



Call Detail Recording System Administration Guide

BCM 4.0 Business Communications Manager

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Chapter 1

Getting started

This section contains information on the following topics:

- [“About this guide” on page 7](#)
- [“Symbols and conventions used in this guide” on page 8](#)
- [“Symbols and conventions used in this guide” on page 8](#)
- [“Related publications” on page 9](#)
- [“How to get Help” on page 10](#)

About this guide

This guide tells a System Administrator how to configure the Call Detail Recording (CDR) application, generate reports, and install and use the CDR Pull Client and CDR Livestream.

System Administrator role

The System Administrator performs the initial and ongoing administration tasks.

Your tasks include:

- administering CDR
- determining Account codes used as references for tracking telephone calls
- interpreting reports



Warning: SECURITY ALERT: CDR records the date and time of calls, digits dialed, incoming call information and time elapsed. This can include sensitive and personal information such as telephone banking numbers, credit card numbers, and personal identification numbers. Digits dialed are not maintained as confidential.

As System Administrator, it is solely your responsibility to advise users that their telephone dialing information can be monitored and recorded.

Further, LAN-based access to call records (passive or real-time) demands a greater emphasis on call record security. Limitations and security arrangements can vary depending on the network environment and how a customer administers and limits access to call records. Consult with the appropriate members of your organization about the proper safeguards.

Audience

This guide is intended for people who install and configure the Multimedia Contact Center application. This guide assumes that you are familiar with using Element Manager and CallPilot Manager. For more information, refer to the *BCM 4.0 Administration Guide* (N0060598) and the *CallPilot Manager Set Up and Operations Guide* (N0027247).

Acronyms

The following is a list of acronyms used in this guide.

Table 1

Acronym	Description
BCM	Business Communications Manager
CCR	Custom Call Routing
CLID	Calling line identification
PIN	Personal identification number

Symbols and conventions used in this guide

These symbols are used to highlight critical information:



Caution: Alerts you to conditions where you can damage the equipment.



Danger: Alerts you to conditions where you can get an electrical shock.



Warning: Alerts you to conditions where you can cause the system to fail or work improperly.



Note: A Note alerts you to important information.



Tip: Alerts you to additional information that can help you perform a task.



Security note: Indicates a point of system security where a default should be changed, or where the administrator needs to make a decision about the level of security required for the system.

Related publications

Related publications are listed below. To locate specific information, you can refer to the *Master Index of BCM 4.0 Library*.

BCM 4.0 Administration Guide (N0060598)

CallPilot Manager Set Up and Operation Guide (N0027247)

How to get Help

This section explains how to get help for Nortel products and services.

Getting Help from the Nortel Web site

The best source of support for Nortel products is the Nortel Support Web site:

<http://www.nortel.com/support>

This site enables customers to:

- download software and related tools
- download technical documents, release notes, and product bulletins
- sign up for automatic notification of new software and documentation
- search the Support Web site and Nortel Knowledge Base
- open and manage technical support cases

Getting Help over the phone from a Nortel Solutions Center

If you have a Nortel support contract and cannot find the information you require on the Nortel Support Web site, you can get help over the phone from a Nortel Solutions Center.

In North America, call 1-800-4NORTEL (1-800-466-7865).

Outside North America, go to the Web site below and look up the phone number that applies in your region:

<http://www.nortel.com/callus>

When you speak to the phone agent, you can reference an Express Routing Code (ERC) to more quickly route your call to the appropriate support specialist. To locate the ERC for your product or service, go to:

<http://www.nortel.com/erc>

Getting Help through a Nortel distributor or reseller

If you purchased a service contract for your Nortel product from a distributor or authorized reseller, you can contact the technical support staff for that distributor or reseller.

Chapter 2

Configuring Call Detail Recording

The CDR application collects many different kinds of information for CDR data files:

- date and time of external calls
- Hunt Group usage statistics
- Custom Call Routing (CCR) tree reports
- mailbox activity reports



Note: For detailed information on mailbox activity reports, refer to the *CallPilot Manager Set Up and Operation Guide* (N0027247).

Configuring CDR parameters

You can configure CDR parameters to specify what call information is presented in your reports.

This section describes:

- [“Configuring Report Options” on page 11](#)
- [“Assigning Report Filters” on page 15](#)
- [“Configuring the Prefix Filter” on page 17](#)
- [“Configuring CDR Report contents” on page 18](#)
- [“Configuring Leading Digits Suppression” on page 20](#)

Configuring Report Options

To configure Report Options

- 1 Log on to Element Manager.
- 2 On the **Task Navigation Panel**, click the **Configuration** tab.
The Configuration folders appear.
- 3 Select the **Telephony** folder.
- 4 Click **Call Detail Recording**.
The Call Detail Recording panel appears with the **Report Options** tab displayed.
- 5 Use the tables in the Report Options tab to configure your report options.
- 6 Specify your report format and contents, and the filters you want to use.

