bsy
  9 Offl
 10 Query
 11 IPTest
 12 CONFRTB
 13
 14
 15
 16
 17 Help
 18 Refresh
  maint
Time  17:03  > 2 stream
```

```
RTB                    Stream context is now cleared.
  0 Quit
  2 Set
  3
  4
  5
  6
  7 Rts
  8 Bsy
  9 Offl
 10 Query
 11 IPTest
 12 CONFRTB
 13
 14
 15
 16
 17 Help
 18 Refresh
  maint
Time  17:03  >
```

7.2.6   Command name - RTS:

7.2.6.1   Command type

MENU command from the RTB level.

7.2.6.2   Command target

SDM

7.2.6.3   Command availability

RES

7.2.6.4   Command description

The RTS command is used to return RTB to service for a stream.

7.2.6.5   Warning

There are no warnings associated with this command.

7.2.6.6   Command syntax

RTS [<streamName>]

7.2.6.7   Parameter definitions

Table 16

PARAMETER	VALUE	DEFINITION
streamName	Alphanumeric String SIZE (4) Range - max of 16 strings	This parameter specifies the name of the stream that originates the billing data. This is a string that matches the stream name in table SDMBIL and CRSFMT on the DMS CM. If the craftsperson specifies a default stream name using the SET <streamName> RMI command prior to using the RTS command, the <streamName> in the RTS command can be omitted and the default stream name will be used. If a stream name is entered in the RTS command, it overrides the default stream name. This parameter is REQUIRED if the SET command hasn't been used previously.

7.2.7   Responses

The RTS command can generate the responses outlined below.

7.2.7.1   Response - RTB RTS

```
RTB is INSV for the stream : <StreamName>
```

Explanation:

This message is in response to a craftsperson invoking the RTS command successfully.

System action:

Prompt is returned to the craftsperson and execution of the command ends and RTB is brought in service.

User action:

No action is required.

7.2.7.2 Response - RTB already INSV

```
ERROR: RTB already INSV for stream <StreamName>
```

Explanation:

This message is generated in response to a craftsperson invoking the RTS command with RTB already in service.

System action:

Prompt is returned to craftsperson, execution of the command ends.

User action:

No action is required

7.2.7.3 Response - Schedule tuple not present.

```
ERROR: Turning on RTB for stream <StreamName> while schedule tuple not
present
Use BILLMTC;SCHEDULE;ADD to add schedule tuple.
```

Explanation:

This message is in response to a craftsperson invoking the RTS command while the schedule tuple is not present.

System action:

Prompt is returned to craftsperson, execution of the command ends and RTB is not turned on.

User action:

The craftsperson must add the RTB schedule tuple through the BILLMTC;SCHEDULE;ADD command before turning on the RTB session.

7.2.7.4 Response - Stream doesn't use RFTPW protocol

```
Stream <streamname>: The following protocol is not supported by RTB-
<protocol>.
```

```
Try changing the protocol to RFTPW using the "Change" command in the
BILLMTC;SCHEDULE level.
```

Explanation:

This message is generated in response to a craftsperson invoking the RTS command for a stream that doesn't use RFTPW protocol. RTB supported RFTPW protocol in the SDMC11 release.

System action:

Prompt is returned to craftsperson, execution of the command ends and RTB is not brought in service.

User action:

The craftsperson must change the protocol in the RTB schedule tuple to RFTPW through the BILLMTC;SCHEDULE;CHANGE command before turning on the RTB session[1].

7.2.7.5   Response - Stream doesn't use DIRP file format

```
ERROR: Stream doesn't use DIRP file format.
Command aborted.
```

Explanation:

This message is generated in response to a craftsperson invoking the RTS command for a stream that doesn't use DIRP file format. RTB is supported for DIRP file format in the SDMC11 release.

System action:

Prompt is returned to craftsperson, execution of the command ends and RTB is not brought in service.

User action:

The craftsperson must change the file format in the RTB schedule tuple to DIRP through the BILLMTC;SCHEDULE;CHANGE command before turning on the RTB session[2].

7.2.7.6   Response - Unable to connect to RTB server

```
ERROR: Unable to connect to RTB server.
Command aborted.
```

Explanation:

---

[1]Note that this will require the stream associated with the schedule tuple to also use the DIRP file format.
[2]Note that this will require the stream associated with the schedule tuple to also use the DIRP file format.

This message is generated in response to a craftsperson invoking the RTS command for a stream when an RTB server process has failed.

System action:

Prompt is returned to craftsperson, execution of the command ends and RTB is not turned on.

User action:

Attempts will automatically be made to restart the RTB server whenever it fails. Re-issuing the command may work if RTB has been successfully restarted. However, if RTB fails to restart, contact the next level of support.

7.2.7.7   Response - Invalid streamName

```
ERROR: Invalid Stream Name. Valid streams are
*** {<stream1, stream2...}.
Command aborted.
```

Explanation:

This message is generated in response to a craftsperson invoking the RTS command using an invalid stream name.

System action:

Prompt is returned to craftsperson, execution of the command ends and RTB is not turned on.

User action:

The craftsperson must re-enter the command and provide a valid stream name.

7.2.7.8   Response - Missing Stream Name

```
*** ERROR: This command requires a valid stream name as an argument.
```

Explanation:

This message is in response to a craftsperson invoking the RTS command without an argument and without previously using SET to set the default stream.

System action:

Prompt is returned to the craftsperson and execution of the command ends.

User action:

The craftsperson must re-enter the command providing the required argument or must use the SET command to set the stream before executing this command.

7.2.8   Notes

Not applicable.

7.2.9   Examples

Example - RTB RTS

```
RTB
 0 Quit
 2 Set
 3
 4
 5
 6
 7 Rts
 8 Bsy
 9 Offl
10 Query
11 IPTest
12 CONFRTB
13
14
15
16
17 Help
18 Refresh
 maint
Time  17:03  > 7 OCC
```

```
RTB                RTB is turned on for stream : OCC
 0 Quit
 2 Set
 3
 4
 5
 6
 7 Rts
 8 Bsy
 9 Offl
10 Query
11 IPTest
12 CONFRTB
13
14
15
16
17 Help
18 Refresh
 maint
Time  17:03  >
```

Example - Invalid Stream name

```
RTB
 0 Quit
 2 Set
 3
 4
 5
 6
 7 Rts
 8 Bsy
 9 Offl
10 Query
11 IPTest
12 CONFRTB
13
14
15
16
17 Help
18 Refresh
 maint
Time  17:03  > 7 AAA
```

```
RTB          ERROR : Invalid stream name. Valid streams are {OCC,..}.
 0 Quit      Command aborted.
 2 Set
 3
 4
 5
 6
 7 Rts
 8 Bsy
 9 Offl
10 Query
11 IPTest
12 CONFRTB
13
14
15
16
17 Help
18 Refresh
 maint
Time  17:03  >
```

Example - Missing Stream Name

```
RTB
 0 Quit
 2 Set
 3
 4
 5
 6
 7 Rts
 8 Bsy
 9 Offl
10 Query
11 IPTest
12 CONFRTB
13
14
15
16
17 Help
18 Refresh
 maint
Time  17:03  > 7
```

```
RTB               ERROR : This command requires a valid stream name as an argu-
 0 Quit           ment.
 2 Set
 3
 4
 5
 6
 7 Rts
 8 Bsy
 9 Offl
10 Query
11 IPTest
12 CONFRTB
13
14
15
16
17 Help
18 Refresh
 maint
Time  17:03  >
```

7.2.10 Command name - BSY:

7.2.10.1 Command type

MENU command from the RTB level.

7.2.10.2 Command target

SDM

7.2.10.3 Command availability

RES

7.2.10.4 Command description

The BSY command is used to manual busy RTB.

7.2.10.5 Warning

Due to the destructive nature of the BSY command, the user will be prompted for a confirmation if RTB is in service at that time.:

```
Bsying a RTB stream will stop current RTB open file transferring.
Are you sure you want to BSY RTB? (Y/N):
```

7.2.10.6 Command syntax

BSY [<streamName>]

7.2.10.7 Parameter definitions

Table 17

PARAMETER	VALUE	DEFINITION
streamName	Alphanumeric String SIZE (5) Range {AMA, OCC}	This parameter specifies the name of the stream that originates the billing data. This is a string that matches the stream name in table SDMBIL and CRSFMT on the DMS CM. If the craftsperson specifies a stream name using the SET<streamName> RMI command prior to using the BSY command, the <streamName> in the BSY command can be omitted and the stream name specified with the SET command will be used. If a stream name is entered in the BSY command, it overrides the stream name defined with the SET command. This parameter is REQUIRED if the SET command hasn't been used previously.

7.2.11 Responses

The BSY command can generate the following responses.

7.2.11.1 Response - RTB BSY

```
RTB is MANB for the stream : <StreamName>
```

Explanation:

This message is in response to a craftsperson invoking the BSY command successfully.

System action:

Prompt is returned to the craftsperson and execution of the command ends.

User action:

No action is required.

7.2.11.2 Response - RTB already MANB

```
ERROR: RTB already MANB
Command aborted.
```

Explanation:

This message is generated in response to a craftsperson invoking the BSY command whose status has already turned off.

System action:

The command is aborted, execution ends and the prompt is returned to craftsperson

User action:

No user action is required.

7.2.11.3 Response - Stream doesn't use RFTPW protocol

```
Stream <streamname>: The following protocol is not supported by RTB-
<protocol>.
```

```
Try changing the protocol to RFTPW using the "Change" command in the
BILLMTC;SCHEDULE level.
```

Explanation:

This message is generated in response to a craftsperson invoking the BSY command for a offline stream that doesn't use RFTPW protocol. There are two scenarios in which BSY command is used generates two different outcomes. First scenario, when trying to BSY a stream whose state is INSV, no above error message is generated. As matter of fact, RTB is designed not to check Schedule tuple's protocol when bsying the in-service stream. The second scenario, when the RTB state is OFFL, bsying the stream will generate the above error message. RTB supported only RFTPW protocol in the SDMC11 release.

System action:

Prompt is returned to craftsperson, execution of the command ends and RTB is not brought to MANB.

User action:

The craftsperson must change the protocol in the RTB schedule tuple to RFTPW through the BILLMTC;SCHEDULE;CHANGE command before turning off the RTB session[1].

7.2.11.4 Response - Stream doesn't use DIRP file format

```
ERROR: Stream doesn't use DIRP file format.
Command aborted.
```

Explanation:

This message is generated in response to a craftsperson invoking the BSY command for a stream that doesn't use DIRP file format. RTB supports only DIRP file format in the SDMC11 release.

System action:

Prompt is returned to craftsperson, execution of the command ends and RTB is not brought to MANB.

User action:

The craftsperson must change the file format in the RTB schedule tuple to DIRP through the BILLMTC;SCHEDULE;CHANGE command before turning off the RTB session[2].

7.2.11.5 Response - RTB not configured

```
Error : RTB is not configured for the <streamname > stream.
```

Explanation:

This message is shown when this RTB has not been configured yet.

System action:

The operation is aborted.

User action:

[1]Note that this will require the stream associated with the schedule tuple to also use the DIRP file format.
[2]Note that this will require the stream associated with the schedule tuple to also use the DIRP file format.

The craft person must configure the RTB tuple by using the
BILLMTC;SCHEDULE;RTB;CONFRTB;ADD command to add a RTB
tuple.

7.2.11.6 Response - Invalid streamName

```
ERROR: Invalid Stream Name. Valid streams are
*** {<stream1, stream2...}.
Command aborted.
```

Explanation:

This message is generated in response to a craftsperson invoking the BSY
command using an invalid stream name.

System action:

Prompt is returned to craftsperson, execution of the command ends and RTB
is not turned off.

User action:

The craftsperson must re-enter the command providing a valid stream name or
use the SET command to set a default stream.

7.2.11.7 Response - Missing Stream Name

```
*** ERROR: This command requires a valid stream name as an argument
```

Explanation:

This message is in response to a craftsperson invoking the BSY command
without an argument and without setting the default stream with SET.

System action:

Prompt is returned to the craftsperson and execution of the command ends.

User action:

The craftsperson must re-enter the command providing the required argument
or must use the SET command to set a default stream before executing this
command.

7.2.12 Notes

Not applicable.

7.2.13 Examples

<u>Example - RTB BSY</u>

```
RTB
 0 Quit
 2 Set
 3
 4
 5
 6
 7 Rts
 8 Bsy
 9 Offl
10 Query
11 IPTest
12 CONFRTB
13
14
15
16
17 Help
18 Refresh
 maint
Time  17:03  > 8 OCC
```

```
RTB           Bsying a RTB stream will stop current RTB open file transfer-
              ring.
 0 Quit       Are you sure you want to turn RTB off? (Y/N): Y
 2 Set        RTB is turned off for stream : OCC
 3
 4
 5
 6
 7 Rts
 8 Bsy
 9 Offl
10 Query
11 IPTest
12 CONFRTB
13
14
15
16
17 Help
18 Refresh
 maint
Time  17:03  >
```

Example - Invalid Stream name

```
RTB
 0 Quit
 2 Set
 3
 4
 5
 6
 7 Rts
 8 Bsy
 9 Offl
10 Query
11 IPTest
12 CONFRTB
13
14
15
16
17 Help
18 Refresh
 maint
Time  17:03  > 8 AAA
```

ax1333mm.aa18

```
RTB          ERROR : Invalid stream name. Valid streams are {CDR,..}.
 0 Quit      Command aborted.
 2 Set
 3
 4
 5
 6
 7 Rts
 8 Bsy
 9 Offl
10 Query
11 IPTest
12 CONFRTB
13
14
15
16
17 Help
18 Refresh
 maint
Time  17:03  >
```

Example - Missing Stream Name

```
RTB
 0 Quit
 2 Set
 3
 4
 5
 6
 7 Rts
 8 Bsy
 9 Offl
10 Query
11 IPTest
12 CONFRTB
13
14
15
16
17 Help
18 Refresh
 maint
Time  17:03  > 8
```

```
RTB                    ERROR : This command requires a valid stream name as an argu-
 0 Quit                ment.
 2 Set
 3
 4
 5
 6
 7 Rts
 8 Bsy
 9 Offl
10 Query
11 IPTest
12 CONFRTB
13
14
15
16
17 Help
18 Refresh
 maint
Time  17:03  >
```

7.2.14 Command name - QUERY:

7.2.14.1 Command type

MENU command from the RTB level.

7.2.14.2 Command target

SDM

7.2.14.3 Command availability

RES

7.2.14.4 Command description

The Query command is used to query the status of RTB. In contrast to other RTB commands, this command doesn't depend on protocol has to be RFTPW datafilled in Schedule tuple.

7.2.14.5 Warning

There are no warnings associated with this command.

7.2.14.6 Command syntax

QUERY [<streamName>]

7.2.14.7 Parameter definitions

Table 18

PARAMETER	VALUE	DEFINITION
streamName	Alphanumeric String SIZE (4) Range - max of 16 strings	This parameter specifies the name of the stream that originates the billing data. This is a string that matches the stream name in table SDMBIL and CRSFMT on the DMS CM. If the craftsperson specifies a default stream name using the SET <streamName> RMI command prior to using the QUERY command, the <streamName> in the QUERY command can be omitted and the default stream name will be used instead. If a stream name is entered in the QUERY command, it overrides the default stream name defined with the SET command. This parameter is REQUIRED if the SET command hasn't been used previously.

7.2.15 Responses

The QUERY command can generate the following responses.

7.2.15.1 Response - QUERY

```
RTB <stream> stream status: <Status>
```

The status could be either INSV, SYSB, MANB or OFFL.

Explanation:

This message is in response to a craftsperson invoking the QUERY command successfully.

System action:

User action:

No action is required.

7.2.15.2 Response - Unable to connect to RTB server

```
ERROR: Unable to connect to RTB server.
Command aborted.
```

Explanation:

This message is generated in response to a craftsperson invoking the QUERY when the RTB server process has failed.

System action:

Prompt is returned to craftsperson, execution of the command ends and no status is shown.

User action:

The RTB server will attempt to restart itself whenever it fails. Reissuing the command may work if RTB has restarted itself. However, if RTB fails to restart, contact the next level of support.

7.2.15.3 Response - RTB not configured

```
Error : RTB is not configured for the <streamname > stream.
```

Explanation:

This message is shown when this RTB has not been configured yet.

System action:

The operation is aborted.

User action:

The craft person must configure the RTB tuple by using the
BILLMTC;SCHEDULE;RTB;CONFRTB;ADD command to add a RTB
tuple.

7.2.15.4 Response - Invalid streamName

```
ERROR: Invalid Stream Name. Valid streams are
*** {<stream1, stream2...}.
Command aborted.
```

Explanation:

This message is generated in response to a craftsperson invoking the QUERY
command using an invalid stream name.

System action:

Prompt is returned to craftsperson and execution of the command ends.

User action:

The craftsperson must re-enter the command providing a valid stream name.

7.2.15.5 Response - Missing Stream Name

```
*** ERROR: This command requires a valid stream name as an argument.
*** Command aborted.
```

Explanation:

This message is in response to a craftsperson invoking the QUERY command
without an argument or without setting the default stream using the SET
command.

System action:

Prompt is returned to the craftsperson and execution of the command ends.

User action:

The craftsperson must re-enter the command providing the required argument
or must use the SET command to set the stream.

7.2.16 Notes

Not applicable.

7.2.17 Examples

<u>Example - QUERY</u>

```
RTB
 0 Quit
 2 Set
 3
 4
 5
 6
 7 Rts
 8 Bsy
 9 Offl
10 Query
11 IPTest
12 CONFRTB
13
14
15
16
17 Help
18 Refresh
 maint
Time  17:03  > 10 OCC
```

```
                    RTB OCC stream status: RTS
RTB
 0 Quit
 2 Set
 3
 4
 5
 6
 7 Rts
 8 Bsy
 9 Offl
10 Query
11 IPTest
12 CONFRTB
13
14
15
16
17 Help
18 Refresh
 maint
Time  17:03  >
```

ax1333mm.aa18

Example - Invalid Stream name

```
RTB
 0 Quit
 2 Set
 3
 4
 5
 6
 7 Rts
 8 Bsy
 9 Offl
10 Query
11 IPTest
12 CONFRTB
13
14
15
16
17 Help
18 Refresh
 maint
Time  17:03  > 10 AAA
```