Figure 1 The Report Options page

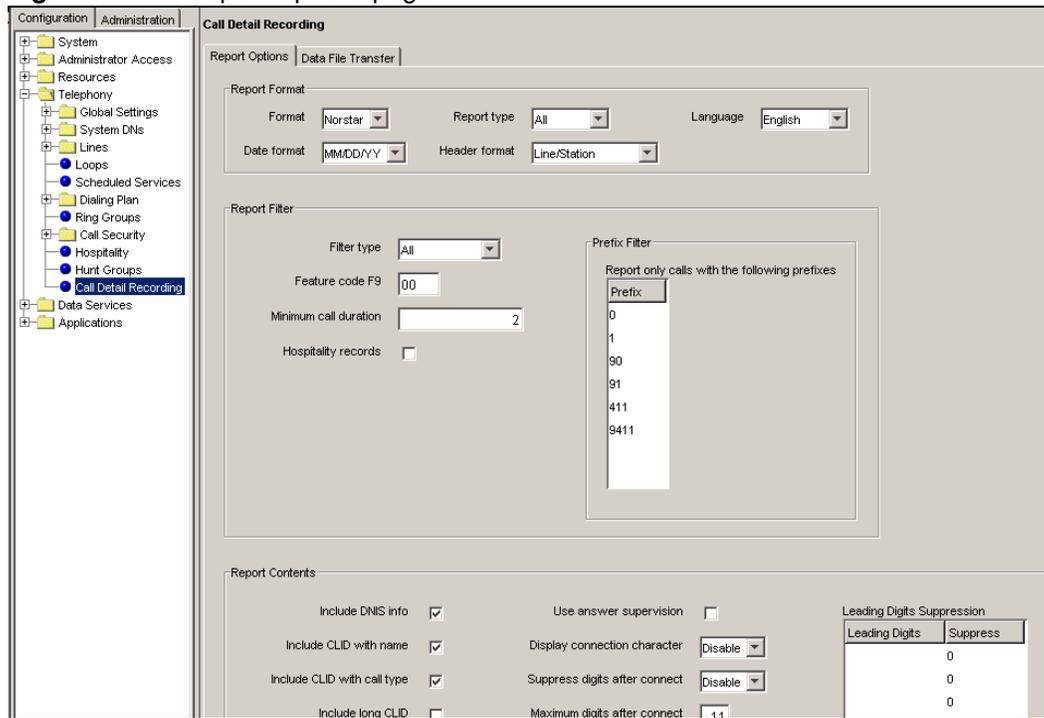


Table 1 Report Options

Parameter	Options
Format	SL-1 Norstar
Date format	MM/DD/YY DD/MM/YY YY/MM/DD
Report type	SL-1 Standard SL-1 CLID Norstar Standard Norstar CLID Norstar Real-time Norstar All
Header format	Line/Station Source/Destination
Language	English French Danish Swedish Dutch Spanish German Italian Norwegian Portuguese

Report formats and types

Call Detail Recording can generate Norstar and SL-1 report types. SL-1 offers two report formats: Standard and CLID. Norstar offers four report formats: Standard, CLID, Real-time, and All.



Note: The default report format is Norstar and the default report type is All.

SL-1 reports

Use the SL-1 report format when you are supplying the CDR output to legacy commercial call accounting packages or equipment.

This report format supports recording Standard report type as well as the Calling Line Identification (CLID) report type.

The SL-1 CLID report prints the CLID information only if the information is delivered. Otherwise, it records the call in SL-1 Standard report type.

The SL-1 report format does not support the recording of Bearer Capability and DDI Busy reports.



Note: For more information about SL-1 reports, see [“SL-1 reports” on page 41](#).

To assign the SL-1 report type

From the Report Options page, you can assign the SL-1 report type as Standard or CLID.

- 1 On the **Task Navigation Panel**, click the **Configuration** tab.
The Configuration folders appear.
- 2 Select the **Telephony** folder and click the **Call Detail Recording** task.
The Call Detail Recording panel appears with the Report Options tab displayed.
- 3 From the **Format** drop-down list, select **SL-1**.
- 4 From the **Report Type** drop-down list, select **Standard** or **CLID**.



Note: CDR reports only the CLID information for lines that are capable of delivering CLID. Calls on lines that are non-CLID capable are reported in SL-1 Standard report format.

Norstar reports

Use the Norstar report format for more detailed call reports.



Note: For more information about Norstar reports, see [“Norstar reports” on page 45](#).

Assign the Norstar report type

From the Report Options page, you can assign the Norstar report type as Standard, CLID, Real-time or All.

To assign Norstar report type

- 1 On the **Task Navigation Panel**, click the **Configuration** tab.
The Configuration folders appear.
- 2 Select the **Telephony** folder and click the **Call Detail Recording** task.
The **Call Detail Recording** panel appears with the **Report Options** tab displayed.
- 3 From the **Format** list, select **Norstar**.
- 4 From the **Report Type** list, select **Standard, CLID, Real-time** or **All**.

Assigning the Date Format

The Date Format includes the day, month and year. There are three date formats:

- MM/DD/YY
- DD/MM/YY
- YY/MM/DD

The default date format is MM/DD/YY. This parameter affects only the Norstar Record Format., and is intended to provide market compatibility.

To assign the Date Format

- 1 On the **Task Navigation Panel**, click the **Configuration** tab.
The Configuration folders appear.
- 2 Select the **Telephony** folder and click the **Call Detail Recording** task.
The Call Detail Recording panel appears with the Report Options tab displayed.
- 3 From the **Date Format** drop-down list, select MM/DD/YY, DD/MM/YY or YY/MM/DD.

Assigning the Header Format

There are two kinds of header formats: Line/Station and Source/Destination. The default Header Format is Line/Station. This parameter applies to the Norstar Record Format only.

The Line/Station format always reports the line number followed by the station number. The Source/Destination format always reports the number placing the call followed by the number receiving the call. Incoming calls are reported in the Line/Station format. Outgoing calls are reported in the Station/Line format.

To assign the Header Format

- 1 On the **Task Navigation Panel**, click the **Configuration** tab.
The Configuration folders appear.
- 2 Click the **Telephony** folder and click the **Call Detail Recording** task.
The Call Detail Recording panel appears with the Report Options tab displayed.
- 3 From the **Header Format** list box, select **Line/Station** or **Source/Destination**.

Assigning the Report Language

If your BCM 4.0 supports other languages, select either English or one of the alternate languages. The default Report Language is English.

To assign the Report Language

- 1 On the **Task Navigation Panel**, click the **Configuration** tab.
The Configuration folders appear.
- 2 Click the **Telephony** folder and click the **Call Detail Recording** task.
The Call Detail Recording panel appears with the Report Options tab displayed.
- 3 From the **Language** list box, select **English** or an alternate language.



Note: The Report Language you select affects only CDR reports. The language assigned to each telephone determines the language used in the Account codes.

Assigning Report Filters

Use the Report Filters to specify the type of calls to collect. You can select only one filter type at a time. The default report filter is All.

To assign Report Filters

- 1 On the **Task Navigation Panel**, click the **Configuration** tab.
The Configuration folders appear.
- 2 Click the **Telephony** folder and click the **Call Detail Recording** task.
The Call Detail Recording panel appears with the Report Options tab displayed.
- 3 In the **Report Filter** option, select **All**, **Outgoing**, **Prefix** or **Account Code**.
- 4 In the **minimum call duration** box, enter the minimum call duration number.
The range is 0 to 30 seconds.

- 5 Select the **Hospitality records** check box, if you require hospitality records.

Report Filter	Description
Filter type	<p>All reports all incoming and outgoing calls.</p> <p>Outgoing reports only outgoing calls (no incoming calls).</p> <p>Prefix reports calls matching the predetermined long distance digit strings.</p> <p>The purpose of the Prefix filter is to report only long distance calls, calls to certain area codes, or calls to specific numbers. If you select the Prefix Report filter, you must also specify the prefix digits.</p> <p>If the first digits dialed match one or more of the programmable prefix strings, the call is reported; otherwise the call is not reported. You can have a maximum of eight prefix strings assigned at one time. The maximum length for each prefix string is eight digits.</p> <p>Note: The Prefix filter defaults are 0, 1, 90, 91, 411 and 9411. Invalid Password attempts are reported regardless of the Report Filter selected.</p> <p>Account code reports only calls that have account codes associated with them.</p>
Feature code F9	See “Creating the Feature Code” .
Minimum call duration	This filter determines which calls are included in the CDR. Calls shorter than the minimum call duration are not logged. The default setting is 2 seconds and the range is 0 - 30 seconds.
Hospitality records	This filter represents four states of room occupancy: vacant, basic, mid and full. Room number lengths can be 1 - 5 digits.

Creating the Feature Code

The purpose of the feature code is to allow a user to enter an account code when on a call. The account code that is entered is registered and recorded in the BCM CDR record for that call.

The default feature code in BCM is 900. If 900 is being used for another application, you can choose another code to represent CDR. The feature code you designate can be any unused number between 900 and 999. You designate the feature code in Element Manager.

To designate the feature code

- 1 On the **Task Navigation Panel**, click the **Configuration** tab.
The Configuration folders appear.
- 2 Click the **Telephony** folder and click the **Call Detail Recording** task.
The Call Detail Recording panel appears with the Report Options tab displayed.
- 3 In the **Feature Code** field, enter a number between 00 and 99. The first digit (9) is provided.
Callers can now enter the Feature Code and then enter the appropriate Account Codes.

Account Codes

With Account Codes you can track telephone calls from your company to different clients or for telephone activities. For example, a caller contacting a billable client can enter an account code each time they call that client.

Callers can enter account codes for any incoming or outgoing calls. Callers enter the feature code (F9--) followed by the account code.

Callers can enter an account code any time during an active call. They cannot enter an Account Code when a call is on hold or when a configuration session is in progress.

Account Code list

Account Codes have a maximum of 12 digits but cannot contain symbols such as (*) or (#). Table 2 is an example of an Account Code list.



Note: Remember to provide your colleagues with the Feature Code and the Account Code list. Your Account Code list is not stored on the BCM. The BCM does not check that account code is valid.

Table 2 Account Codes

Account code	Description
11127	Pat (manager)
37	Field Support
239	Liza (Sales)
45	Roger (Service)
1552	Monique (Shipping)
53	Modern Ways Limited
100	Long distance

Configuring the Prefix Filter

With the Prefix Filter, you can select whether you monitor and report all long-distance calls, only calls to certain area codes, or calls to specific numbers.