```
                ERROR : Invalid stream name. Valid streams are {OCC,..}.
RTB             Command aborted.
 0 Quit
 2 Set
 3
 4
 5
 6
 7 Rts
 8 Bsy
 9 Offl
10 Query
11 IPTest
12 CONFRTB
13
14
15
16
17 Help
18 Refresh
 maint
Time  17:03  >
```

Example - Missing Stream Name

```
RTB
 0 Quit
 2 Set
 3
 4
 5
 6
 7 Rts
 8 Bsy
 9 Offl
10 Query
11 IPTest
12 CONFRTB
13
14
15
16
17 Help
18 Refresh
 maint
Time  17:03  > 10
```

```
RTB                  ERROR : This command requires a valid stream name as an argu-
 0 Quit              ment.
 2 Set
 3
 4
 5
 6
 7 Rts
 8 Bsy
 9 Offl
10 Query
11 IPTest
12 CONFRTB
13
14
15
16
17 Help
18 Refresh
 maint
Time  17:03  >
```

ax1333mm.aa18

7.2.18 Command name - IPTEST:

7.2.18.1 Command type

MENU command from the RTB level.

7.2.18.2 Command target

SDM

7.2.18.3 Command availability

RES

7.2.18.4 Command description

The IPTEST command is used to ping the downstream processor. Like the RTB QUERY command, IPTEST command doesn't depend on protocol has to be RFTPW datafilled in Schedule tuple.

7.2.18.5 Warning

There are no warnings associated with this command.

7.2.18.6 Command syntax

IPTEST [<streamName>]

7.2.18.7 Parameter definitions

Table 19

PARAMETER	VALUE	DEFINITION
streamName	Alphanumeric String SIZE (4) Range - max of 16 strings	This parameter specifies the name of the stream that originates the billing data. This is a string that matches the stream name in table SDMBIL and CRSFMT on the DMS CM. If the craftsperson specifies a default stream name using the SET<streamName> command prior to using the TEST command, the <streamName> in the TEST command can be omitted and the default stream name will be used instead. If a stream name is entered in the RTS command, it overrides the stream name defined with the SET command. This parameter is REQUIRED if the SET command hasn't been used previously.

7.2.19 Responses

The IPTEST command can generate the following responses.

7.2.19.1 Response - IPTEST

```
Ping downstream processor: 64 bytes packets
64 bytes from 47.41.128.114: icmp_seq=0. time=19. ms
64 bytes from 47.41.128.114: icmp_seq=1. time=2. ms
64 bytes from 47.41.128.114: icmp_seq=2. time=2. ms
64 bytes from 47.41.128.114: icmp_seq=3. time=2. ms
64 bytes from 47.41.128.114: icmp_seq=4. time=2. ms
64 bytes from 47.41.128.114: icmp_seq=5. time=2. ms
64 bytes from 47.41.128.114: icmp_seq=6. time=2. ms
64 bytes from 47.41.128.114: icmp_seq=7. time=2. ms
64 bytes from 47.41.128.114: icmp_seq=8. time=2. ms
64 bytes from 47.41.128.114: icmp_seq=9. time=2. ms
----47.41.128.114 PING Statistics----
10 packets transmitted, 10 packets received, 0% packet loss
round-trip min/avg/max = 2/2/3 ms
```

Note: The number of bytes, downstream processor IP address and time in the above response of the IPTEST command are used here as an example only. The data may not look the same when actually issuing the IPTEST command.

Explanation:

This message is in response to a craftsperson invoking the IPTEST command successfully.

System action:

User action:

No action is required.

7.2.19.2 Response - RTB not configured

```
Error : RTB is not configured for the <streamname > stream.
```

Explanation:

This message is shown when this RTB has not been configured yet.

System action:

The operation is aborted.

User action:

The craft person must configure the RTB tuple by using the BILLMTC;SCHEDULE;RTB;CONFRTB;ADD command to add a RTB tuple.

7.2.19.3 Response - Invalid streamName

```
ERROR: Invalid Stream Name. Valid streams are
*** {<stream1, stream2...}.
Command aborted.
```

Explanation:

This message is generated in response to a craftsperson invoking the IPTEST command using an invalid stream name.

System action:

Prompt is returned to the craftsperson and the execution of the command ends.

User action:

The craftsperson must re-enter the command providing a valid stream name.

7.2.19.4 Response - Missing Stream Name

```
*** ERROR: This command requires a valid stream name as an argument.
*** Command aborted
```

Explanation:

This message is in response to a craftsperson invoking the IPTEST command without an argument. An argument is required at the command line if the SET command hasn't been used previously.

System action:

Prompt is returned to the craftsperson and the execution of the command ends.

User action:

The craftsperson must re-enter the command providing the required argument or must use the SET command to set the default stream.

7.2.20 Notes

Not applicable.

7.2.21 Examples

<u>Example - IPTEST</u>

```
RTB
 0 Quit
 2 Set
 3
 4
 5
 6
 7 Rts
 8 Bsy
 9 Offl
10 Query
11 IPTest
12 CONFRTB
13
14
15
16
17 Help
18 Refresh
 maint
Time  17:03  > 11 OCC
```

```
RTB                  Ping downstream processor: 64 bytes packets
 0 Quit              64 bytes from 47.41.128.114: icmp_seq=0. time=19. ms
 2 Set               64 bytes from 47.41.128.114: icmp_seq=1. time=2. ms
 3                   64 bytes from 47.41.128.114: icmp_seq=2. time=2. ms
 4                   64 bytes from 47.41.128.114: icmp_seq=3. time=2. ms
 5                   64 bytes from 47.41.128.114: icmp_seq=4. time=2. ms
 6                   64 bytes from 47.41.128.114: icmp_seq=5. time=2. ms
 7 Rts               64 bytes from 47.41.128.114: icmp_seq=6. time=2. ms
 8 Bsy               64 bytes from 47.41.128.114: icmp_seq=7. time=2. ms
 9 Offl              64 bytes from 47.41.128.114: icmp_seq=8. time=2. ms
10 Query             64 bytes from 47.41.128.114: icmp_seq=9. time=2. ms
11 IPTest            ----47.41.128.114 PING Statistics----
12 CONFRTB           10 packets transmitted, 10 packets received, 0% packet loss
13                   round-trip min/avg/max = 2/2/3 ms
14
15
16
17 Help
18 Refresh
 maint
Time  17:03  >
```

Example - Invalid Stream name

```
RTB
 0 Quit
 2 Set
 3
 4
 5
 6
 7 Rts
 8 Bsy
 9 Offl
10 Query
11 IPTest
12 CONFRTB
13
14
15
16
17 Help
18 Refresh
 maint
Time  17:03  > 10 AAA
```

```
                ERROR : Invalid stream name. Valid streams are {OCC,..}.
RTB             Command aborted.
 0 Quit
 2 Set
 3
 4
 5
 6
 7 Rts
 8 Bsy
 9 Offl
10 Query
11 IPTest
12 CONFRTB
13
14
15
16
17 Help
18 Refresh
 maint
Time  17:03  >
```

Example - Insufficient argument

```
RTB
 0 Quit
 2 Set
 3
 4
 5
 6
 7 Rts
 8 Bsy
 9 Offl
10 Query
11 IPTest
12 CONFRTB
13
14
15
16
17 Help
18 Refresh
 maint
Time   17:03  > 10
```

```
RTB                ERROR : This command requires a valid stream name as an argu-
 0 Quit            ment.
 2 Set
 3
 4
 5
 6
 7 Rts
 8 Bsy
 9 Offl
10 Query
11 IPTest
12 CONFRTB
13
14
15
16
17 Help
18 Refresh
 maint
Time   17:03  >
```

7.2.22 Accessing directory - Configure RTB (CONFRTB):

The CONFRTB directory resides under the RTB directory, which in turn can be seen by issuing BILLMTC;SCHEDULE.

The CONFRTB directory provides the craftsperson with access to commands that can configure RTB for a billing stream.

7.2.22.1 To access

The craftsperson must enter the BILLMTC;SCHEDULE;RTB menu in the BILLMTC RMI then type either CONFRTB or the corresponding number in the BILLMTC;SCHEDULE;RTB menu.

In SDMC11, RTBMaxConsecutiveFailures[1] is the only parameter that needs to be configured. The CONFRTB add, change and delete commands all work in a prompt mode.

7.2.22.2 To return to CI

The craftsperson enters 'quit' or the corresponding number from the RTB menu to go back to the RTB menu.

The craftsperson has the option of entering 'quit all' to exit all menus.

7.2.23 CONFRTB Commands

Table 20   Table of CONFRTB Commands

COMMAND NAME	NEW, CHANGED OR DELETED	NEW NAME (if renamed)	DIRECTORY NAME
Set	NEW		BILLMTC->SCHEDULE->RTB->CONF
Add	NEW		BILLMTC->SCHEDULE->RTB->CONF
Del	NEW		BILLMTC->SCHEDULE->RTB->CONF
Change	NEW		BILLMTC->SCHEDULE->RTB->CONF

[1]In normal operation, open files will only be sent to the Primary IP destination specified in the Schedule tuple. If a problem occurs with that destination and RTB fails, the current file will be closed, a major alarm raised and a corresponding log printed. RTB will be retried on the next open file(s) based on the value of MaxRTBConsecutiveFailures (range from 0 to 10, default 3). Each time there is a failure, the current file will be closed and RTB attempted on the next file until RTBMaxConsecutiveFailures is reached. At that point, critical alarm will be raised, a log will be printed and RTB will be moved to the SYSB state. While in this state, RTB will not be active.

7.2.24 Command name - SET:

7.2.24.1 Command type

MENU command from the RTB level.

7.2.24.2 Command target

SDM

7.2.24.3 Command availability

RES

7.2.24.4 Command description

The SET command is used to set the RTB session to a default stream or, if no stream is provided, to clear the previously set default stream.

This command is useful because when a default stream name is set, other RTB commands will automatically use the default stream if one is not explicitly specified for that command.

7.2.24.5 Warning

There are no warnings associated with this command.

7.2.24.6 Command syntax

SET {stream} <streamName>

7.2.24.7 Parameter definitions

Table 21

PARAMETER	VALUE	DEFINITION
streamName	Alphanumeric String SIZE (4) Range - max of 16 streams	This REQUIRED parameter specifies the name of the stream that originates the billing data. This is a string that matches the stream name in table SDMBIL and CRSFMT on the DMS CM. If the stream name is not specified the default stream name is cleared. Subsequent commands in the RTB map level requiring a stream will use the default stream unless a stream is explicitly specified for that command.

7.2.25 Responses

The SET command can generate the following responses.

7.2.25.1 Response - SET

RTB stream context now set to: <StreamName>

Explanation:

This message is in response to a craftsperson invoking the SET command successfully.

System action:

User action:

No action is required.

7.2.25.2 Response - Invalid streamName

```
ERROR: Invalid Stream Name. Valid streams are
*** {<stream1, stream2...}.
Command aborted.
```

Explanation:

This message is generated in response to a craftsperson invoking the SET command using an invalid stream name.

System action:

Prompt is returned to craftsperson, execution of the command ends and the SET command terminates execution.

User action:

The craftsperson must re-enter the command providing a valid stream name.

7.2.25.3 Response - Invalid keyword

```
Invalid keyword. Valid keywords for set are: {stream }.
```

Explanation:

This message is generated in response to a craftsperson invoking the SET command without the keyword "stream".

System action:

Prompt is returned to craftsperson, execution of the command ends and the SET command terminates execution.

User action:

The craftsperson must re-enter the command providing a keyword stream.

7.2.25.4 Response - Clear stream context

```
*** Stream context is now cleared.
```

Explanation:

This message is in response to a craftsperson invoking the SET command without an argument.

System action:

User action:

No user action is required.

Notes

Not applicable.

7.2.26 Examples

<u>**Example - SET**</u>

```
CONFRTB
 0 Quit
 2 Set
 3
 4
 5
 6
 7 Add
 8 Change
 9 Delete
10
11
12
13
14
15
16
17 Help
18 Refresh
 maint
Time  17:03  > 2 stream OCC
```

```
                     RTB stream context now set to : OCC
CONFRTB
 0 Quit
 2 Set
 3
 4
 5
 6
 7 Add
 8 Change
 9 Delete
10
11
12
13
14
15
16
17 Help
18 Refresh
 maint
Time  17:03  >
```

Example - Invalid Stream name

```
CONFRTB
 0 Quit
 2 Set
 3
 4
 5
 6
 7 Add
 8 Change
 9 Delete
10
11
12
13
14
15
16
17 Help
18 Refresh
 maint
Time  17:03  > 2 stream AAA
```

```
CONFRTB        ERROR : Invalid stream name. Valid streams are {OCC,..}.
0 Quit         Command aborted.
2 Set
3
4
5
6
7 Add
8 Change
9 Delete
10
11
12
13
14
15
16
17 Help
18 Refresh
 maint
Time  17:03  >
```

Example - Clear stream context

```
CONFRTB
0 Quit
2 Set
3
4
5
6
7 Add
8 Change
9 Delete
10
11
12
13
14
15
16
17 Help
18 Refresh
 maint
Time  17:03  > 2 stream
```

```
CONFRTB        RTB stream context is now clear.
 0 Quit
 2 Set
 3
 4
 5
 6
 7 Add
 8 Change
 9 Delete
10
11
12
13
14
15
16
17 Help
18 Refresh
 maint
Time  17:03  >
```

7.2.27   Command name - Add:

7.2.27.1 Command type

MENU command from the RTB level.

7.2.27.2 Command target

SDM

7.2.27.3 Command availability

RES

7.2.27.4 Command Description

This command creates a new RTB billing configuration for a stream.

7.2.27.5 Warning

There are no warnings associated with this command.

7.2.27.6 Command syntax

Add [<StreamName>]

Please enter the RTBMaxConsecutiveFailures (0..10)[3]

7.2.27.7 Parameter definitions

Table 22

PARAMETER	VALUE	DEFINITION
streamName	Alphanumeric String SIZE (5) Range {AMA, OCC}	This parameter specifies the name of the stream that originates the billing data. This is a string that matches the stream name in table SDMBIL and CRSFMT on the DMS CM. If the craftsperson specifies a stream name using the SET<streamName> RMI command prior to using the CONFIG command, the <streamName> in the CONFIG command can be omitted and the stream name specified with the SET command will be used. If a stream name is entered in the CONFIG command, it overrides the stream name defined with the SET command. This parameter is REQUIRED if the SET command hasn't been used previously.
RTBMaxConsecutiveFailures	Numeric Range <0 to 10>. Default is 3	This number defines the maximum retry attempt before RTB raises a critical alarm.

7.2.28 Responses

The Add command can generate the following responses.

7.2.28.1 Response - Invalid streamName

```
ERROR: Invalid Stream Name. Valid streams are
*** {<stream1, stream2...}.
Command aborted.
```

Explanation:

This message is generated in response to a craftsperson invoking the ADD command using an invalid stream name.

System action:

Prompt is returned to the craftsperson and the execution of the command ends.

User action:

The craftsperson must re-enter the command providing a valid stream name.

7.2.28.2 Response - No schedule tuple

```
Stream <streamName>: There is no Schedule Tuple. Try "Add" from the
BILLMTC;SCHEDULE level.
```

Explanation:

This message is generated in response to a craftsperson invoking the ADD command while schedule tuple is not present.

System action:

Prompt is returned to the craftsperson and the execution of the command ends.

User action:

The craftsperson must add the schedule tuple by using Add command from the BILLMTC;SCHEDULE.

7.2.28.3 Response - Stream doesn't use RFTPW protocol

```
Stream <streamname>: The following protocol is not supported by RTB-
<protocol>.
```

```
Try changing the protocol to RFTPW using the "Change" command in the
BILLMTC;SCHEDULE level.
```

Explanation:

This message is generated in response to a craftsperson invoking the CONFRTB ADD command for a stream that doesn't use RFTPW protocol. RTB supported only RFTPW protocol in the SDMC11 release.

System action:

Prompt is returned to craftsperson, execution of the command ends and RTB is not configured.

User action:

The craftsperson must change the protocol in the RTB schedule tuple to RFTPW through the BILLMTC;SCHEDULE;CHANGE command before configuring the RTB stream[1].

7.2.28.4 Response - Stream doesn't use DIRP file format

```
Stream <streamname> : The following file format is not supported by
RTB - <fileformat>.
```

Explanation:

This message is generated in response to a craftsperson invoking the CONFRTB ADD command for a stream that doesn't use DIRP file format. RTB supports only DIRP file format in the SDMC11 release.

System action:

Prompt is returned to craftsperson, execution of the command ends and RTB tuple is not configured.

User action:

The craftsperson must change the file format in the RTB schedule tuple to DIRP through the BILLMTC;SCHEDULE;CHANGE command before configuring the RTB stream[2].

7.2.28.5 Response - Missing Stream Name

```
*** ERROR: This command requires a valid stream as an argument.
*** Command aborted
```

Explanation:

---

[1]Note that this will require the stream associated with the schedule tuple to also use the DIRP file format.
[2]Note that this will require the stream associated with the schedule tuple to also use the DIRP file format.

This message is in response to a craftsperson invoking the ADD command without an argument. An argument is required at the command line if the SET command hasn't been used previously.

System action:

Prompt is returned to the craftsperson and the execution of the command ends.

User action:

The craftsperson must re-enter the command providing the required argument or must use the SET command to set the default stream.

7.2.28.6 Response

```
You entered:
RTB Max Consecutive Failures : <User's entered value>
Commit ? [Save] {Save Edit Abort}:
```

Explanation:

This message is shown at the end after the user has entered all the valid values. It allows the user to review the contents of additions made to the stream and edit, save or abort the operation.

System action:

If the user enters "save", the information entered by the user is saved. On an "edit", the system takes the user through all the fields again. An "abort" will cancel the whole operation and it will not change anything in the system.

User action:

User must enter Save, Edit or Abort.

7.2.28.7 Response - Save.

```
RTBMaxConsecutiveFailures has been saved.
```

Explanation:

This message informs the user that the values entered are now saved. The configuration of the stream was successful.

System action:

The command is about to exit.

User action:

None, this is information for the user.

7.2.28.8 Response - Abort

```
User accepts default value of RTBMaxConsecutiveFailures =
<defaultvalue>.
```

Explanation:

This message is displayed to the user when the user types "abort" at the prompt for MaxRTBConsecutiveFailures.

System action:

Command execution stops.

User action:

No user action is required.

Notes

Not applicable.

7.2.28.9 Response - RTB already configured

```
RTB already configured for stream : <streamname>
```

Explanation:

This message is shown when this RTB has already been configured before.

System action:

The operation is aborted.

User action:

Not applicable.

7.2.29 Examples

Example - ADD

```
CONFRTB      Please enter a value for RTBMaxConsecutiveFailures
0 Quit       (0..10)[3]. 5

2 Set        You entered
3            RTBMaxConsecutiveFailures-> 5
4
5            Commit ? [Save] {Save Edit Abort}: save
6            RTBMaxConsecutiveFailures has been saved
7 Add
8 Change
9 Delete
10
11
12
13
14
15
16
17 Help
18 Refresh
 maint
Time  17:03  > 7 OCC
```

7.2.30 Command name - CHANGE:

7.2.30.1 Command type

MENU command from the RTB level.

7.2.30.2 Command target

SDM

7.2.30.3 Command availability

RES

7.2.30.4 Command Description

This command modifies an existing RTB billing configuration for a stream.

7.2.30.5 Warning

There are no warnings associated with this command.

7.2.30.6 Command syntax

Change [<StreamName>]
Please enter the RTBMaxConsecutiveFailures (0..10).[5]

7.2.30.7 Parameter definitions

Table 23

PARAMETER	VALUE	DEFINITION
streamName	Alphanumeric String SIZE (5) Range {AMA, OCC}	This parameter specifies the name of the stream that originates the billing data. This is a string that matches the stream name in table SDMBIL and CRSFMT on the DMS CM. If the craftsperson specifies a stream name using the SET<streamName> RMI command prior to using the CONFIG command, the <streamName> in the CONFIG command can be omitted and the stream name specified with the SET command will be used. If a stream name is entered in the CONFIG command, it overrides the stream name defined with the SET command. This parameter is REQUIRED if the SET command hasn't been used previously.
RTBMaxConsecutiveFailures	Numeric Range <0 to 10>. Default is 3	This number defines the maximum retry attempt before RTB raises a critical alarm.

7.2.31 Responses

The Change command can generate the following responses.

7.2.31.1 Response - Invalid streamName

```
ERROR: Invalid Stream Name. Valid streams are
*** {<stream1, stream2...}.
Command aborted.
```

Explanation:

This message is generated in response to a craftsperson invoking the
CHANGE command using an invalid stream name.

System action:

Prompt is returned to the craftsperson and the execution of the command ends.

User action:

The craftsperson must re-enter the command providing a valid stream name.

7.2.31.2 Response - Missing Stream Name

```
*** ERROR: This command requires a valid stream as an argument.
*** Command aborted
```

Explanation:

This message is in response to a craftsperson invoking the CHANGE
command without an argument. An argument is required at the command line
if the SET command hasn't been used previously.

System action:

Prompt is returned to the craftsperson and the execution of the command ends.

User action:

The craftsperson must re-enter the command providing the required argument
or must use the SET command to set the default stream.

7.2.31.3 Response

```
You entered:
RTB Max Consecutive Failures : <User's entered value>
Commit ? [Save] {Save Edit Abort}:
```

Explanation:

This message is shown at the end after the user has entered all the valid values. It allows the user to review the contents of additions made to the stream and edit, save or abort the operation.

System action:

If the user enters "save", the information entered by the user is saved. On an "edit", the system takes the user through all the fields again. An "abort" will cancel the whole operation and it will not change anything in the system.

User action:

User must enter Save, Edit or Abort.

7.2.31.4 Response - Save.

```
RTBMaxConsecutiveFailures has been changed
```

Explanation:

This message informs the user that the values entered are now saved. The configuration of the stream was successful.

System action:

The command is about to exit.

User action:

None, this is information for the user.

7.2.31.5 Response - Abort

```
User accepts default value of RTBMaxConsecutiveFailures =
<defaultvalue>.
```

Explanation:

This message is displayed to the user when the user types "abort" at the prompt for MaxRTBConsecutiveFailures.

System action:

Command execution stops.

User action:

No user action is required.

Notes

Not applicable.

7.2.31.6 Response - RTB not configured

```
RTB is not configured for stream : <streamname>
Try the "Add" command. Operation aborted.
```

Explanation:

This message is shown when this RTB has not been configured yet.

System action:

The operation is aborted.

User action:

Not applicable.

7.2.32 **Examples**

Example - CHANGE

```
CONFRTB    Please enter a value for RTBMaxConsecutiveFailures
0 Quit     (0..10): 5
2 Set      You entered
3          RTBMaxConsecutiveFailures-> 5
4
5          Commit ? [Save] {Save Edit Abort}: save
6          RTBMaxConsecutiveFailures has been changed
7 Add
8 Change
9 Delete
10
11
12
13
14
15
16
17 Help
18 Refresh
 maint
Time  17:03  > 8 OCC
```

7.2.33 **Command name - DELETE:**

7.2.33.1 **Command type**

MENU command from the RTB level.

7.2.33.2 **Command target**

SDM

7.2.33.3 **Command availability**

RES

7.2.33.4 **Command Description**

This command deletes an existing RTB billing configuration for a stream.

7.2.33.5 **Warning**

There are no warnings associated with this command.

7.2.33.6 Command syntax

Delete [<StreamName>]
7.2.33.7 Parameter definitions

Table 24

PARAMETER	VALUE	DEFINITION
streamName	Alphanumeric String SIZE (5) Range {AMA, OCC}	This parameter specifies the name of the stream that originates the billing data.
		This is a string that matches the stream name in table SDMBIL and CRSFMT on the DMS CM.
		If the craftsperson specifies a stream name using the SET<streamName> RMI command prior to using the CONFIG command, the <streamName> in the CONFIG command can be omitted and the stream name specified with the SET command will be used. If a stream name is entered in the CONFIG command, it overrides the stream name defined with the SET command.
		This parameter is REQUIRED if the SET command hasn't been used previously.

7.2.34 Responses

The Delete command can generate the following responses.

7.2.34.1 Response - Invalid streamName

```
ERROR: Invalid Stream Name. Valid streams are
*** {<stream1, stream2...}.
Command aborted.
```

Explanation:

This message is generated in response to a craftsperson invoking the DELETE command using an invalid stream name.

System action:

Prompt is returned to the craftsperson and the execution of the command ends.

User action:

The craftsperson must re-enter the command providing a valid stream name.

7.2.34.2 Response - Missing Stream Name

```
*** ERROR: This command requires a valid stream as an argument.
*** Command aborted
```

Explanation:

This message is in response to a craftsperson invoking the DELETE command without an argument. An argument is required at the command line if the SET command hasn't been used previously.

System action:

Prompt is returned to the craftsperson and the execution of the command ends.

User action:

The craftsperson must re-enter the command providing the required argument or must use the SET command to set the default stream.

7.2.34.3 Response

```
Are you sure you want to delete the RTB tuple? (Y/N).
```

Explanation:

This message is shown at the end after the user has entered delete but before the configuration is actually removed.

System action:

If the user enters "yes", the configuration is deleted. If "no" is entered, the command is cancelled.

User action:

User must enter Yes, No

7.2.34.4 Response - Yes.

```
Delete RTB tuple has completed.
```

Explanation:

This message informs the user that Real Time Billing has been removed from the stream.

System action:

The command is about to exit.

User action:

None, this is information for the user.

7.2.34.5 Response - No

```
Delete operation has been cancelled.
```

Explanation:

This message is displayed to the user when the user types "N" at the prompt for "Yes/No".

System action:

Command execution stops.

User action:

No user action is required.

Notes

Not applicable.

7.2.34.6 Response - RTB not configured

```
RTB is not configured for stream : <streamname>
```

```
Operation aborted.
```

Explanation:

This message is shown when this RTB has not been configured yet.

System action:

The operation is aborted.

User action:

Not applicable.

7.2.34.7 Response - Invalid state for RTB tuple deletion

```
Stream <streamname> : The requested action is not valid in the current
state.
```

Explanation:

This message is shown when this RTB state either in RTS or MANB state. The deletion of RTB tuple is allowed only when RTB state=OFFL.

System action:

The operation is aborted.

User action:

Not applicable.

7.2.35 Examples

Example - Delete