If the first digits a caller dials match one or more of the prefixes you have defined, the call is reported. Otherwise the call is not reported. You can have a maximum of eight prefix strings assigned at one time. The maximum length for each prefix string is eight digits. The Prefix filter default settings are 0, 1, 90, 91, 411 and 9411.

To assign, change or delete Prefix Filters

- 1 On the **Task Navigation Panel**, click the **Configuration** tab.
The Configuration folders appear.
- 2 Click the **Telephony** folder and click the **Call Detail Recording** task.
The Call Detail Recording panel appears with the **Report Options** tab displayed.
- 3 In the prefix filter table, in the **Prefix 1** list box, enter the prefix number.
- 4 In the **Prefix 2** through **Prefix 8** list boxes, enter the prefix numbers as required.
- 5 To modify an existing prefix, select the prefix and change it to the appropriate value.
- 6 To delete an existing prefix, select the prefix and delete all of the digits.

Configuring CDR Report contents

To configure CDR Report contents

- 1 On the **Task Navigation Panel**, click the **Configuration** tab.
The Configuration folders appear.
- 2 Click the **Telephony** folder and click the **Call Detail Recording** task.
The Call Detail Recording panel appears with the Report Options tab displayed.
The report contents appear in the lower panel.

Table 3 Report contents

Option	Description (default shown in bold)
Include DNIS Info	Yes/No Provides the number the caller dialed to reach the BCM 4.0 system. You can enable or disable the DNIS Info parameter. This parameter applies to the Norstar Record Format only. Do not change the default unless the trunk supports this feature.
Include CLID with name	Yes/No Reports the CLID name of each call. You can enable or disable this parameter at any time. This parameter applies to the Norstar Record Format only. Do not change the default unless the trunk supports this feature.
Include CLID with call type	Yes/No Supports long distance or unknown call types. This parameter applies to the Norstar Record Format only. Do not change the default unless the trunk supports this feature.
Include long CLID	Yes/No Supports long CLID digit reporting. This parameter is market-specific. Do not change the default unless the trunk supports this feature.

Table 3 Report contents

Include call charge info	<p>Yes/No</p> <p>Supports charges on calls. This parameter is market-specific. Do not change the default unless the trunk supports this feature.</p>
Use answer supervision	<p>Yes/No</p> <p>Identifies the telephone number answering outgoing calls. This parameter is market-specific. Do not change the default unless the trunk supports this feature.</p>
Display connection character	<p>Enable/Disable</p> <p>Normally, CDR reports all the digits the user dialed to connect a call. The digits can include digits responding to prompts from an Auto-attendant, extension transfer or voice mail service. To distinguish between digits dialed to connect the call and digits dialed after the call is connected, the system inserts an “!” between the two sets of digits. (For Norstar report format only.)</p> <p>You can enable or disable the display connection character parameter.</p>
<p>Suppress digits after connect</p> <p>Maximum digits after connect</p>	<p>Enable/Disable</p> <p>By default, CDR stores all digits dialed, even after the call has been answered. This includes any personal information dialed, such as account numbers, credit card numbers or PINs. You can use the Digit Suppression feature to stop CDR from storing digits after the call has been answered.</p> <p>To configure the Suppress digits feature, use the Suppress digits after connect and Maximum digits after connect options. With Suppress digits after connect you can enable or disable this feature. With Maximum digits after connect you specify the maximum number of digits CDR stores.</p> <p>How the Suppress digits operates:</p> <ul style="list-style-type: none"> • If Suppress digits after connect is disabled CDR records all of the digits dialed. Line Supervision and the Maximum digits after connect have no affect if Suppress digits is disabled. • If Suppress digits after connect is enabled and Line Supervision is available on the line used CDR records the telephone number dialed, but stops recording when Line Supervision indicates the call is answered. The Maximum digits after connect option has no affect if Line Supervision is available on the line used. • If Suppress Digits after connect is enabled and Line Supervision is not available on the line used CDR records the digits dialed until it reaches the number entered in the Maximum digits after connect box. After this number of digits is recorded, CDR stops recording digits. <p>In the Maximum digits after connect box, enter the maximum number of digits that CDR stores, from 3 to 24. The default is 11.</p>



Caution: Some of the Report Options are market-specific. If the parameter value does not match the trunk property, CDR can produce incorrect reports. Changing the parameters can affect some Suppress Digit parameters. If you use a Call Accounting package to process reports, consult your software vendor before you make any changes.

Configuring Leading Digits Suppression

You can configure CDR so that personal identification numbers (PIN) that callers use to access long-distance carriers are not recorded in CDR. Usually the long-distance caller dials the code of their carrier (up to five digits), enters a PIN (0 to 16 digits), and then enters the long-distance telephone number. Leading Digits Suppression provides security to long-distance callers by preventing PINs being recorded in the reports.

You can define a maximum of five Leading Digit strings. The first digits that a caller dials are compared to the Leading Digits. If there is a match, a number of digits are suppressed. (The number of digits that are suppressed equals the number you select in the Suppress field for the string). Only the code of the carrier and the remaining digits (excluding the PIN) are printed in the output report.