```
CONFRTB      Are you sure you want to delete RTB tuple {Yes/No}
 0 Quit
 2 Set       Yes
 3
             Delete operation has been completed.
 4
 5
 6
 7 Add
 8 Change
 9 Delete
10
11
12
13
14
15
16
17 Help
18 Refresh
 maint
Time  17:03  > 9 OCC
```

Section 10: Product Description - BAF in DIRP File Format

10.1 Feature ID and Title

A60007455 BAF in DIRP File Format

10.2 Introduction

10.2.1 Background and Business Rationale

Several SDMC customers require the functionality to store Bellcore AMA Format (BAF) records in DIRP file format. This feature is useful to SDMC customers who generate AMA billing for local calls and whose downstream systems currently support DIRP formatted files.

10.2.2 Synopsis and Scope

This feature adds support to the SBA for storage of Bellcore AMA Format (BAF) records into Device Independent Recording Package (DIRP) formatted files.

The SBA already has the ability (provided by AF7546 *SuperNode Billing Application (SBA) Base Billing Platform, and* AF7547, *BAF/ AMADNS Decoupling from Base Billing)* to receive buffers containing these records from the switch. The support delivered by this feature includes the ability to extract the received BAF records into DIRP files.

This feature is compatible with A60007444, *Multi-Destination per Billing Stream*.

10.3 Functional Description

To support the storage of BAF records to a DIRP formatted file, the following SBA component needs to be refined to provide the functionality:

- File Manager Component. The file manager accepts the BAF records and stores them in DIRP formatted billing files.

10.3.1 Components Interaction

The following diagram illustrates an architectural view and the interactions between different billing components. The shaded boxes indicate the components implemented to support BAF record storage to DIRP formatted files on the SDM.

Figure 9 SBA Architectural Overview and DIRP BAF File Manager Component

Host Office Collector (HOC)

BAF DIRP Billing Files (Ethernet)

SDM

SBA Application (SDM-Side Components)

BAF Specific Application (SDM-Side Components)

SBAStreams

DIRP BAF Stream

DIRP BAF File Manager

BAF DIRP Billing Files

BAF Records (DS512 Link)

Callp — raw billing data

Billing Process (AMAPROC)

BAF Records

SBA Application (CM-Side Components)

BAF Specific Application (CM-Side Components)

CM

Legend:

Existing appl./SBA application

DIRP BAF appl./base SBA refined components

10.3.2 DIRP BAF File Manager

The functional component supporting the BAF record storage into DIRP formatted files is described in this section.

The DIRP File Manager component has been updated to support BAF records currently received by the SDM. These BAF records are stored in a DIRP formatted billing file.

In addition, two non-call processing event records are also supported by the SDM. Please refer to "Table 4 DIRP BAF Non-Call Supported Records" on page 153.

10.3.2.1 Event Records

Table 4, "DIRP BAF Non-Call Supported Records," on page 153 lists all of the non-call records, created by the SDM, currently supported for the DIRP formatted billing file. Current BAF records received by the SDM are still generated by the CM. The creation of the Transfer In, and Transfer Out records is handled by the DIRP BAF File Manager component.

Table 4 DIRP BAF Non-Call Supported Records

Record format name	Structure Code	Generated
Transfer In Record (start of file)	09013	SDM
Transfer Out Record (end of file)	09014	SDM

The supported non-call BAF records created by the SDM are the Transfer In (File Start - Structure Code 09013) record, and the Transfer Out (File End - Structure Code 09014). The information contained in each of these records has not been changed by this feature.

Each of these records has an associated Record Descriptor Word (RDW) indicating the size of the record. Note that the size of this field is four bytes. The first two bytes of the RDW record the total number of bytes in the record (including the RDW), expressed as a 16-bit binary number. The eight most significant bits of the 16-bit binary number are recorded in the first byte; the eight least significant bits are recorded in the second byte. The last two bytes of the RDW are recorded as hexadecimal zeros.

Record Descriptor Word - 4 bytes

15 | ....| 8 |...........................| 0
size of record in bytes
0

The Transfer In (File Start - Structure Code 09013) record is the first record inserted at the beginning of every DIRP file by this feature. The table below identifies all field data in this record. The starting byte position in the record for each field is shown along with the length of the field in nibbles. The bit map layout of this structure code is also below. Each row in the bit map represents one byte (2 nibbles) of information.

Transfer In (File Start - Structure Code 09013) - 32 bytes

Field	Position (bytes)	Length (nibbles)
Hexadecimal Identifier **(HID)**	0	2
Structure Code **(SC)**	1	6
Call Type **(CT)**	4	4
Sensor Type **(ST)**	6	4
Sensor ID **(SI)**	8	8
Recording Office Type **(RT)**	12	4
Recording Office ID **(RI)**	14	8
Date **(DT)**	18	6
Time **(TM)**	21	8
Recorder generic issue **(RGI)**	25	6
Type of Tracer **(TT)**	28	4

Field	Position (bytes)	Length (nibbles)
File Sequence Number **(FSN)**	30	4

nibble (4) bits	nibble (4) bits
HID: hex A	hex A
SC: 0	9
0	1
3	hex C
CT: 0	9
2	hex C
ST: 0	0
0	hex C
SI: 0	0
0	0
0	0
0	hex C
RT: 0	0
0	hex C
RI: 0	0
0	0
0	0
0	hex C
DT: Last digit of Year (0-9)	Month tens digit (0-1)
Month ones digit (0-9)	Day tens digit (0-3)
Day ones digit (0-9)	hex C
TM: Hours tens digit (0-2)	Hours ones digit (0-9)

nibble (4) bits	nibble (4) bits
Minutes tens digit (0-5)	Minutes ones digit (0-9)
Seconds tens digit (0-5)	Seconds ones digit (0-9)
Tenths of Seconds (0-9)	hex C
RGI: 0	0
0	0
0	hex C
TT: 0	0
7	hex C
FSN: 0	0
0	hex C

The Transfer Out(File End- Structure Code 09014) record is the last record inserted at the end of every DIRP file by this feature. The table below identifies all field data in this record. The starting byte position in the record for each field is shown along with the length of the field in nibbles. The bit map layout of this structure code is also below. Each row in the bit map represents one byte (2 nibbles) of information.

Transfer Out (File End- Structure Code 09014) - 39 bytes

Field	Position (bytes)	Length (nibbles)
Hexadecimal Identifier **(HID)**	0	2
Structure Code **(SC)**	1	6
Call Type **(CT)**	4	4
Sensor Type **(ST)**	6	4
Sensor ID **(SI)**	8	8

Field	Position (bytes)	Length (nibbles)
Recording Office Type **(RT)**	12	4
Recording Office ID **(RI)**	14	8
Date **(DT)**	18	6
Time **(TM)**	21	8
Recorder generic issue **(RGI)**	25	6
Type of Tracer **(TT)**	28	4
File Sequence Number **(FSN)**	30	4
Record Count **(RC)**	32	8
Block Count **(BC)**	36	6

nibble (4) bits	nibble (4) bits
HID: hex A	hex A
SC: 0	9
0	1
4	hex C
CT: 0	9
2	hex C
ST: 0	0
0	hex C
SI: 0	0
0	0
0	0
0	hex C

nibble (4) bits	nibble (4) bits
RT: 0	0
0	hex C
RI: 0	0
0	0
0	0
0	hex C
DT: Last digit of Year (0-9)	Month tens digit (0-1)
Month ones digit (0-9)	Day tens digit (0-3)
Day ones digit (0-9)	hex C
TM: Hours tens digit (0-2)	Hours ones digit (0-9)
Minutes tens digit (0-5)	Minutes ones digit (0-9)
Seconds tens digit(0-5)	Seconds ones digit (0-9)
Tenths of Seconds (0-9)	hex C
RGI: 0	0
0	0
0	hex C
TT: 0	0
7	hex C
FSN: 0	0
0	hex C
RC: 0	0
0	0
0	0
0	hex C
BC: 0	0
0	0

nibble (4) bits	nibble (4) bits
0	hex C

10.4 File Structure Layout

The file structure created by the DIRP BAF File Manager on the SDM uses variable 2048 - byte blocking. Please refer to "Figure 10 DIRP files" on page 160.
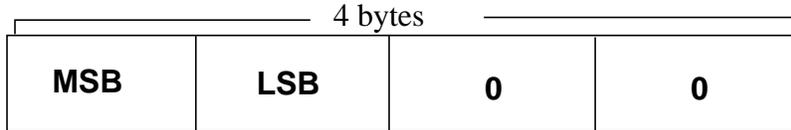
Figure 10 DIRP files

DIRP-format files are arranged in 2048-byte blocks, each padded by hex AA filler bytes.
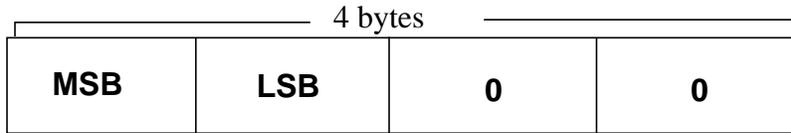
Following the leading Block Descriptor Word (BDW), Record Descriptor Word/Record (RDW/REC) pairs are inserted into the 2048-byte blocks. When insufficient room remains at the end of a block to accept the next RDW/REC pair, the block is padded to its end with the hex AA bytes, and a new block is created with a leading BDW, followed by RDW/REC pairs.

The drawing below depicts a BAF DIRP file.

Block Descriptor Word (BDW)

	4 bytes		
MSB	**LSB**	**0**	**0**

Record Descriptor Word (RDW)

	4 bytes		
MSB	**LSB**	**0**	**0**

Typical BAF DIRP variable 2K block format

			2048 bytes			
BDW	RDW	REC	....	RDW	REC	AAAAAAAA
. . . and very many more blocks . . .						
BDW	RDW	REC		RDW	REC	AAAAAAAAA
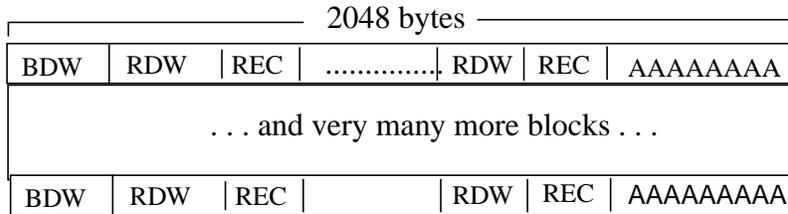
10.5 Limitations and Restrictions

In addition to restrictions and limitations documented in AF7546, *SuperNode Billing Application (SBA) Base Billing Platform*, and AF7547, *BAF/AMADNS Decoupling From Base Billing,* the following restrictions and/or limitations also apply.

- Only BAF records currently handled by feature AF7547, *BAF/ AMADNS Decoupling From Base Billing* will be stored into the DIRP formatted file.

- The following obsolete BAF Tracer structure codes will not be created by the SDM: 09046 - OM Tracer (non-local office), and 09049 - OM Tracer (local office).

- Support does not exist for CDR to BAF interaction with DIRP formatting.

10.6 Man Machine Interface (MMI)

N/A

10.7 Log Changes

N/A

10.8 Alarm Changes (AL)

N/A

10.9 MIB Changes

N/A

10.10 DMS Operational Measurement Changes (OM)

N/A

10.11 DMS Office Parameter Changes (OP)

N/A

Section 8: Product Description - Support for DMS-GSP CDRs on SDM

8.1 Feature ID and Title

A60007440 Support for DMS-GSP CDRs on SDM.

8.2 Introduction

8.2.1 Background and Business Rationale

This feature brings SDM SBA billing-record handling to the DMS-GSP switch. SBA is a market successor to the FP Billing Server, and, in combination with other SDM features, provides a unified off-switch OAM&P/ billing platform. This reduces processing load on the switch, increasing its potential useful bandwidth. It also contributes to an evolutionary path to future technologies useful to DMS-GSP customers.

8.2.2 Synopsis and Scope

The feature adds support to the SBA for the call records and switch related records from a DMS Global Services Platform (DMS-GSP) switch listed in Table 1, *"Supported records"* on page 74. (Please see NTP-297-2651-119, *DMS-Global Services Platform Billing Records Reference Manual* for the supported records' layouts and full descriptions.) Please note that the table does not include the Emergency Start Record (ESR) and the System Restart Record (SRR). The conditions that would generate these records do not occur on the SDM. (The SRR is supported by this feature if received from the switch, but is not generated on the SDM.)

This feature neither includes nor requires any CM development. It runs on the SDM and has the following responsibilities.

- receiving DMS-GSP-specific Call Data Record (CDR) and associated extension records and supported switch-generated[1] Switch Event Records (SERs) from the DMS-GSP switch;

- generating those supported SERs which are file-specific;

- storing the records into files in the DIRP format[2]; and

- searching and displaying records in the generated DIRP billing files.

---

[1]Please see Table 1, *"Supported records"* on page 74 for the source of a given supported SER.
[2]There is no plan to support AMADNS files in this feature.

Table 1   Supported records

Record format names	Code (HEX, 1 byte)	Generated by	Size (bytes)
DMS-GSP CDR	F0	DMS-GSP	128
DMS-GSP CDR INAP extension record	F2	DMS-GSP	128
DMS-GSP CDR IAA extension record[a]	F3	DMS-GSP	128
DMS-GSP Block Header Record (BHR)	F1	SDM	64
DMS-GSP Graceful Start Record (GSR)	FA	SDM	64
DMS-GSP Graceful End Record (GER)	FB	SDM	64
DMS-GSP Clock Change Record (CCR)	FE	DMS-GSP	64
DMS-GSP Filler Switch Record (FSR)	EA	SDM	64
DMS-GSP Hourly Switch Record (HSR)	EB	DMS-GSP	64
DMS-GSP Daylight Change Switch Record (DSR)	EC	DMS-GSP	64
DMS-GSP End Block Record (EBR)	ED	SDM	64
DMS-GSP Date Change Record (DCR)	ED	DMS-GSP	64
DMS-GSP Blank Switch Record (BSR)	EF	SDM	64

a. This extension record is created for the Inter-Administrative Accounting (IAA) services feature (AX1282.)

This feature is compatible with feature 60006224, *Support for DMS-300 CDRS on SDM,* to provide complete CDR handling for billing streams of a DMS-GSP/DMS-300 combination switch, but is not dependent on delivery of that feature for its operation. It is similarly compatible with but independent of AX1333, *Real-Time Billing Delivery* (RTB). This feature is derived from AF7546, *SuperNode Billing Application (SBA) Base Billing Platform.* It is dependent on AR1103, *SDM Table Access Interface* (TAI), to retrieve the SWITCH_ID office parameter from table OFCVAR on the switch. The switch ID is needed to create some of the supported event records.

8.3 Functional Description

The following SBA components are created or modified to provide the DMS-GSP functionality.

• The stream component receives the billing and event records generated by the switch, generates file-specific event-records as required, and assembles records into files. This component is enhanced to handle the supported GSP billing and event records.

- The DMS-GSP Field Database defines the fields that are contained in the supported records. This information is required by the record parsing engine within SBA as well as by the AMADUMP application.

- AMADUMP is enhanced to support GSP records and to provide open file search of the supported records.

8.3.1 Component interaction

The following diagram illustrates an architectural view and the interactions between different billing components. The shaded boxes indicate the components implemented to support DMS-GSP billing records on the SDM.
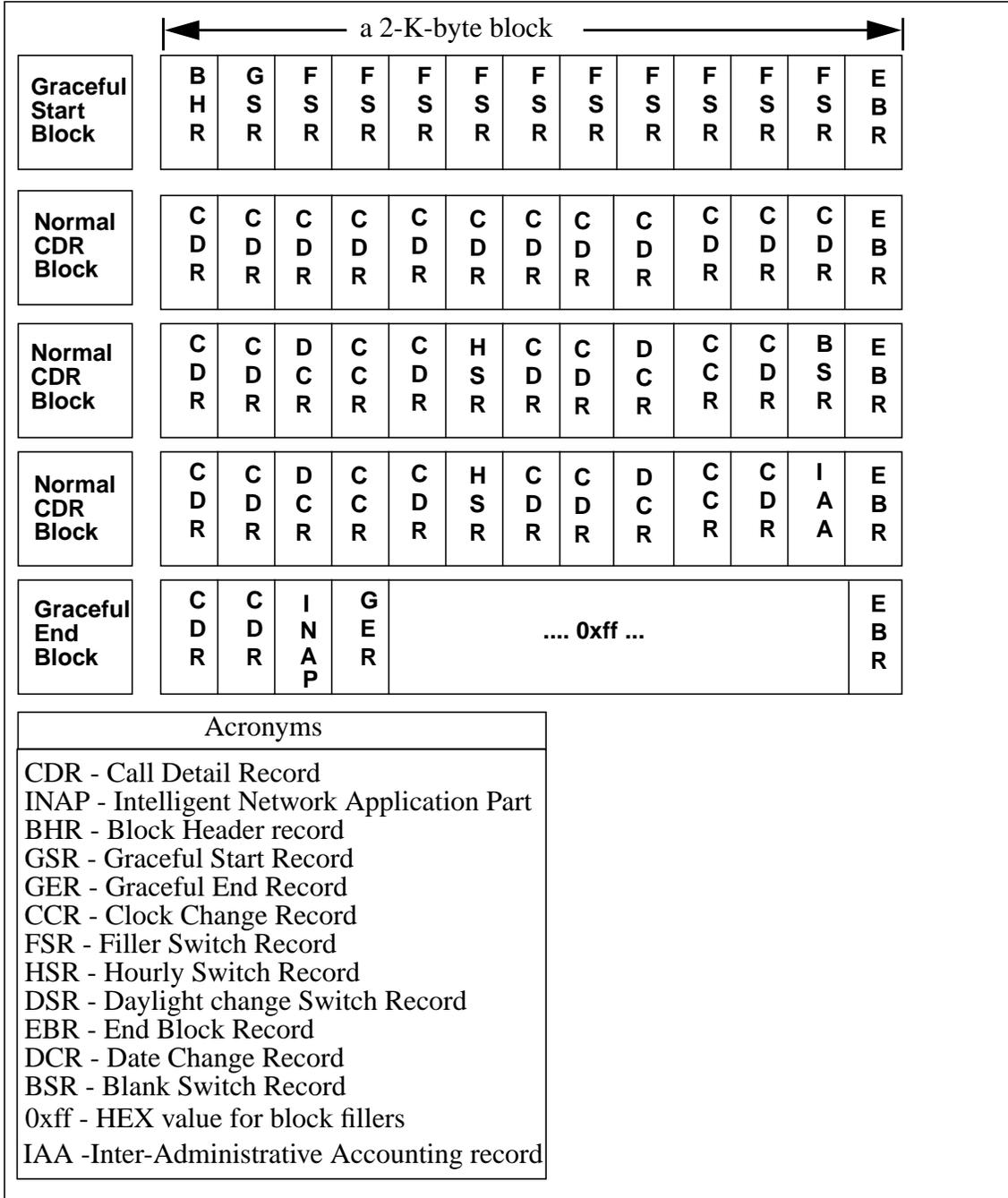
Figure 1 SBA Architectural Overview and GSP-CDR Feature Components
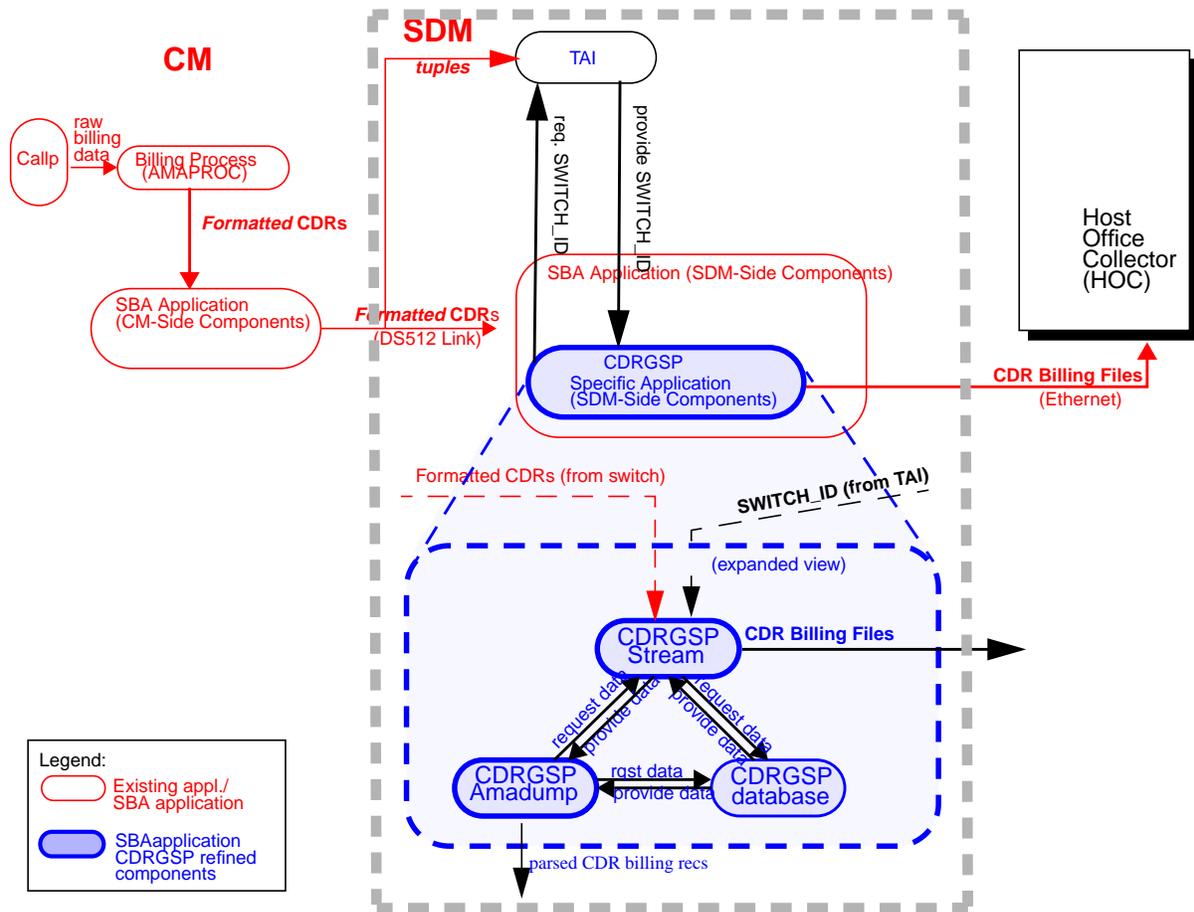
8.4 File Structure Layout

Files generated by the SDM for the DMS-GSP product do not contain ESRs or SRRs, but are otherwise identical in structure and format to CM-generated files, and parse similarly.

Figure 2 Typical DMS-GSP DIRP File

	a 2-K-byte block												
Graceful Start Block	B H R	G S R	F S R	F S R	F S R	F S R	F S R	F S R	F S R	F S R	F S R	F S R	E B R
Normal CDR Block	C D R	C D R	C D R	C D R	C D R	C D R	C D R	C D R	C D R	C D R	C D R	C D R	E B R
Normal CDR Block	C D R	C D R	D C R	C C R	C D R	H S R	C D R	C D R	D C R	C C R	C D R	B S R	E B R
Normal CDR Block	C D R	C D R	D C R	C C R	C D R	H S R	C D R	C D R	D C R	C C R	C D R	I A A	E B R
Graceful End Block	C D R	C D R	I N A P	G E R	.... 0xff ...								E B R

Acronyms
CDR - Call Detail Record
INAP - Intelligent Network Application Part
BHR - Block Header record
GSR - Graceful Start Record
GER - Graceful End Record
CCR - Clock Change Record
FSR - Filler Switch Record
HSR - Hourly Switch Record
DSR - Daylight change Switch Record
EBR - End Block Record
DCR - Date Change Record
BSR - Blank Switch Record
0xff - HEX value for block fillers
IAA -Inter-Administrative Accounting record

8.5 Limitations and Restrictions

This feature has the same restrictions and limitations documented in AF7546, AX1333 (RTB), and AR1103 (TAI). Additional restrictions and limitations follow:

- The feature supports only the DIRP file format and the records listed in Table 1, *"Supported records"* on page 74.

- Craftspersons are not prevented from configuring the stream to support the AMADNS fileformat. If the stream is configured with a file format other than DIRP, this feature will not work.

- A DMS-GSP software release based on CSP10 or later is required on the CM.

- When AMADUMP is used on an open file, those complete records in the file at time of invocation will be visible. Other records may become visible while AMADUMP is running, depending on activity in the billing stream, but the user may need to reissue the "dump" command to see them.

- The SWITCH_ID value on the switch is propagated to the SDM via the TAI. Because of inherent latencies in the TAI, synchrony of this value (the NODE_ID field in CDRs and SERs) between CDRs and SERs in a single file cannot be guaranteed[1].

- The content of any one file generated on the SDM cannot be guaranteed to be identical to the content of a file generated by DIRP on the switch, even though the net set of CDRs and extension records written to files *IS* identical. That is, neither the partitioning of records into files, nor the value of file-specific sequence numbers assigned to individual records, can be guaranteed to be identical.

- This feature only supports GSP06, GSP07, and GSP08 releases under the following conditions. If any of these conditions is not met, the feature only supports GSP06 billing record formats, because the Record Parsing Engine (RPE) database was created based on GSP06.

  1. The CDR record format is not changed. That means its number of fields and field definitions are the same as in GSP06.

  2. The SER record formats are not changed. That means the number of fields and field definitions in each are the same as in GSP06.

  3. The headers of extension records (INAP and IAA) are not changed. That means a) the INAP header (REC_CODE, FCINUM, RECODE_ID, LAST, SEQ_NUM) format and b) the IAA header (REC_CODE, PARMNUM, EXTNUM, LAST, SEQ_NUM, LENGTH) format are the same as in GSP06.

- This feature does not support the TOPS Detail Record (TDR).

---

[1]Neither can it be guaranteed under DIRP. The only way this feature COULD make such a guarantee would be to parse each CDR for the NODE_ID field and force a rotation if this value changed. This would incur unacceptable real-time costs. Moreover, the change of a switch ID is a very infrequent occurrence, accompanying a network reconfiguration or a new installation, that would not be expected in normal operation.

- Due to the record-format (CDR250) conflict, this feature cannot run concurrently with the Ax0820 feature (supporting the UCS CDRs). The DMS-GSP switch uses the same record-format as the DMS-250 switch doses. Therefore, objects supporting either the DMS-GSP or DMS-250 switch based on the condition specified in the MIB are created at a given time. The flag indicates the type of a switch (DMS-GSP or DMS-250).

8.6 Man Machine Interface (MMI) Changes

8.6.1 Commands

This section describes only the sub-commands that are added and/or modified to support GSP AMADUMP. For other supported AMADUMP sub-commands, refer to the MM section of AF7546 Supernode Billing Application located in PLS DOC.

COMMAND NAME	NEW, CHANGED OR DELETED	NEW NAME (if renamed)	DIRECTORY NAME
LISTFIELDS	changed		BILLMTC -> TOOLS
REINIT	new		BILLMTC -> TOOLS

8.6.1.1 Sub-Command Name: listfields

8.6.1.1.1 Description

This sub-command is specifically modified for GSP AMADUMP. When invoked, it will provide the craftsperson with a list of the fieldnames that the craftsperson can use when adding a filter string. This sub-command displays a list of field names for CDRs, or for supported records. In addition to field names, listfields lists the field formats.

8.6.1.1.2 Syntax

LISTFIELDS <record format>

8.6.1.1.3 Parameters

PARAMETER	VALUE	DEFINITION
record format	CDR, IAA, INAP, all	By providing a value for the record format, only fields specific to that format are displayed. "all" signifies all the fields with their respective formats are displayed. IAA and INAP values are added for the GSP feature.

8.6.1.2 Sub-Command Name: reinit

8.6.1.2.1 Description

This command is new specifically for GSP AMADUMP. It will query and re-initialize all search parameters currently defined with the exception of the search keys defined by the filter command.

8.6.1.2.2 Syntax

REINIT <flag>

8.6.1.2.3 Parameters

PARAMETER	VALUE	DEFINITION
flag	< -q >	Querying all search parameters.
	< -r >	Reinitializing all search parameters.

This feature provides no other human-interface changes.

8.7 Log Changes

N/A

8.8 Alarm Changes

N/A

8.9 MIB changes

To activate the GSP CDR feature, the MIB TypeOfCDR must be set appropriately from the BILLMTC directory:

Command:

mib cdr set TypeOfCDR GSP

8.10 DMS Operational Measurement Changes (OM)

N/A

8.11 DMS Office Parameter Changes (OP)

N/A

Section 9: Product Description - Multi-destination per Billing Stream

9.1 Feature ID and Title

A60007444 Multi-destination per Billing Stream.

9.2 Introduction

9.2.1 Background and Business Rationale

SDMC customers want the SuperNode Data Manager (SDM) to provide the ability to push billing data from an unfiltered billing stream to multiple destinations. Support is required for scheduled billing data transfer as well as realtime billing data transfer. SDMC customers also want the capability to allow multiple external clients to register for billing data transfer pushes on a per-stream basis through a new SDM registration interface. Support for a minimum of three (3) destinations per stream is required (e.g., SDM Event Record Manager, customer's billing OSS, customer's fraud detection OSS).

9.2.2 Synopsis and Scope

This document assumes that the reader is familiar with feature AF7546, SuperNode Billing Application (SBA) Base Billing Platform (in the SDMC10 release); AX1333, Real Time Billing Delivery (RTB) (in the SDMC11 release); and with feature AX1341 SDM OM Delivery Proxy Server/Client (in the SDMC11 release).

Currently, the pushed (outbound file transfer) transfer of billing data can only be initiated from the Remote Management Interface (RMI). There is also only one conceptual destination for each stream. Each destination corresponds to a schedule tuple, and although the schedule tuple contains a primary and secondary address, the conceptual destination is still the downstream billing processor (DPMS).

Scheduled billing file transfer and Real Time Billing (RTB) is enhanced to allow for multiple destinations for a single billing stream. Multi-destination capability can be active on multiple billing streams. The billing data sent to the downstream processor(s) is unfiltered. SDM multi-destination capability will allow multiple external clients to register for pushes of billing data on a per-stream basis, through the use of a new registration interface added by this feature (60007444).

Multi-destination capability can be activated by logging onto the SDM's RMI and datafilling scheduled billing file transfer and/or RTB as desired. Security is provided by limiting access to the SDM.

A remote registration interface is also included to allow applications such as the ERM (Event Record Manager) to register for pushes of billing data over the Ethernet Lan without logging in to the SDM. Security for this functionality will be provided by the customer's DCE (Distributed Computing Environment) network. It should be noted that since the Remote Registration System (RRS) depends on DCE to provide security, DCE is required by the RRS.

DCE is not required by the SBA application, and no dependency is created by this feature. The portions of the remote registration interface that provide for a secure login to the SDM are packaged in the Remote Registration System(RRS) application and not in the SBA application. Both the SBA and RRS applications must be installed for the remote registration for billing data to function.

For this feature the OM Proxy Access(OPA) application is renamed Remote Registration System(RRS) and enhanced to provide remote registration for both the SBA and OM Data Delivery (OMDD) applications. In this and future releases the new RRS application obsoletes the use of the OPA application. The OM remote registration can operate without SBA being installed.

The RTB application is delivered in the SDMC load and the RRS application that provides remote registration for the SBA is also included in SDMC due to its dependence on RTB. Therefore, this feature's enhancements to RTB and the new remote registration interface to SBA are only available in the SDMC load.

This feature, provides multi-destination capability for scheduled billing file transfer in the SDMN12 and SDMC12 loads. Multi-destination capability for RTB and the remote registration interface to SBA will only be available in the SDMC12 load.

9.3 Functional Description

This feature can be divided into two basic components: multi-destination support and the remote registration interface. Multi-destination support can be further broken down into support for scheduled billing file transfer and support for RTB.
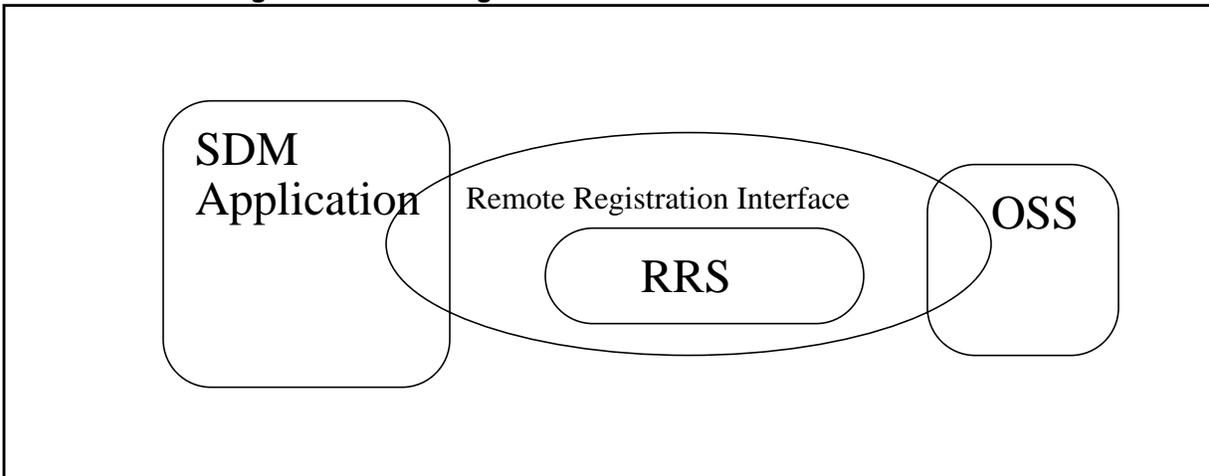
The changes to scheduled billing file transfer involve changes to the schedule tuple that allow the datafilling of multiple destinations per stream. This functionality is added to both the SDMN12 and SDMC12 loads.

RTB is enhanced to allow multiple instances to be active on a single billing stream. This functionality will be available in the SDMC12 load only.

The Remote Registration System(RRS) allows a downstream collector to register for billing data remotely. The RRS, as a replacement for the OPA, is still used in conjunction with the OMDD application to provide remote registration for OM data. OMDD12 and later releases will support remote registration with the RRS only.

Remote registration requires development in the OSS to collect data from the user and format messages to be sent to the RRS. In the SDMC12 release the only OSS to support remote registration is the Eventure Record Manager (This development is done in Eventure Record Manager 2.0.). Other OSSs wishing to make use of this functionality will be required to undertake the necessary development on their platform. Please refer to "Figure 8 Remote Registration Interface" on page 83.

Figure 8 Remote Registration Interface

9.3.1 Multi-destination Scheduled Billing File Transfer

The file transfer subsystem uses a schedule tuple to specify scheduled file transfers. These tuples contain all the data needed to execute a file transfer event. In previous releases the key to this tuple was a combination of stream and file format. Although the craftsperson was able to datafill a primary and alternate address, the alternate address would only be used if the file could not be transmitted to the primary address. A schedule tuple would therefore correspond to a single (redundant) destination pair.

This feature adds a destination string as a third part of the schedule tuple key. For each combination of these three fields (stream, file format, and destination) different file transfer parameters can be specified (Table 1, "Schedule tuple parms," on page 84). There can only be one tuple for each unique combination of stream, file format, and destination.

Table 1 Schedule tuple parms

Field Names	Descriptions
Stream	Part of the key which identifies the stream for which this schedule tuple applies.
File_Format_Type	Part of the key which identifies the file format that the stream is using.
Destination	**This is a new part of the key added by this feature. It is a string between one and fifteen alpha-numeric characters long that represents the destination of this schedule tuple.**
Protocol	Specifies the file transfer protocol that this scheduled event uses to transfer billing files.
Primary_Destination	The primary IP address to which billing files are sent.
Primary_Port	The port on which the remote application is listening on the primary remote client.
Alternate_Destination	If there is a second IP address to send data to this destination (the remote application has redundancy), it is specified here. NOTE: This address is only used if billing data can not be sent to the primary address. NOTE: RTB does not support retrying the file transfer in the event of a failure, so RTB never uses this information.
Alternate_Port	The port on which the remote application is listening on the alternate remote client. RTB does not support retrying the file transfer in the event of a failure, so RTB never uses this information.
Start_Time	The time of day to start triggering file transfer events to this destination using a 24 hour clock.
Stop_Time	The time of day to stop triggering file transfer events to this destination using a 24 hour clock.
Interval	The number of minutes between each file transfer event triggered between the start time and the stop time.
Remote_Storage_Directory	The directory to store billing files in the remote client machine.
Remote_Login	The login id to use when making the FTP connection to the remote client.
Remote_Password	The password to be used by FTP when logging into the remote client.

Table 1 Schedule tuple parms

Timeout	Time in seconds that the SDM waits for a response from FTP, except during the actual file transfer.
Maximum_Retries	The number of times the SDM retries the file transfer in the event an error is encountered. Scheduled file transfer will toggle between the primary and alternate destination addresses during these retries. NOTE: RTB does not support this type of retry behavior. Instead RTB closes the current file and attempts transfer on the next file.
Retry_Wait_Time	Number of seconds to wait before retrying the file transfer. NOTE: RTB does not support this type of retry behavior. Instead RTB closes the current file and attempts transfer on the next file.
File_Extension	This extension, if specified, is added to the name of the billing file on the downstream processor.
Field_Separator	Character used to separate the file name from the extension.
Active	Indicates if this schedule tuple is active. The file transfer event described by the tuple is triggered only if the schedule tuple is active.

The figure "Multiple destinations" on page 86 depicts a possible scenario with multi-destination. In this figure billing data for a stream (OCC) is sent to three destinations. Two of these destinations, DOWNSTREAM and FRAUDDETECTOR, have built-in redundancy and if one of the machines goes down, the other can take over the processing of billing data. The destination OSS does not have this redundancy.

Table 2, "Example Multi-destination datafill," on page 86 gives an example of the datafill for this scenario. The values of interest in this table are the key values (stream, file format and destination) and the values for *Primary_Destination* and *Alternate_Destination*. The other values would be selected based on the requirements of the individual destinations.

Figure 3   Multiple destinations
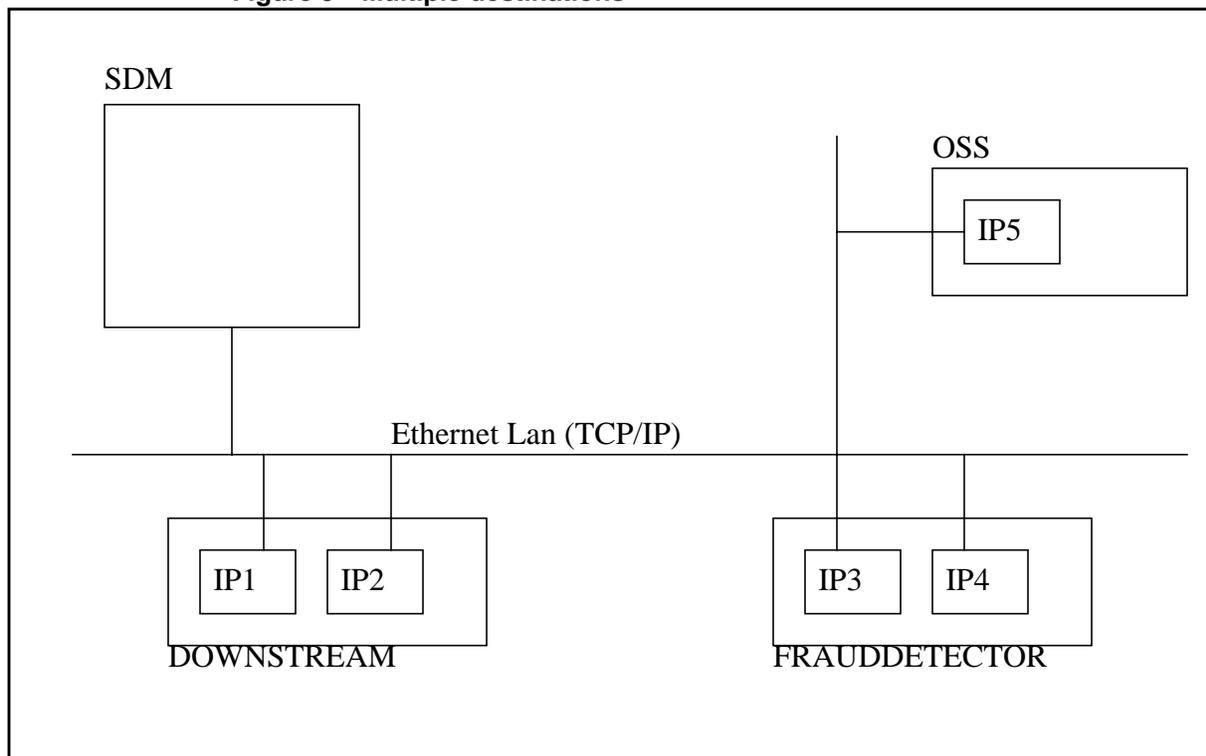
Table 2 Example Multi-destination datafill

FIELD NAMES	OSS DATA	DOWNSTREAM DATA	FRAUDDETECTOR DATA
Stream	OCC	OCC	OCC
File_Format_Type	DIRP	DIRP	DIRP
Destination	**OSS**	**DOWNSTREAM**	**FRAUDDETECTOR**
Protocol	RFTPW	RFTPW	RFTPW
Primary_Destination	IP5	IP1	IP3
Primary_Port	21	21	21
Alternate_Destination	IP5	IP2	IP4
Alternate_Port	21	21	21
Start_Time	0:00	0:00	0:00
Stop_Time	23:59	23:59	23:59
Interval	5	5	5
Remote_Storage_Directory	/pathname	/pathname	/pathname

Table 2 Example Multi-destination datafill

Remote_Login	myLogin	myLogin	myLogin
Remote_Password	password	password	password
Timeout	30	30	30
Maximum_Retries	3	3	3
Retry_Wait_Time	1	1	1
File_Extension			
Field_Separator	.	.	.
Active	Yes	Yes	Yes

9.3.2 Multi-destination RTB

RTB transfers the currently open billing file as the records are written to disk, providing minimal delay from the time the record was first created to the time the billing data is transferred to the downstream destination.

In previous releases, the key to the RTB tuple was the stream name. With this key it was possible to match the RTB tuple to a schedule tuple since a stream only supports one file format. In this feature the file format and the destination are added to the key. This allows the RTB tuples to map to a single schedule tuple and provides the ability to run multiple instances of RTB on a single stream.

Many of the data items in the schedule tuple are used by RTB to perform the file transfer. For RTB to be activated requires that a schedule tuple be present, that the file format be DIRP, and that the protocol must be RFTPW. The schedule tuples in the illustration above would support RTB.

To activate RTB it is necessary to datafill an RTB tuple (see Table 3, "RTB Tuple," on page 87 for a description of the fields). The key to the tuple must correspond to an existing schedule tuple key. Once the RTB tuple which describes an RTB instance is datafilled, the RTB instance can be "BSYed" (busyed) and "RTSed" (returned to service).

Table 3 RTB Tuple

Field Names	Descriptions
Stream Name	Name of the stream to which this tuple applies. Used in conjunction with the file format and the destination to match to a specific schedule tuple.

Table 3 RTB Tuple

File Format	Name of the file format to which this tuple applies. Used in conjunction with the stream and the destination to match to a specific schedule tuple.
Destination	Name of the destination to which this tuple applies. Used in conjunction with the stream and the file format to match to a specific schedule tuple.
MaxConsecutiveFailures	When RTB encounters an error transferring a billing file, the file will be closed and RTB will attempt to transfer the next open billing file. This parm controls how many times this can happen on consecutive files before the RTB instance is placed in the SYSB state.

9.3.3 Sendfile

Sendfile is enhanced to allow a destination to be specified on the command line. In the event that a destination is not specified the files will be sent to all the destinations datafilled for that stream, whether or not they are active.

9.3.4 Multi-destination Interactions

Scheduled billing file transfer events occur only if the tuple is active (the active field set). Activating a schedule tuple notifies the file manager that the scheduled file transfer event specified by this schedule tuple is interested in processing billing files in the closedNotSent state. Once the scheduled file transfer event has finished processing the billing file (sending it downstream), the file manager is notified that file transfer is no longer interested in the file. When all the parties registered with the file manager as being interested in the file have declared themselves complete, the file manager changes the state of the file to closedSent making the file available for deletion. Therefore, if multiple schedule tuples are active, the file does not make the state transition to closedSent until the file has been transferred to all the destinations that have an active schedule tuple.

Usage Notes:

• Schedule Tuple Active Restriction

It is essential that all destinations that require guaranteed receipt of all billing data have an active schedule tuple corresponding to that destination. Having an active tuple insures that the file remains on the disk in the closedNotSent state until it has been successfully transferred.

This is important to RTB. For example, if RTB were active on two destinations A and B without the schedule tuple being active and the file

transfer to destination A failed, the file transfer to B could still complete successfully and the file would transition to the closedSent state without ever being transferred to destination A. If, however the schedule tuples had been active, the file would remain in the closedNotSent state until the new scheduled file transfer event, at which time the file would be transferred to destination A and transition to the closedSent state.

Note: Files will remain in the closedNotSent state until they have been transferred to all active destinations. This means that if one destination is unable to transfer the files and the problem is not corrected, the files will accumulate until the SDM disk is full and the stream will go into backup. If a file has already been sent to all but one of the active destinations and the state transition is being blocked by one active destination, this destination can be made inactive and the file will transition to closedSent. However, if there is only one destination, settting that destination inactive will not cause a state transition. The AMABACKUP utility can also be used to force a state transition.

Having the schedule tuple active and RTB INSV does not result in the file being transmitted twice. The scheduled file transfer event can detect that the file was successfully transferred by RTB and indicate to the file manager that it has completed processing the file without retransmitting the file to the same downstream processor.

- Schedule tuple must be datafilled for RTB to be configured and activated.

  For an RTB instance to be started, a corresponding schedule tuple must already be datafilled. RTB uses information in the schedule tuple to execute its own file transfer events.

- RTB causes a file rotation if an error occurs.

  An error occurring in RTB causes the billing file for the stream to rotate even if there is more than one RTB instance transferring files for that stream (billing is being sent to more than one destination).

  Note: This feature does not alter the behavior of AMABACKUP. Files backedup to tape using AMABACKUP will still be force to the closedSent state.

9.3.5 Remote Registration System

The Remote Registration System accepts formatted messages which can manipulate both the scheduled file transfer and RTB subsystems. Messages are provided to perform all the actions available at the RMI.

The RRS requires SDMC12 or later releases of SBA and OM Data Delivery (OMDD) to function.

This application provides remote registration access to the ERM for OMDD and SBA. There are no installation dependencies between OMDD, SBA, and RRS.

These applications can be installed in any order, but Nortel Networks recommends that the RRS be in the MANBSY state while registered applications are being installed. If a registered application is installed while the RRS is in service, a temporary loss of service will be experienced.

SBA can be installed without the RRS and functions normally except that the registered OSS can not register remotely for billing data. The same is true with OMDD.

The RRS application replaces the OPA. It is strongly recommended that an OPA already on the SDM be uninstalled. These two applications (OPA and RRS) can, however, both be installed and running.

9.4 File Structure Layout

N/A

9.5 Limitations and Restrictions

All limitations and restrictions from features AF7546 (SuperNode Billing Application (SBA) Base Billing Platform), AX1333 (Real Time Billing Delivery), and ERM feature restrictions are still in effect unless specifically stated otherwise. The following additional restrictions apply to this feature:

- To ensure that all billing data is transferred to a specific destination, it is necessary that the corresponding schedule tuple be active. For more information see "Multi-destination Interactions" on page 88.

- An error occurring in RTB causes the billing file for the stream to rotate even if there is another RTB instance transferring files for that stream (billing is being sent to more than one destination).

- Use of the RRS requires DCE.

- The RRS requires SDMC12 or later releases of SBA and OMDD to function.

- It is critical that multiple destinations on the same stream for either scheduled transfers or real time billing must NOT have the same downstream IP address and directory. This is to prevent multiple FTP transfers from overwriting the same file.

9.6 Man Machine Interface (MMI)

The following section documents the changes to the schedule, sendfile and RTB commands plus the new responses. For more complete details, please refer to the other released SBA base and RTB documents.

9.6.1 RTB Commands
Table 2   Table of CONFRTB Commands

COMMAND NAME	NEW, CHANGED OR DELETED	NEW NAME (if renamed)	DIRECTORY NAME
RTS	CHANGED		BILLMTC->SCHEDULE->RTB-
BSY	CHANGED		BILLMTC->SCHEDULE->RTB
OFFL	CHANGED		BILLMTC->SCHEDULE->RTB
IPTEST	CHANGED		BILLMTC->SCHEDULE->RTB
QUERY	CHANGED		BILLMTC->SCHEDULE->RTB

9.6.1.1 Command: RTB_RTS

9.6.1.1.1 Command description
The RTS command is used to return RTB to service for a stream.

9.6.1.1.2 Command syntax
RTS [<streamName>] **<fileformat> <destination>**

9.6.1.1.3 Qualifications and warnings
There are no warnings associated with this command.

9.6.1.1.4 New parameter definitions

Table 3

PARAMETER	VALUE	DEFINITION
fileformat	Alphanumeric String Range {Dirp}	This is required parameter which is part of the new RTB tuple. This parameter identifies the file format type of a stream. The value of this parameter combines with the value of stream name and destination acts as key to the RTB tuple.
destination	Alphanumeric String SIZE(15)	This parameter specifies the name of the destination to which the bill files will be sent to. The value of this parameter combined with the value of stream name and file format acts as key to the RTB tuple.

9.6.1.1.5 Responses
The RTS command can generate the following new responses outlined below.

Response - Missing file format

ERROR : One of the required paramter is missing. Please re-enter all the required paramters in the following order.

Usage : Command [<streamname>]<fileformat><destination>

Explanation:

This message is in response to a craftsperson invoking the RTS command without a file format argument.

System action:

Prompt is returned to the craftsperson and execution of the command ends.

User action:

The craftsperson must re-enter the command providing the all required argument. Please use help command for more details.

Response - Invalid file format

ERROR: Invalid file format. Valid file formats are {DIRP,...}.
Command aborted.

Explanation:

This message is in response to a craftsperson invoking the RTS command without a valid file format argument.

System action:

Prompt is returned to the craftsperson and execution of the command ends.

User action:

The craftsperson must re-enter the command providing the valid file format.

Response - Missing destination

ERROR : One of the required paramter is missing. Please re-enter all the required paramters in the following order.

Usage : Command [<streamname>]<fileformat><destination>

Explanation:

This message is in response to a craftsperson invoking the RTS command without a destination argument.

System action:

Prompt is returned to the craftsperson and execution of the command ends.

User action:

The craftsperson must re-enter the command providing the required all arguments.

Response - Invalid destination

Error : RTB is not configured for stream <streamName>

Explanation:

This message is in response to a craftsperson invoking the RTS command with a bad destination.

System action:

Prompt is returned to the craftsperson and execution of the command ends.

User action:

The craftsperson must re-enter the command providing the valid destination.

9.6.1.1.6 Examples

Example - Invalid file format