To assign or change Suppress Digits

- 1** On the **Task Navigation Panel**, click the **Configuration** tab.
The Configuration folders appear.
- 2** Click the **Telephony** folder and click the **Call Detail Recording** task.
The Call Detail Recording panel appears with the Report Options tab displayed.
- 3** On the lower panel, in the Leading Digits Suppression table, in the **Leading Digits** box enter the carrier code.
The carrier code can be up to five digits long, and is the number that users must dial to reach their carrier. For example, users must dial 3421 to reach their long-distance carrier.
- 4** In the **Suppress** box, select the number of digits, up to a maximum of 16, that callers can have in their PIN.

Chapter 3

Configuring and managing CDR data

This section contains information on:

- Call Detail Recording (CDR) security
- CDR data management and configuration

Call Detail Recording security

CDR records can contain sensitive information, such as phone numbers between executives and external companies, telephone banking passwords and PINs. These are some examples of data that require protection from unauthorized access. With the introduction of network real-time access in Call Detail Recording, the System Administrator must set up the system to allow authorized access. If authorized access is not set up, the user cannot see the real-time records.

To set up CDR, you must log on to the BCM Element Manager with a user name and password that is a member of the Admin Group. Once logged on, you can add members to the CDR User Group. Only members of the CDR User Group can access the records. Members of other User Groups, including the Admin User Group, cannot access the Call Detail Recording records.



Caution: To guard against unauthorized access to CDR records, you must add only authorized users to the CDR User Group. In this configuration, the BCM security protects all records against unauthorized access.

CDR User Group Administration

By default, the CDR User Group has no members. The System Administrator can add users to the CDR User Group through Element Manager. The System Administrator can also modify user access privileges or delete existing usernames from the group.

For information about how to add, delete and modify users and User Groups, refer to the *BCM 4.0 Administration Guide* (N0016868).



Note: If you retrieve CDR records using a dial-up connection and you use the Callback feature, the computer you use to access CDR data files must have the Callback number that is configured for your user account.

To enter a Callback number:

- 1** In Element Manager, on the **Task Navigation Panel**, click the **Configuration** tab.
The Configuration folders appear.
- 2** Click the **Administrator Access** folder and click **Accounts and Privileges**.
The Accounts and Privileges panel appears with the Current Account tab displayed.
- 3** Click the **View by Accounts** tab.
- 4** Select your account, and click **Modify**.
The **Modify Account** dialog box appears.
- 5** In the **Callback Number** field, enter the Callback number and click **OK**.

If the Callback Number is not the telephone number for your computer, BCM blocks access to the records even if you enter the correct username and password.

Configuring CDR Report File Settings

Before you begin to transfer the CDR data files, configure the report file settings. After you configure the file settings, choose the type of file transfer you wish to use to manage your CDR files.

This section provides information on each type of file transfer: [“Features of Data File Transfer” on page 25](#).

To configure CDR Report File Settings

- 1** On the **Task Navigation Panel**, click the **Configuration** tab.
The Configuration folders appear.
- 2** Click the **Telephony** folder and click **Call Detail Recording**.
The Call Detail Recording panel appears with the Report Options tab displayed.
- 3** Click the **Data File Transfer** tab.

4 Use the **File Settings** table to configure the size of the CDR data file.

Table 4 File Settings

File Options	Descriptions
Start new file	<p>Daily, weekly, monthly, on file size or file transfer</p> <p>By default, a new file is started when the file size reaches the maximum of 1,400 kilobytes (kB). You can change the file schedule to start a new file at regular intervals:</p> <ul style="list-style-type: none"> • daily: at midnight • weekly: Sunday at midnight • monthly: the first day of each month at midnight • file size: from 1,000 kB and 5,000 kB • on file transfer: when the files are transferred
Max file size (100 kB)	<p>14 (1,400 kB) 10 to 50</p> <p>You can configure the data file size from 10 (1,000 kB) to 50 (5,000 kB). File size is used only if you have specified a value in the file settings.</p>
Disk space limit	<p>400 (MB) 2 to 800</p> <p>The minimum disk space requirement for CDR is 2 MB. The default is 400 MB. Available disk space is verified when the service starts and when a new file starts.</p> <p>When the minimum amount of disk space is available automatic file deletion occurs, beginning with the oldest file. Files are deleted until 20 percent of the space is made available. For example, if the disk size is assigned as 400 MB, CDR deletes old files until 320 MB of space is available.</p> <p>The current CDR data is not accessible when CDR is running. CDR Administration closes the current data file and creates a new file with a new header.</p>



Caution: Some parameters are market-specific. If the parameter value does not match the trunk property, CDR can produce incorrect reports. If you are using a Call Accounting package to process reports, consult your software vendor before you make any changes to the CDR options.

You can download the CDR files using the Data File Transfer feature. For more information on the Data File Transfer feature, refer to the section Managing CDR data.

Managing CDR data

CDR provides three methods to manage data:

- Pull Transfer
- Push Transfer
- real-time data

Pull Transfer

With Pull Transfer, you can download Call Detail Recording data files from the BCM 4.0 to any PC on your network that has a pull application installed. You configure the data transfer parameters on the PC to download the CDR data files. The advantage of the Pull Transfer is that the PC determines the rate at which the data files are transferred, so it cannot easily be overloaded with transfer information. You can use the Pull Transfer to transfer Call Detail Recording data files from any number of BCM 4.0s or other BCMs, but it is most beneficial when you are transferring from a large number of systems.