```
RTB
 0 Quit
 2 Set
 3
 4
 5
 6
 7 Rts
 8 Bsy
 9 Offl
10 Query
11 IPTest
12 CONFRTB
13
14
15
16
17 Help
18 Refresh
 maint
Time  17:03  > 7 OCC aaaa
```

```
                         ERROR: Invalid file format. Valid file formats are {DIRP,...}.
RTB                      Command aborted.
 0 Quit
 2 Set
 3
 4
 5
 6
 7 Rts
 8 Bsy
 9 Offl
10 Query
11 IPTest
12 CONFRTB
13
14
15
16
17 Help
18 Refresh
 maint
Time  17:03  >
```

<u>Example - Missing destination parameter</u>

```
RTB
 0 Quit
 2 Set
 3
 4
 5
 6
 7 Rts
 8 Bsy
 9 Offl
10 Query
11 IPTest
12 CONFRTB
13
14
15
16
17 Help
18 Refresh
 maint
Time  17:03  > 7 OCC dirp
```

```
RTB                  ERROR : One of the required paramter is missing. Please re-
 0 Quit              enter all the required paramters in the following order.
 2 Set               Usage : Command [<streamname>]<fileformat><destination>
 3
 4
 5
 6
 7 Rts
 8 Bsy
 9 Offl
10 Query
11 IPTest
12 CONFRTB
13
14
15
16
17 Help
18 Refresh
 maint
Time  17:03  >
```

9.6.1.2 Command name - RTB-BSY:

9.6.1.2.1 Command type

MENU command from the RTB level.

9.6.1.2.2 Command description

The BSY command is used to manual busy RTB.

9.6.1.2.3 Qualifications and Warning

Due to the destructive nature of the BSY command, the user will be prompted
for a confirmation if RTB is in service at that time.:
```
Bsying a RTB stream will stop current RTB open file transferring.
Are you sure you want to BSY RTB? (Y/N):
```

9.6.1.2.4 Command syntax

BSY [<streamName>] **<fileformat><destination>**

9.6.1.2.5 New parameter definitions

Table 4

PARAMETER	VALUE	DEFINITION
fileformat	Alphanumeric String Range {Dirp}	This is required parameter which is part of the new RTB tuple. This parameter identifies the file format type of the stream. The value of this parameter combined with the value of stream name and destination acts as key to the RTB tuple.
destination	Alphanumeric String SIZE(15)	This parameter specifies the name of the destination to which the bill files will be sent to. The value of this parameter combined with the value of stream name and file format acts as key to the RTB tuple.

9.6.1.2.6 Responses

The BSY command can generate the following new responses outlined below.

Response - Missing file format

ERROR : One of the required paramter is missing. Please re-enter all the
required paramters in the following order.

Usage : Command [<streamname>]<fileformat><destination>.

Explanation:

This message is in response to a craftsperson invoking the BSY command without a file format argument.

System action:

Prompt is returned to the craftsperson and execution of the command ends.

User action:

The craftsperson must re-enter the command providing the all required argument. Please use help command for more details.

Response - Invalid file format

ERROR: Invalid file format. Valid file formats are {DIRP,...}.
Command aborted.

Explanation:

This message is in response to a craftsperson invoking the BSY command without a valid file format argument.

System action:

Prompt is returned to the craftsperson and execution of the command ends.

User action:

The craftsperson must re-enter the command providing the valid file format.

Response - Missing destination

ERROR : One of the required paramter is missing. Please re-enter all the required paramters in the following order.

Usage : Command [<streamname>]<fileformat><destination>.

Explanation:

This message is in response to a craftsperson invoking the BSY command without a destination argument.

System action:

Prompt is returned to the craftsperson and execution of the command ends.

User action:

The craftsperson must re-enter the command providing the required all arguments.

Response - Invalid destination

Error : RTB is not configured for stream <streamName>

Explanation:

This message is in response to a craftsperson invoking the BSYcommand with a bad destination.

System action:

Prompt is returned to the craftsperson and execution of the command ends.

User action:

The craftsperson must re-enter the command providing the valid destination.

9.6.1.2.7 Notes

Not applicable.

9.6.1.2.8 Examples

Example - Invalid file format

```
RTB
 0 Quit
 2 Set
 3
 4
 5
 6
 7 Rts
 8 Bsy
 9 Offl
10 Query
11 IPTest
12 CONFRTB
13
14
15
16
17 Help
18 Refresh
 maint
Time  17:03  > 8 OCC skdjh
```

```
                    ERROR: Invalid file format. Valid file formats are {DIRP,...}.
RTB                 Command aborted.
 0 Quit
 2 Set
 3
 4
 5
 6
 7 Rts
 8 Bsy
 9 Offl
10 Query
11 IPTest
12 CONFRTB
13
14
15
16
17 Help
18 Refresh
 maint
Time  17:03  >
```

Example - Missing destination

```
RTB
 0 Quit
 2 Set
 3
 4
 5
 6
 7 Rts
 8 Bsy
 9 Offl
10 Query
11 IPTest
12 CONFRTB
13
14
15
16
17 Help
18 Refresh
 maint
Time  17:03  > 8 occ dirp
```

```
RTB                    ERROR : One of the required paramter is missing. Please re-
 0 Quit                enter all the required paramters in the following order.
 2 Set                 Usage : Command [<streamname>]<fileformat><destination>.
 3
 4
 5
 6
 7 Rts
 8 Bsy
 9 Offl
10 Query
11 IPTest
12 CONFRTB
13
14
15
16
17 Help
18 Refresh
 maint
Time  17:03  >
```

9.6.1.3 Command name - RTB-OFFL:

9.6.1.3.1 Command type

MENU command from the RTB level.

9.6.1.3.2 Command description

The OFFL command is used to take the RTB offline.

9.6.1.3.3 Qualifications and Warning
There is no warning associate with this command.

9.6.1.3.4 Command syntax

OFFL [<streamName>] **<fileformat> <destination>**

9.6.1.3.5 New parameter definitions

Table 5

PARAMETER	VALUE	DEFINITION
fileformat	Alphanumeric String Range {Dirp}	This is required parameter which is part of the new RTB tuple. This parameter identifies the file format type of the stream. The value of this parameter combined with the value of stream name and destination acts as key to the RTB tuple.
destination	Alphanumeric String SIZE(15)	This parameter specifies the name of the destination to which the bill files will be sent to. The value of this parameter combined with the value of stream name and file format acts as key to the RTB tuple.

9.6.1.3.6 Responses

The OFFL command can generate the following new responses outlined below.

Response - Missing file format

ERROR : One of the required paramter is missing. Please re-enter all the required paramters in the following order.

Usage : Command [<streamname>]<fileformat><destination>.

Explanation:

This message is in response to a craftsperson invoking the OFFL command without a file format argument.

System action:

Prompt is returned to the craftsperson and execution of the command ends.

User action:

The craftsperson must re-enter the command providing the all required argument. Please use help command for more details.

Response - Invalid file format

ERROR: Invalid file format. Valid file formats are {DIRP,...}.
Command aborted.

Explanation:

This message is in response to a craftsperson invoking the OFFL command without a valid file format argument.

System action:

Prompt is returned to the craftsperson and execution of the command ends.

User action:

The craftsperson must re-enter the command providing the valid file format.

Response - Missing destination

ERROR : One of the required paramter is missing. Please re-enter all the required paramters in the following order.

Usage : Command [<streamname>]<fileformat><destination>.

Explanation:

This message is in response to a craftsperson invoking the OFFL command without a destination argument.

System action:

Prompt is returned to the craftsperson and execution of the command ends.

User action:

The craftsperson must re-enter the command providing the required all argument.

Response - Invalid destination

Error : RTB is not configured for stream <streamName>

Explanation:

This message is in response to a craftsperson invoking the OFFL command with a bad destination.

System action:

Prompt is returned to the craftsperson and execution of the command ends.

User action:

The craftsperson must re-enter the command providing the valid destination.

9.6.1.3.7 Notes

Not applicable.

9.6.1.3.8 Examples

Example - Invalid file format

```
RTB
 0 Quit
 2 Set
 3
 4
 5
 6
 7 Rts
 8 Bsy
 9 Offl
10 Query
11 IPTest
12 CONFRTB
13
14
15
16
17 Help
18 Refresh
 maint
Time  17:03  > 9 OCC aaaa
```

```
                    ERROR: Invalid file format. Valid file formats are {DIRP,...}.
RTB                 Command aborted.
 0 Quit
 2 Set
 3
 4
 5
 6
 7 Rts
 8 Bsy
 9 Offl
10 Query
11 IPTest
12 CONFRTB
13
14
15
16
17 Help
18 Refresh
 maint
Time  17:03  >
```

Example - Missing destination

```
RTB
 0 Quit
 2 Set
 3
 4
 5
 6
 7 Rts
 8 Bsy
 9 Offl
10 Query
11 IPTest
12 CONFRTB
13
14
15
16
17 Help
18 Refresh
 maint
Time  17:03  > 9 occ dirp
```

```
RTB              ERROR : One of the required paramter is missing. Please re-
 0 Quit          enter all the required paramters in the following order.
 2 Set           Usage : Command [<streamname>]<fileformat><destination>
 3
 4
 5
 6
 7 Rts
 8 Bsy
 9 Offl
10 Query
11 IPTest
12 CONFRTB
13
14
15
16
17 Help
18 Refresh
 maint
Time  17:03  >
```

9.6.1.4 Command name - QUERY:

9.6.1.4.1 Command type

MENU command from the RTB level.

9.6.1.4.2 Command target

SDM

9.6.1.4.3 Command availability

RES

9.6.1.4.4 Command description

The Query command is used to query the status of RTB stream. In contrast to other RTB commands, this command doesn't require the protocol to be RFTPW in the Schedule tuple.

9.6.1.4.5 Warning

There are no warnings associated with this command.

9.6.1.4.6 Command syntax

QUERY [<streamName>]

9.6.1.4.7 Parameter definitions

No new parameter for RTB QUERY command.

9.6.1.4.8 Responses

The QUERY command can generate the following responses.

Response - QUERY

```
STREAM : <streamName>
Destination list:
------------------------------------------------------------
DIRP Eventure                              <status>
DIRP Eventure1                             <status>
..............
DIRP EventureN                             <status>
```

The status could be either INSV, SYSB, MANB or OFFL.

Explanation:

This message is in response to a craftsperson invoking the QUERY command successfully.

System action:

User action:

No action is required.

Response - No RTB configured tuples found

```
STREAM : <streamName>
Destination list:
-------------------------------------------------------------
There are no RTB tuples configured for this stream.
```

Explanation:

This message is in response to a craftsperson invoking the QUERY command when no RTB tuple has been configured yet.

System action:

User action:

User could use CONFRTB:Add command to configure RTB tuples.

9.6.1.4.9 Notes

Not applicable.

9.6.1.4.10 Examples

Example - QUERY

```
RTB
 0 Quit
 2 Set
 3
 4
 5
 6
 7 Rts
 8 Bsy
 9 Offl
10 Query
11 IPTest
12 CONFRTB
13
14
15
16
17 Help
18 Refresh
 maint
Time  17:03  > 10 OCC
```

```
               Stream Occ:
RTB            Destination list :
 0 Quit        --------------------------------------------------------------
 2 Set         DIRP EVENTURE                                        MANB
 3             DIRP EVENTURE1                                       INSV
 4             .............
 5             DIRP EVENTUREN                                       OFFL
 6
 7 Rts
 8 Bsy
 9 Offl
10 Query
11 IPTest
12 CONFRTB
13
14
15
16
17 Help
18 Refresh
 maint
Time  17:03  >
```

9.6.1.5 Command name - IPTEST:

9.6.1.5.1 Command type

MENU command from the RTB level.

9.6.1.5.2 Command target

SDM

9.6.1.5.3 Command availability

RES

9.6.1.5.4 Command description

The IPTEST command is used to ping the downstream processor. Like the RTB QUERY command, IPTEST command doesn't require a protocol to be RFTPW in the schedule tuple.

9.6.1.5.5 Warning

There are no warnings associated with this command.

9.6.1.5.6 Command syntax

IPTEST [<streamName>] **<fileformat><destination>**

9.6.1.5.7 New parameter definitions

Table 6

PARAMETER	VALUE	DEFINITION
fileformat	Alphanumeric String Range {Dirp}	This is required parameter which is part of the new RTB tuple. This parameter identifies the file format type of the stream. The value of this parameter combined with the value of stream name and destination acts as key to the RTB tuple.
destination	Alphanumeric String SIZE(15)	This parameter specifies the name of the destination to which the bill files will be sent to. The value of this parameter combined with the value of stream name and file format acts as key to the RTB tuple.

9.6.1.5.8 Responses

The IPTEST command can generate the following new responses outline below.

Response - Missing file format

ERROR : One of the required paramter is missing. Please re-enter all the required paramters in the following order.

Usage : Command [<streamname>]<fileformat><destination>.

Explanation:

This message is in response to a craftsperson invoking the IPTEST command without a file format argument.

System action:

Prompt is returned to the craftsperson and execution of the command ends.

User action:

The craftsperson must re-enter the command providing the all required argument. Please use help command for more details.

Response - Invalid file format

ERROR: Invalid file format. Valid file formats are {DIRP,...}.
Command aborted.

Explanation:

This message is in response to a craftsperson invoking the IPTEST command without a valid file format argument.

System action:

Prompt is returned to the craftsperson and execution of the command ends.

User action:

The craftsperson must re-enter the command providing the valid file format.

Response - Missing destination

ERROR : One of the required paramter is missing. Please re-enter all the required paramters in the following order.

Usage : Command [<streamname>]<fileformat><destination>.

Explanation:

This message is in response to a craftsperson invoking the IPTEST command without a destination argument.

System action:

Prompt is returned to the craftsperson and execution of the command ends.

User action:

The craftsperson must re-enter the command providing the required all arguments.

Response - Invalid destination

Error : RTB is not configured for stream <streamName>

Explanation:

This message is in response to a craftsperson invoking the IPTEST command with a bad destination.

System action:

Prompt is returned to the craftsperson and execution of the command ends.

User action:

The craftsperson must re-enter the command providing the valid destination.

9.6.1.5.9 Notes

Not applicable.

9.6.1.5.10 Examples

Example - Invalid file format

```
RTB
 0 Quit
 2 Set
 3
 4
 5
 6
 7 Rts
 8 Bsy
 9 Offl
10 Query
11 IPTest
12 CONFRTB
13
14
15
16
17 Help
18 Refresh
 maint
Time  17:03  > 11 occ aaaa
```

```
                    ERROR: Invalid file format. Valid file formats are {DIRP,...}.
RTB                 Command aborted.
 0 Quit
 2 Set
 3
 4
 5
 6
 7 Rts
 8 Bsy
 9 Offl
10 Query
11 IPTest
12 CONFRTB
13
14
15
16
17 Help
18 Refresh
 maint
Time  17:03  >
```

Example - Missing destination

```
RTB
 0 Quit
 2 Set
 3
 4
 5
 6
 7 Rts
 8 Bsy
 9 Offl
10 Query
11 IPTest
12 CONFRTB
13
14
15
16
17 Help
18 Refresh
 maint
Time  17:03  > 11 OCC DIRP
```

```
RTB                 ERROR : One of the required paramter is missing. Please re-
 0 Quit             enter all the required paramters in the following order.
 2 Set              Usage : Command [<streamname>]<fileformat><destination>
 3
 4
 5
 6
 7 Rts
 8 Bsy
 9 Offl
10 Query
11 IPTest
12 CONFRTB
13
14
15
16
17 Help
18 Refresh
 maint
Time  17:03  >
```

9.6.2 CONFRTB Commands

Table 7   Table of CONFRTB Commands

COMMAND NAME	NEW, CHANGED OR DELETED	NEW NAME (if renamed)	DIRECTORY NAME
Query	NEW		BILLMTC->SCHEDULE->RTB->CONF
Add	CHANGED		BILLMTC->SCHEDULE->RTB->CONF
Del	CHANGED		BILLMTC->SCHEDULE->RTB->CONF
Change	CHANGED		BILLMTC->SCHEDULE->RTB->CONF

9.6.2.1 Command name - Add:

9.6.2.1.1 Command type

MENU command from the CONFRTB level.

9.6.2.1.2 Command target

SDM

9.6.2.1.3 Command availability

RES

9.6.2.1.4 Command Description

This command creates a new RTB billing configuration for a stream.

9.6.2.1.5 Warning

There are no warnings associated with this command.

9.6.2.1.6 Command syntax

Add [<StreamName>] **<fileformat> <destination>**
Please enter the RTBMaxConsecutiveFailures (0..10)[3]

9.6.2.1.7 New parameter definitions

Table 8

PARAMETER	VALUE	DEFINITION
fileformat	Alphanumeric String Range {Dirp}	This is required parameter which is part of the new RTB tuple. This parameter identifies the file format type of the stream. The value of this parameter combined with the value of stream name and destination acts as key to the RTB tuple.
destination	Alphanumeric String SIZE(15)	This parameter specifies the name of the destination to which the bill files will be sent to. The value of this parameter combined with the value of stream name and file format acts as key to the RTB tuple.

9.6.2.1.8 Responses

The Add command can generate the following new responses.

Response - Missing file format

ERROR : One of the required paramter is missing. Please re-enter all the required paramters in the following order.

Usage : Command [<streamname>]<fileformat><destination>.

Explanation:

This message is in response to a craftsperson invoking the CONFRTB ADD command without a file format argument.

System action:

Prompt is returned to the craftsperson and execution of the command ends.

User action:

The craftsperson must re-enter the command providing the all required argument. Please use help command for more details.

Response - Invalid file format

ERROR: Invalid file format. Valid file formats are {DIRP,...}.
Command aborted.

Explanation:

This message is in response to a craftsperson invoking the ADD command without a valid file format argument.

System action:

Prompt is returned to the craftsperson and execution of the command ends.

User action:

The craftsperson must re-enter the command providing the valid file format.

Response - Missing destination

ERROR : One of the required paramter is missing. Please re-enter all the required paramters in the following order.

Usage : Command [<streamname>]<fileformat><destination>.

Explanation:

This message is in response to a craftsperson invoking the CONFRTB ADD command without a destination argument.

System action:

Prompt is returned to the craftsperson and execution of the command ends.

User action:

The craftsperson must re-enter the command providing the required all arguments.

Response - Invalid destination

Error : RTB is not configured for stream <streamName>

Explanation:

This message is in response to a craftsperson invoking the CONFRTB ADD command with a bad destination.

System action:

Prompt is returned to the craftsperson and execution of the command ends.

User action:

The craftsperson must re-enter the command providing the valid destination.

9.6.2.1.9 Examples

<u>**Example - Invalid file format**</u>

```
CONFRTB
 0 Quit
 2 Set
 3
 4
 5
 6
 7 Add
 8 Change
 9 Delete
10 Query
11
12
13
14
15
16
17 Help
18 Refresh
 maint
Time  17:03  > 7 occ aaaaaa
```

```
CONFRTB        ERROR: Invalid file format. Valid file formats are {DIRP,...}.
 0 Quit        Command aborted.
 2 Set
 3
 4
 5
 6
 7 Add
 8 Change
 9 Delete
10 Query
11
12
13
14
15
16
17 Help
18 Refresh
 maint
Time  17:03  >
```

Example - Missing destination

```
CONFRTB
 0 Quit
 2 Set
 3
 4
 5
 6
 7 Add
 8 Change
 9 Delete
10 Query
11
12
13
14
15
16
17 Help
18 Refresh
 maint
Time  17:03  > 7 occ dirp
```

```
CONFRTB     ERROR : One of the required paramter is missing. Please re-
            enter all the required paramters in the following order.
 0 Quit     Usage : Command [<streamname>]<fileformat><destination>
 2 Set
 3
 4
 5
 6
 7 Add
 8 Change
 9 Delete
10 Query
11
12
13
14
15
16
17 Help
18 Refresh
 maint
Time  17:03  >
```

9.6.2.2 Command name - CHANGE:

9.6.2.2.1 Command type

MENU command from the CONFRTB level.

9.6.2.2.2 Command target

SDM

9.6.2.2.3 Command availability

RES

9.6.2.2.4 Command Description

This command modifies an existing RTB billing configuration for a stream.

9.6.2.2.5 Warning

There are no warnings associated with this command.

9.6.2.2.6 Command syntax

Change [<StreamName>] **<fileformat> <destination>**
Please enter the RTBMaxConsecutiveFailures (0..10).[5]

9.6.2.2.7 New parameter definitions

Table 9

PARAMETER	VALUE	DEFINITION
fileformat	Alphanumeric String Range {Dirp}	This is required parameter which is part of the new RTB tuple. This parameter identifies the file format type of the stream. The value of this parameter combined with the value of stream name and destination acts as key to the RTB tuple.
destination	Alphanumeric String SIZE(15)	This parameter specifies the name of the destination to which the bill files will be sent to. The value of this parameter combined with the value of stream name and file format acts as key to the RTB tuple.

9.6.2.2.8 Responses

The Change command can generate the following new responses.

Response - Missing file format

ERROR : One of the required paramter is missing. Please re-enter all the required paramters in the following order.

Usage : Command [<streamname>]<fileformat><destination>

Explanation:

This message is in response to a craftsperson invoking the CONFRTB CHANGE command without a file format argument.

System action:

Prompt is returned to the craftsperson and execution of the command ends.

User action:

The craftsperson must re-enter the command providing the all required argument. Please use help command for more details.

Response - Invalid file format

ERROR: Invalid file format. Valid file formats are {DIRP,...}.
Command aborted.

Explanation:

This message is in response to a craftsperson invoking the CHANGE command without a valid file format argument.

System action:

Prompt is returned to the craftsperson and execution of the command ends.

User action:

The craftsperson must re-enter the command providing the valid file format.

Response - Missing destination

ERROR : One of the required paramter is missing. Please re-enter all the required paramters in the following order.

Usage : Command [<streamname>]<fileformat><destination>.

Explanation:

This message is in response to a craftsperson invoking the CONFRTB CHANGE command without a destination argument.

System action:

Prompt is returned to the craftsperson and execution of the command ends.

User action:

The craftsperson must re-enter the command providing the required all arguments.

Response - Invalid destination

Error : RTB is not configured for stream <streamName>

Explanation:

This message is in response to a craftsperson invoking the CONFRTB CHANGE command with a bad destination.

System action:

Prompt is returned to the craftsperson and execution of the command ends.

User action:

The craftsperson must re-enter the command providing the valid destination.

9.6.2.2.9 Examples

Example - Invalid file format

```
CONFRTB
 0 Quit
 2 Set
 3
 4
 5
 6
 7 Add
 8 Change
 9 Delete
10 Query
11
12
13
14
15
16
17 Help
18 Refresh
 maint
Time  17:03  > 8 occ aaaa
```

```
CONFRTB          ERROR: Invalid file format. Valid file formats are {DIRP,...}.
 0 Quit          Command aborted.
 2 Set
 3
 4
 5
 6
 7 Add
 8 Change
 9 Delete
10 Query
11
12
13
14
15
16
17 Help
18 Refresh
 maint
Time  17:03  >
```

Example - Missing destination

```
CONFRTB
 0 Quit
 2 Set
 3
 4
 5
 6
 7 Add
 8 Change
 9 Delete
10 Query
11
12
13
14
15
16
17 Help
18 Refresh
 maint
Time  17:03  > 8 occ dirp
```

```
CONFRTB      ERROR : One of the required paramter is missing. Please re-
             enter all the required paramters in the following order.
 0 Quit      Usage : Command [<streamname>]<fileformat><destination>
 2 Set
 3
 4
 5
 6
 7 Add
 8 Change
 9 Delete
10 Query
11
12
13
14
15
16
17 Help
18 Refresh
 maint
Time  17:03  >
```

9.6.2.3 Command name - DELETE:

9.6.2.3.1 Command type

MENU command from the CONFRTB level.

9.6.2.3.2 Command target

SDM

9.6.2.3.3 Command availability

RES

9.6.2.3.4 Command Description

This command deletes an existing RTB billing configuration for a stream.

9.6.2.3.5 Warning

There are no warnings associated with this command.

9.6.2.3.6 Command syntax

Delete [<StreamName>] **<fileformat> <destination>**

9.6.2.3.7 Parameter definitions

Table 10

PARAMETER	VALUE	DEFINITION
fileformat	Alphanumeric String Range {Dirp}	This is required parameter which is part of the new RTB tuple. This parameter identifies the file format type of the stream. The value of this parameter combined with the value of stream name and destination acts as key to the RTB tuple.
destination	Alphanumeric String SIZE(15)	This parameter specifies the name of the destination to which the bill files will be sent to. The value of this parameter combined with the value of stream name and file format acts as key to the RTB tuple.

9.6.2.3.8 Responses

The Delete command can generate the following responses.

Response - Missing file format

ERROR : One of the required paramter is missing. Please re-enter all the required paramters in the following order.

Usage : Command [<streamname>]<fileformat><destination>

Explanation:

This message is in response to a craftsperson invoking the CONFRTB DELETE command without a file format argument.

System action:

Prompt is returned to the craftsperson and execution of the command ends.

User action:

The craftsperson must re-enter the command providing the all required argument. Please use help command for more details.

Response - Invalid file format

ERROR: Invalid file format. Valid file formats are {DIRP,...}.
Command aborted.

Explanation:

This message is in response to a craftsperson invoking the DELETE command without a valid file format argument.

System action:

Prompt is returned to the craftsperson and execution of the command ends.

User action:

The craftsperson must re-enter the command providing the valid file format.

Response - Missing destination

ERROR : One of the required paramter is missing. Please re-enter all the required paramters in the following order.

Usage : Command [<streamname>]<fileformat><destination>

Explanation:

This message is in response to a craftsperson invoking the CONFRTB DELETE command without a destination argument.

System action:

Prompt is returned to the craftsperson and execution of the command ends.

User action:

The craftsperson must re-enter the command providing the required all arguments.

Response - Invalid destination

Error : RTB is not configured for stream <streamName>

Explanation:

This message is in response to a craftsperson invoking the CONFRTB DELETE command with a bad destination.

System action:

Prompt is returned to the craftsperson and execution of the command ends.

User action:

The craftsperson must re-enter the command providing the valid destination.

9.6.2.3.9 Examples

Example - Invalid file format

```
CONFRTB
 0 Quit
 2 Set
 3
 4
 5
 6
 7 Add
 8 Change
 9 Delete
10 Query
11
12
13
14
15
16
17 Help
18 Refresh
 maint
Time  17:03  > 9 occ
```

```
CONFRTB      ERROR: Invalid file format. Valid file formats are {DIRP,...}.
 0 Quit      Command aborted.
 2 Set
 3
 4
 5
 6
 7 Add
 8 Change
 9 Delete
10 Query
11
12
13
14
15
16
17 Help
18 Refresh
 maint
Time  17:03  >
```

Example - Missing destination

```
CONFRTB
 0 Quit
 2 Set
 3
 4
 5
 6
 7 Add
 8 Change
 9 Delete
10 Query
11
12
13
14
15
16
17 Help
18 Refresh
 maint
Time  17:03  > 9 occ dirp
```

```
CONFRTB      ERROR : One of the required paramter is missing. Please re-
 0 Quit      enter all the required paramters in the following order.
 2 Set       Usage : Command [<streamname>]<fileformat><destination>
 3
 4
 5
 6
 7 Add
 8 Change
 9 Delete
10 Query
11
12
13
14
15
16
17 Help
18 Refresh
 maint
Time  17:03  >
```

9.6.2.4 Command name - QUERY:

9.6.2.4.1 Command type

MENU command from the CONFRTB level.

9.6.2.4.2 Command target

SDM

9.6.2.4.3 Command availability

RES

9.6.2.4.4 Command description

The Query command is used to query the RTB configured stream tuple. This is a newly added command to the CONFRTB level menu. This command will use the same query executable used by the RTB level query command.

9.6.2.4.5 Warning

There are no warnings associated with this command.

9.6.2.4.6 Command syntax

QUERY [<streamName>]

9.6.2.4.7 Parameter definitions

Table 11

PARAMETER	VALUE	DEFINITION
streamName	Alphanumeric String SIZE (4) Range - max of 16 strings	This parameter specifies the name of the stream that originates the billing data. This is a string that matches the stream name in table SDMBIL and CRSFMT on the DMS CM. If the craftsperson specifies a default stream name using the SET <streamName> RMI command prior to using the QUERY command, the <streamName> in the QUERY command can be omitted and the default stream name will be used instead. If a stream name is entered in the QUERY command, it overrides the default stream name defined with the SET command. This parameter is REQUIRED if the SET command hasn't been used previously.

9.6.2.4.8 Responses

The QUERY command can generate the following response.

Response - QUERY

```
STREAM : <streamName>
Destination list:
-----------------------------------------------------------
DIRP Eventure                              <status>
DIRP Eventure1                             <status>
.........
DIRP EventureN                            <status>
```

The status could be either CONFIGURED, UNCONFIGURED, SCHEDULEDELETED.

Explanation:

This message is in response to a craftsperson invoking the QUERY command successfully.

System action:

User action:

No action is required.

Response - No Schedule tuples found

```
STREAM : <streamName>
Destination list:
------------------------------------------------------------
                  No Schedule Tuples found.
```

Explanation:

This message is in response to a craftsperson invoking the QUERY command when no schedule tuple is found.

System action:

User action:

User could use SCHEDULE:Add command to configure schedule tuples.

9.6.2.4.9 Notes

Not applicable.

9.6.2.4.10 Examples

Example - QUERY

```
RTB
 0 Quit
 2 Set
 3
 4
 5
 6
 7 Rts
 8 Bsy
 9 Offl
10 Query
11 IPTest
12 CONFRTB
13
14
15
16
17 Help
18 Refresh
 maint
Time  17:03  > 10 OCC
```