There is a sample CDR Pull Client provided on the BCM web page. For details on installing and using CDR Pull, see [“Using CDR Pull Transfer” on page 25](#).



Note: The CDR Pull Client is a sample application only. The CDR Pull Client allows you to test the CDR pull capability of the BCM. A developer’s toolkit is available to build a CDR client to meet your specific needs. Refer to the Nortel Developer Partner Program for details on the BCM CDR toolkit or check with your CDR application vendor for availability of this functionality in their software.



Note: You can use the CDR Pull Client to pull files from any BCM system.

Push Transfer

With Push Transfer, the system sends the CDR data files to a central server. The advantage of the Push Transfer is that you configure the data transfer parameters on the Element Manager. No additional applications are required. You can use the Push Transfer to send Call Detail Recording data files from any number of BCM 4.0 systems, but it is most beneficial when you are transferring from a smaller number of systems.



Security note: The Data File Pull Transfer uses a secure SSL interface to transfer the Call Detail Recording data files. The Data File Push Transfer does not use a secure interface to transfer the Call Detail Recording data files.

Real-time data

You use real-time data to view CDR records as they are created on the BCM. The CDR Livestream is an application that you can use to monitor real-time call activity from a PC. Download the CDR Livestream to a PC and connect to a BCM to view and print real-time call activity.



Note: The CDR Livestream program is a sample application only. It allows you to test the CDR real-time capability of the BCM. A developer's toolkit is available to build a CDR real-time application to meet your specific needs. Refer to the Nortel Developer Partner Program for details on the BCM CDR toolkit or check with your CDR application vendor for availability of this functionality in their software.

Features of Data File Transfer

CDR data file transfer has the following features:

- For Push Transfer, you can schedule a data file transfer so that the BCM 4.0 system sends the data files on a regular basis (daily, weekly or monthly) and at a specified time.
- For Push Transfer, you can manually start the transfer of data files from the BCM 4.0 system when you need the Call Detail Recording information immediately.
- For Push Transfer, BCM 4.0 can automatically attempt to re-send the data if the initial data transfer fails.
- BCM 4.0 can compress the Call Detail Recording information to reduce the amount of time it takes to transfer the files.
- Only the files that have not been previously sent are transferred.

The following sections provide detailed information about file transfers:

- [“Using CDR Pull Transfer” on page 25](#)
- [“Using CDR Push Transfer” on page 33](#)
- [“Using CDR Livestream” on page 37](#)

Using CDR Pull Transfer

To use the CDR Pull Transfer, the following are required:

- a client PC that receives the downloaded files
- a user account in the CDR group on the BCM
- BCM data transfer set up to pull the files
- CDR Client application configured to meet your requirements

- an application that uses the CDR toolkit to download the CDR data
- a ZIP/UNZIP utility installed (if using the file compression feature)



Note: This guide describes the setup for the sample application CDR Pull Client provided by Nortel. For applications developed by other software vendors, follow their documentation.

Configuring the CDR Client

The CDR Client is the application running on the client PC that accesses the BCM 4.0 systems and downloads the Call Detail Recording data files.

The CDR Client is typically a custom application that is created by your company or an external vendor for your company. The advantage of a custom CDR Client is that it can be designed to work with your choice of operating systems and can be integrated with your existing databases. If you are using a custom CDR Client, refer to the documentation that came with the CDR Client for information about configuring the it.

If your company does not have or require a custom CDR Client, a sample CDR Client is available on the BCM web page. The sample CDR Client, named CDR Pull Client, is installed at the same time the CDR Livestream is installed.

Setting up the Call Detail Recording user account

To ensure the security of the Call Detail Recording data files, any user must have a special Call Detail Recording user account to access the directory where the files are stored. You must set up this user account on every BCM 4.0 system from which the CDR Pull Client will pull information.

Before you set up the user accounts, you must create a CDR Group. For information about how to set up User Groups, refer to the *BCM 4.0 Administration Guide*.



Note: Each user account must have a username and password. If your username and password are going to be used with CDR Livestream, they must match the username and password you use to log in to your personal computer.

If CDR Pull Client or a third-party client is used, then your username and password must match the username and password information programmed into the client. For a pull client, a good security practice is to avoid using a Windows log in and password. This can compromise your personal computer and all the CDR data if the username and password were not secure.

To set up a CDR user account

- 1 On the **Task Navigation Panel**, click the **Configuration** tab.

The Configuration folders appear.

- 2 Click the **Administrator Access** folder and click **Accounts and Privileges**.

The Accounts and Privileges panel appears with the Current Account tab displayed.

- 3 Click the **View by Groups** tab.
- 4 From the **Groups** list select **CDR application**.
The details for the CDR group appears in the lower panel.
- 5 In the lower panel, click the **Members** tab.
- 6 Click **Add**.
The Add Account to Group dialog box appears.
- 7 Select the User Account you want to add and click **OK**.

Transferring the Data Files using a Pull Transfer

To transfer Call Detail Recording data files using a Pull Transfer, you must:

- set the Data Transfer type to Pull
- configure the client PC to start the transfer

Setting the Data Transfer type to Pull

When you set the transfer type to pull, all the transfer settings are unavailable. During a pull transfer, the BCM is waiting for the central client to pull all the current CDR information from it. (It pulls all of the files since the last time you did a pull request).

You must set the Data Transfer type to Pull on every BCM 4.0 system from which the client PC will pull information.

To set Data Transfer type to Pull

- 1 On the **Task Navigation Panel**, click the **Configuration** tab.
The Configuration folders appear.
- 2 Click the **Telephony** folder and click **Call Detail Recording**.
The Call Detail Recording panel appears with the Report Options tab displayed.
- 3 Click the **Data File Transfer** tab.
- 4 In the Transfer Settings box, from the **TransferType** list select **Pull**.
The Data File Transfer screen changes to display the current Call Detail Recording Pull statistics.



Note: To reset the Call Detail Recording Pull statistics, click the Reset Statistics button.

To install the CDR Pull Client

- 1 Exit any Windows programs that are running.
- 2 Start a browser session and connect to the BCM web page.
The BCM Login dialog box appears.



Note: Your system administrator provides the correct URL for the BCM web page.

- 3 Enter your username and password and click **OK**.
The Welcome to BCM page appears.
- 4 Click the **Administrator Applications** link.
The Administrator Applications page appears.
- 5 Click the **CDR Clients** link.
The **CDR Clients** download page appears.
- 6 Click the **Download CDR Clients** link.
The File Download dialog box appears.
- 7 Click **Save** and save the application where you want to install it.
- 8 After the application downloads, double-click it to launch the installation, and follow the instructions in the Installation Wizard.



Note: The CdrClientInstaller.exe file installs the CDR Livestream and the CDR Pull Client.

Starting the CDR Pull Client

To start the CDR Pull Client, complete the following procedure.

To start the CDR Pull Client

- 1 Click **Start** and point to **Programs**.
- 2 Point to **Nortel** and then point to **CDR Client**.
- 3 Click **CDR Pull Client**.
The CDR Pull Sample Application window appears.

Configuring the BCM List file

A BCM List file is a file that stores the connection information for the BCM 4.0 or other BCM systems you can access using the CDR Pull Client. Each BCM List file contains a list of BCMs on which to perform a CDR Pull activity.

The BCM List file also contains the schedule for pulling files from the BCMs and it instructs the CDR Pull Client where to store the pulled files on the client PC. The schedule contains a list of one or more times the pull activity starts. At each specified time, the CDR Pull Client sequentially goes through the list of BCMs and pulls the CDR file to the specified directory.

To use the CDR Pull Client, you need at least one BCM List file. If you have many BCM systems from which you are collecting Call Detail Recording information, it is beneficial to have more than one BCM List file. By using several BCM List files you can organize a large number of systems into several smaller lists that are easier to manage.

Since you require a BCM List file, you must either create or select a BCM List file before you can perform any other function using CDR Pull Client. For information about how to create or select a BCM List file, refer to the following:

- [“Creating a BCM List file”](#)
- [“Selecting a BCM List file”](#)

Creating a BCM List file

The first time you run the CDR Pull Client, you must create a BCM List file. You also create a BCM List file when you want to add another BCM List file.

To create a BCM List file

- 1 Click **Browse**.
- 2 Navigate to the folder where you want to store the BCM List file.
- 3 In the **File name** field, type the name you want to use for the BCM List file.

The BCM List file is in ASCII text format, so the file name should use the .txt extension (for example, BCM_WEST.txt).

- 4 Click **Open**.

Selecting a BCM List file

When you start the CDR Pull Client, you must select a BCM List file before you can continue.

To select the BCM List file

- 1 Click **Browse**.
- 2 Navigate to the folder that contains the BCM List file you want to select.



Note: If there is no BCM List file, or if you want to add another BCM List file, refer to [“Creating a BCM List file”](#) on page 29.

- 3 Click the BCM List file you want to use and click **Open**.

Configuring the systems on the BCM List file

After you have selected or created the BCM List file, you need to configure the connection information for the BCM 4.0 systems on the list. Configuring the connection information includes the following:

- [“Adding a system to the BCM List file”](#)
- [“Modifying a system on the BCM List file”](#)
- [“Deleting a system from the BCM List file”](#)

Adding a system to the BCM List file

To add a BCM 4.0 system to the BCM List file

- 1 Select the BCM List file to which you want to add this Business Communications Manager system.
- 2 In the **Name** field, type the System Name of the Business Communications Manager system.
- 3 In the **IP Address** box, type the IP address of the Business Communications Manager system.
- 4 In the **User ID** box, type the username for the User Profile you want the CDR Pull Client to use to connect to the Business Communications Manager system.



Note: The user name you must enter in the User ID box is the name you gave the user profile that you created. For more information about creating users and user profiles, refer to the *BCM 4.0 Administration Guide* (N0016868).



Note: The User Profile you use must be assigned to the CDRUserGroup. For more information about User Profiles, refer to the *BCM4.0 Programming Operations Guide*.

- 5 In the **Password** field, type the password for the User Profile you are using.



Note: The password you must enter in the Password box is the password you assigned to the user profile that you created. For more information about creating passwords, refer to the *BCM 4.0 Administration Guide* (N0016868)

- 6 Click **Add**.

The name of the Business Communications Manager system appears on the BCM Name list.