```
RTB               Stream Occ:
 0 Quit           Destination list :
                  -------------------------------------------------------------
 2 Set            DIRP EVENTURE                              CONFIGURED
                  DIRP EVENTURE1                             UNCONFIGURED
 3                ..............
 4                DIRP EVENTURE2                             CONFIGURED
 5
 6
 7 Rts
 8 Bsy
 9 Offl
10 Query
11 IPTest
12 CONFRTB
13
14
15
16
17 Help
18 Refresh
 maint
Time  17:03  >
```

9.6.3 Filesys command:

9.6.3.1 Command name: sendfile

9.6.3.1.1 Command type

MENU command from billmtc.

9.6.3.1.2 Command target

SDM

9.6.3.1.3 Command availability

RES

9.6.3.1.4 Command description

Currently, the sendfile command is used to transfer files from the SBA to the single destination. In this release, this command is enhanced to accept a destination as an optional parameter. The destination parameter must be a valid destination name specified as a string on the command line. When the destination option is not specified, billing files are going to be sent to all destinations under the same stream.

9.6.3.1.5 Warning

There are no new warnings with this command.

9.6.3.1.6 Command syntax

sendfile <stream_name> **[DEST <destination>]** [STATE <primary, secondary, unprocessed, processed>, BTIME [hh[:mm[:ss]]][.mm[/dd[/[yy]yy]] , ETIME [hh[:mm[:ss]]][.mm[/dd[/[yy]yy]], SEQNUM <i, [j]>, FNAME <filename>, FTYPE <file type>, PRIO <priority>, new_file_state]

> *Note:*
> *The <stream_name> paramater must be first, but the other parameters' order is not significant.*

9.6.3.1.7 New parameter definitions - New Syntax

Table 12

PARAMETER	VALUE	DEFINITION
destination	Alphanumeric String SIZE(15) Range {<string>}	This parameter specifies the name of the destination to which the bill files will be sent to. The value of this parameter combined with the value of stream name and file format acts as key to the schedule tuple.

9.6.3.1.8 Command syntax - AMADNS File Format

The following syntax is documented here since it is still supported for this release. It may, however, only be used with a stream that is configured with a DNS File Format Type.

sendfile <stream_name> **[-d <destination>]**[-p, -s] [-b [hh[:mm[:ss]]][.mm[/ dd[/[yy]yy]]]] [-e [hh[:mm[:ss]]][.mm[/dd[/[yy]yy]]]] [-q i[,j]] [-f <filename>] [-y <filetype>] [-r <priority>], [new_file_state]

> *Note:*
>
> *The <stream_name> parameter must be first, but the other parameters' order is not significant.*

9.6.3.1.9 New parameter definitions - AMADNS File Format

Table 13

PARAMETER	VALUE	DEFINITION
destination	Alphanumeric String SIZE(15) Range {<string>}	This parameter specifies the name of the destination to which the bill files will be sent to. The value of this parameter combined with the value of stream name and file format acts as key to the schedule tuple.

9.6.3.1.10 Response

The SENDFILE command can generate the following new responses.

Response - Invalid destination

ERROR: The destination is not valid for this stream.

Explanation:

This message is in response to a craftsperson invoking the FILESYS SENDFILE command with the destination option and a destination that is not valid (correspond to an existing schedule tuple).

System action:

Prompt is returned to the craftsperson and execution of the command ends.

User action:

The craftsperson must re-enter the command with the correct destination or with the destination option omitted.

Response - Wrong use of -d keyword

ERROR : -d keyword is for DNS file format.

Please use DEST keyword for DIRP file format.

Explanation:

This message is in response to a craftsperson invoking the FILESYS SENDFILE command using the -d keyword for the destination option. The correct way to use keywords, DEST and -D, are:

- For DEST keyword, it can be used for both DIRP and DNS file formats.
- For -D keyword, this keyword is used only when file format is DNS.,

System action:

Prompt is returned to the craftsperson and execution of the command ends.

User action:

The craftsperson must re-enter the command using the correct keyword as mentioned above.

Response - Multiple destinations are entered

ERROR : It's invalid to specified more than one destinations with keywords DEST and/or -D.

Explanation:

This message is in response to a craftsperson invoking the FILESYS SENDFILE command with multiple destinations specified using keywords , DEST and/or -D. Another way to specify all destinations is by omitting the keyword and the destination. In this case, billing files will be sent to all destinations.

System action:

Prompt is returned to the craftsperson and execution of the command ends.

User action:

The craftsperson must re-enter the command with only one destination or omiitting the keyword and the destination as for all destinations.

Response - Missing destination

ERROR : destination is missing.

Explanation:

This message is in response to a craftsperson invoking the FILESYS SENDFILE command with the destination option, DEST or -D, and no destination string.

System action:

Prompt is returned to the craftsperson and execution of the command ends.

User action:

The craftsperson must re-enter the command with both destination keyword and destination string.

Response - No schedule tuple present

ERROR : OCC is not set up for manual transmission.

Use schedule:add to set up.

Explanation:

This message is in response to a craftsperson invoking the FILESYS SENDFILE command without datafilling any schedule tuple yet.

System action:

Prompt is returned to the craftsperson and execution of the command ends.

User action:

The craftsperson must datafill a schedule tuple before invoking sendfile command.

9.6.4 Schedule commands:

9.6.4.1 Command name: Scheduleadd

9.6.4.1.1 Command type

MENU command from schedule level of billmtc.

9.6.4.1.2 Command target

SDM

9.6.4.1.3 Command availability

RES

9.6.4.1.4 Command description

In this release, the schedule add command accepts a destination as a new parameter. This new destination parameter and the stream name and file format will make up for the schedkey.

9.6.4.1.5 Warning

There are no new warnings with this command.

9.6.4.1.6 Command syntax

add [<stream_name>]

The following are also required named parameters and are described in the following table. These parameters are prompted for by the command and are not specified on the command line.

<file_format_type> **<destination>**<protocol> <primary_destination> <alternate_destination> <start_time> <stop_time> <interval> <remote_store_directory> <remote_login> <remote_password> <timeout> <maximum_retries> <retry_wait_time> <file_extension> <field_separator> <active>

9.6.4.1.7 New parameter definitions

Table 14   Scheduleadd parameters

PARAMETER	VALUE	DEFINITION
destination	Alphanumeric String SIZE(15)	This parameter specifies the name of the destination to which the bill files will be sent to. The value of this parameter combined with the value of stream name and file format acts as key to the schedule tuple.

9.6.4.1.8 Response

With the additional parameter, invoking the schedule add command can generate the following new response.

Valid Destination must not contain unprintable characters or white space. Enter Destination :

Explanation:

This message is in response to the user entering a valid file format or entering an invalid destination string. It is prompting the user to enter a destination string and provides help text. If user enters the destination already exists then the add operation will be aborted.

System action:

This response will be presented until the user enters a valid destination. If the user does not provide a valid destination or enters "Abort". If the user enters "Abort" then command aborted response is presented. If the user provides a valid destination, then the protocol prompt is presented.

User action:

Use must enter a valid destination or Abort.

9.6.4.2 Command name: Schedulechange

9.6.4.2.1 Command type

MENU command from schedule level of billmtc.

9.6.4.2.2 Command target

SDM

9.6.4.2.3 Command availability

RES

9.6.4.2.4 Command description

In this release, the schedule change command accepts a destination as a new parameter. This new destination parameter and the stream name and file format will make up for the schedkey.

9.6.4.2.5 Warning

There are no new warnings with this command.

9.6.4.2.6 Command syntax

change [<stream_name>]

The following are also required named parameters and are described in the following table. These parameters are prompted for by the command and are not specified on the command line.

<file_format_type> **<destination>**<parameter_name> <protocol> <primary_destination> <alternate_destination> <start_time> <stop_time> <interval> <remote_store_directory> <remote_login> <remote_password> <timeout> <maximum_retries> <retry_wait_time> <file_extension> <field_separator> <active>

9.6.4.2.7 Parameter definitions

Table 15   Schedule:change parameters

PARAMETER	VALUE	DEFINITION
destination	Alphanumeric String SIZE(15)	This parameter specifies the name of the destination to which the bill files will be sent to. The value of this parameter combined with the value of stream name and file format acts as key to the schedule tuple.

9.6.4.2.8 Response

With the additional parameter, invoking the schedule change command can generate the following new response.

Valid destinations are { 'Eventure',....}.
Press Enter to accept 'Eventure'.
Enter Destination :

Explanation:

This message is in response to the user entering a valid file format or entering an invalid destination string. It is prompting the user to enter a destination string and provides help text.

System action:

This response will be presented until the user enters a valid destination. If the user does not provide a valid destination or enters "Abort". If the user enters "Abort" then command aborted response is presented. If the user provides a valid destination, then the protocol prompt is presented.

User action:

Use must enter a valid destination or Abort.

9.7 Log Changes

The text for various logs related to RTB and scheduled file transfer are altered to include the destination on which the error occurred. The logic for producing these logs and their meaning is unchanged by this feature.

9.7.1 SDMB375

9.7.1.1 Format

Figure 4 Formats of log reports

```
* SDMB375 <date> <time> <seq #> SDM BILLING FILE TRANSFER

   STREAM= <stream>: <destination>: <specific error>.
```

Figure 5 Sample log reports

```
SDMB375 AUG19 17:51:24 1234 SDM BILLING FILE TRANSFER

STREAM= CDR: ERM: RTB: File Manager failed to close current active files.


SDMB375 AUG19 17:51:24 1234 SDM BILLING FILE TRANSFER
```

STREAM= CDR: ERM: RTB- Unable to fork child process

SDMB375 AUG19 17:51:24 1234 SDM BILLING FILE TRANSFER

STREAM= CDR: ERM: File management connection lost. SBA BSY or shutdown?

SDMB375 AUG19 17:51:24 1234 SDM BILLING FILE TRANSFER

STREAM= CDR: ERM: ftp was unable to read from OPEN state.

9.7.1.2 Field descriptions

Table 16   Field descriptions

Field	Value	Description
stream	Variable	Identifies the billing stream on which the problem occurred.
destination	Variable	Identifies the destination for which the problem occurred. This allows associated schedule tuple to be identified.
specific error	Variable	Provides a brief explanation of the problem.

9.7.1.3 Explanation

The SDMB375 log is generated whenever RTB or the base file transfer systems encounters a problem. Where appropriate, it raises a major or critical alarm. The TEXT portion of the log provides an explanation of the problem.

The possible log text in the "<destination>: <specific error>" portion of the log format is shown below.

For additional information on the following logs, refer to the LG section of feature AX1333.

<destination>: Restart count exceeded. RTB moved to SYSB state.

<destination>: RTBControl Process Death Detected. RTB is Halted.

<destination>: Unable to get the current Schedule Tuple.

<destination>: Schedule Tuple is not valid for RTB.

\<destination\>: Exceeded RTBMaxConsecutiveFailures: \<error text\>

\<destination\>: File Manager Failed to close current active files.

\<destination\>: RTB: Unable to fork child process

\<destination\>: RTB: rtbFTPClient transfer rate exceeded!. Ftp of current open file \<filename\> aborted.

For more information about the logs below, refer to the log section of AF7546 "Supernode Billing Application Base Billing Platform".

\<destination\>: One or more files in this event did not transfer.

\<destination\>: Event could not execute.

\<destination\>: ftp was unable to read from CLOSE state.

\<destination\>: FTP Error: \<ftp error text from the FTP client\>

\<destination\>: FTP Error: Not connected.

\<destination\>: ftp was unable to read from CWD state.

\<destination\>: \<ftp error text from the FTP client\>

\<destination\>: ftp was unable to read from OPEN state.

\<destination\>: ftp was unable to read from PASS state.

\<destination\>: ftp was unable to read from RNTO state.

\<destination\>: ftp was unable to read from STOR state.

\<destination\>: ftp was unable to read from STRU state.

\<destination\>: ftp was unable to read from TYPE state.

\<destination\>: ftp was unable to read from USER state.

\<destination\>: Protocol implementation is not initialized.

\<destination\>: File management connection lost. SBA BSY or shutdown?

\<destination\>: FTP returned invalid result code.

\<destination\>: \<FTPW state error text\>

<u><destination>: The event is NOT successful. One or more files did not get transmitted.</u>

<u><destination>: Unable to open pseudo terminal master.</u>

<u><destination>: Unable to fork child process.</u>

<u><destination>: Unable to setsid in child process.</u>

<u><destination>: Unable to open pseudo terminal slave.</u>

<u><destination>: TIOCSCTTY error.</u>

<u><destination>: tcsetattr error on slave pty.</u>

<u><destination>: TIOCSWINSZ error on slave pty.</u>

<u><destination>: Unable to set stdin of child process to pseudo terminal slave.</u>

<u><destination>: Unable to set stdout of child process to pseudo terminal slave.</u>

<u><destination>: Unable to set stderr of child process to pseudo terminal slave.</u>

<u><destination>: FTP session failed.</u>

9.7.1.4 Action

From the log text, the craftsperson may be able to determine the cause of the problem and may, with manual intervention, solve the problem. Otherwise, the next line of support should be contacted.

9.7.2 SDMB675

9.7.2.1 Format

Figure 6   Formats of log reports

```
* SDMB675 <date> <time> <seq #> SDM BILLING FILE TRANSFER

  STREAM= <stream>: <destination>: <specific resolution>.
```

Figure 7   Sample log reports

```
SDMB675 AUG19 17:51:24 1234 SDM BILLING FILE TRANSFER
```

STREAM= CDR: ERM: RTB: Restart count reset, clearing alarm.

SDMB675 AUG19 17:51:24 1234 SDM BILLING FILE TRANSFER

STREAM= CDR: ERM: Consecutive Failure alarm cleared

SDMB675 AUG19 17:51:24 1234 SDM BILLING FILE TRANSFER

STREAM= CDR: ERM: File rename from <filename> to <filename> at downstream
succeeded.

SDMB675 AUG19 17:51:24 1234 SDM BILLING FILE TRANSFER

STREAM= CDR: ERM: All files in request transmitted downstream.

9.7.2.2 Field descriptions

Table 17   Field descriptions

Field	Value	Description
stream	Variable	Identifies the stream for which the information pertains.
destination	Variable	Identifies the destination for which the information pertains.
specific resolution	Variable	Information.

9.7.2.3 Explanation

The SDMB675 log is generated whenever RTB or the base file transfer system
displays an informative message. The "<destination>: <specific resolution>"
portion of the log provides an explanation of the information.

For additional information on the following logs, refer to the LG section of
feature AX1333.

<destination>: RTB: Restart count reset, clearing alarm.

<destination>: Schedule tuple alarm cleared for Real Time Billing.

<destination>: Consecutive Failure alarm cleared

<destination>: File Manager alarm cleared

<destination>: RTBControl Process death alarm cleared

<destination>: RTB: Session started by command.

<destination>: RTB: Session stopped by command.

For more information about the logs below, refer to the log section of AF7546 "Supernode Billing Application Base Billing Platform".

<destination>: FTC: Clearing alarm.

<destination>: Storage directory set to <directory>

<destination>: Closed connection to the downstream processor.

<destination>: Connected to downstream processor.

<destination>: User logged in; proceed.

<destination>: File being renamed.

<destination>: File rename from <filename> to <filename> at downstream succeeded.

<destination>: FTP store command succeeded for file: <filename>

<destination>: File not transmitted to downstream processor: <filename>.

<destination>: Transmission structure set to FILE.

<destination>: Transmission type set to BINARY.

<destination>: User name okay. Need password.

<destination>: Retrying one more time

<destination>: All files in request transmitted downstream.

<destination>: The event failed. One or more files did not get transmitted downstream.

<destination>: The event succeeded.

<destination>: No fileList available. 0 files transmitted.

<destination>: File <file> has been successfully transfered downstream.

9.7.2.4 Action

No action needs to be taken as the log indicates normal operation.

9.8 Alarm Changes (AL))

The alarm text for the FTP, FTPW, RTBER, RTBST, RTBCF, RTBFM, and RTBPD alarms are modified to indicate the destination for which the error occurred. The logic for raising and lowering these alarms remain unchanged.

9.8.1 Alarm name: FTP

For more information on this alarm refer to NTP 297-5051-300.

The modified test of the alarm appears as follows.

<destination>: Protocol executable not found or has insufficient permissions.

<destination>: Fork failed; cannot exec.

<destination>: execl failed: check executable's permissions

9.8.2 Alarm name: FTPW

For more information on this alarm refer to NTP 297-5051-300.

The modified test of the alarm appears as follows.

<destination>: ftp was unable to read from CLOSE state.

<destination>: FTP Error: <ftp error text from the FTP client>

<destination>: FTP Error: Not connected.

<destination>: ftp was unable to read from CWD state.

<destination>: <ftp error text from the FTP client>

<destination>: ftp was unable to read from OPEN state.

<destination>: ftp was unable to read from PASS state.

<destination>: ftp was unable to read from RNTO state.

<destination>: ftp was unable to read from STOR state.

<destination>: ftp was unable to read from STRU state.

<u><destination>: ftp was unable to read from TYPE state.</u>

<u><destination>: ftp was unable to read from USER state.</u>

<u><destination>: Protocol implementation is not initialized.</u>

<u><destination>: File management connection lost. SBA BSY or shutdown?</u>

<u><destination>: FTP returned invalid result code.</u>

<u><destination>: The event is NOT successful. One or more files did not get transmitted.</u>

<u><destination>: Unable to open pseudo terminal master.</u>

<u><destination>: Unable to fork child process.</u>

<u><destination>: Unable to setsid in child process.</u>

<u><destination>: Unable to open pseudo terminal slave.</u>

<u><destination>: TIOCSCTTY error.</u>

<u><destination>: tcsetattr error on slave pty.</u>

<u><destination>: TIOCSWINSZ error on slave pty.</u>

<u><destination>: Unable to set stdin of child process to pseudo terminal slave.</u>

<u><destination>: Unable to set stdout of child process to pseudo terminal slave.</u>

<u><destination>: Unable to set stderr of child process to pseudo terminal slave.</u>

<u><destination>: FTP session failed.</u>

9.8.3 Alarm name: RTBER

For more information on this alarm refer to the FN section of feature AX1333.

The modified test of the alarm appears as follows.

<u><destination>: Restart count exceeded.</u>

9.8.4 Alarm name: RTBST

For more information on this alarm refer to the FN section of feature AX1333.

The modified test of the alarm appears as follows.

<u><destination>: RTB: Schedule tuple problem.</u>

9.8.5 Alarm name: RTBCF

For more information on this alarm refer to the FN section of feature AX1333.

The modified test of the alarm appears as follows.

<u><destination>: RTB: RTBMaxConsecutive Failures exceeded.</u>

9.8.6 Alarm name: RTBFM

For more information on this alarm refer to the FN section of feature AX1333.

The modified test of the alarm appears as follows.

<u><destination>: RTB: File Manager Close file Failure.</u>

9.8.7 Alarm name: RTBPD

For more information on this alarm refer to the FN section of feature AX1333.

The modified test of the alarm appears as follows.

<u><destination>: RTB: Control Process Death. RTB halted.</u>

9.9 MIB Changes

The following MIBs were added to support this feature. These MIBS are readonly:

Base MIB:

- <u>schDestination</u> - The user selected name of the destination. The default for this value is downstream.

SBARTB MIB:

- <u>RTBFileFormat</u> - The format of the files that will be sent for this entry. Currently can only be DIRP.

- <u>RTBDestination</u> - The user selected name of the destination.The default for this value is downstream.

9.10 DMS Operational Measurement Changes (OM)

N/A

9.11 DMS Office Parameter Changes (OP)

N/A

NORTEL NETWORKS

THE END