Modifying a system on the BCM List file

To change the connection information for a BCM 4.0 system on the BCM List file

- 1 In the **BCM Names** list, click on the name of the BCM 4.0 system you want to change.
- 2 Make the required changes in the **Name**, **IP Address**, **User ID** and **Password** fields.
- 3 Click **Update**.

Deleting a system from the BCM List file

To remove a BCM 4.0 system from the BCM List file

- 1 In the **BCM Names** list, click on the name of the BCM 4.0 system you want to delete.
- 2 Click **Remove**.

Scheduling a Pull Transfer

After you have selected the BCM List file and added BCM 4.0 systems to the file, you can schedule a time and date for the CDR Pull Client to perform the Pull Transfer.

Adding a scheduled Pull Transfer

Scheduling a Pull Transfer includes:

- selecting the BCM 4.0 system
- selecting the time and date
- selecting a location to store the Call Detail Recording data files

To schedule a Pull Transfer

- 1 In the **BCM Names** field, select the BCM 4.0 system for which you want to schedule a Pull Transfer.
- 2 Click **New**.
The New CDR Pull Schedule screen appears.
- 3 Click the **Hour** drop-down list and select the hour you want the Pull Transfer to start.
- 4 Click the **Minute** drop-down list and select the minute that you want the Pull transfer to start.
- 5 In the **Date** field, click either the day or the date you want the Pull Transfer to start.

If you select a day, the CDR Pull Client will perform a Pull Transfer once a week on this day and at the time specified.

If you select a date, the CDR Pull Client will perform a Pull Transfer once a month on this date and at the time specified.



Note: If you want to select more than one day or date, press and hold the **Ctrl** key on your keyboard while you select additional days or dates.

- 6 Click **Browse**.
The Browse for Folder dialog box appears.
- 7 Navigate to the folder where you want to store the Call Detail Recording data files and click **OK**.



Note: You cannot create a folder from the Browse for Folder dialog box. If you want to store the Call Detail Recording data files in a new folder, you must use Windows to create the folder before you select it.

- 8 If you want BCM 4.0 to compress the Call Detail Recording data files into a single ZIP file before sending the information, select the **Zip CDR files before fetching** check box.
Compressing the file before sending it reduces the amount of time required to transfer the information.
- 9 If you want BCM 4.0 to delete the Call Detail Recording data files after it has successfully sent the files, select the **Delete Downloaded CDR files from BCM** check box.
- 10 Click **OK**.

The New CDR Pull Schedule screen closes and the new scheduled Pull Transfer appears in the Schedule Information box.

To delete a Pull Transfer schedule

- 1 In the **Schedule Information** field, click the Pull Transfer schedule that you want to delete.
- 2 Click **Delete**.

The scheduled Pull Transfer is removed from the Scheduled Information box.

Exiting from the CDR Pull Client

When you have finished adding BCM 4.0 systems and scheduling Pull Transfers, you can exit from the CDR Pull Client. The Pull Transfers that you have scheduled will run even if the CDR Pull Client is closed.

To exit from the CDR Pull Client, click the OK button at the bottom of the CDR Pull Sample Application screen.

To read and reset transfer statistics

1 In Element Manager, on the Task Navigation panel, click the **Configuration** tab.
The Configuration folders display.

2 Click the **Telephony** folder and click the **Call Detail Recording** task.
The Call Detail Recording panel appears with the Report Options tab displayed.

3 Click the **Data File Transfer** tab.

The following read-only Transfer Statistics are displayed in the lower panel:

- Most recent successful transfer
- Number of successful transfers
- Most recent failed transfer
- Reason for failure
- Number of failed transfers
- Largest file transferred
- Smallest file transferred
- Total number of bytes transferred
- Total number of files transferred

4 To reset the statistics, click **Reset Statistics**.

Using CDR Push Transfer

To use the CDR Push Transfer the following are required:

- an FTP Server application installed on a central client
- the FTP Server application configured to receive connections from the desired BCM 4.0 systems
- write permissions granted to use the appropriate directories to put the transferred files
- a ZIP/UNZIP utility installed (if using the file compression feature)
- a username/password defined for use by the BCM 4.0 system that has the appropriate access for FTP transfer

- a BCM configured to push the files to the central client

Setting Up the FTP server application

Follow the configuration instructions for the FTP server application you have selected for the central client. You must decide whether to use anonymous FTP or a username and password combination to access the FTP server. For security reasons, it is recommended to have a username and password.

Pushing Call Detail Recording information

You can push CDR information immediately whenever you wish to, or you can schedule a Push Transfer to occur on a regular basis. If you create a schedule, you must specify:

- where the files are transferred to
- how often the transfer occurs
- on which day the transfer starts
- at what time the transfer starts

To schedule a data file transfer

- 1 In Element Manager, on the Task Navigation panel, click the **Configuration** tab.
The Configuration folders display.
- 2 Click the **Telephony** folder and click **Call Detail Recording**.
The Call Detail Recording panel appears with the Report Options tab displayed.
- 3 Click the **Data File Transfer** tab.
- 4 Configure the Data File Transfer settings.

Table 5 Data File Transfer settings

Setting	Description
Transfer Type	<p>Select how often CDR information is sent to a central server</p> <p>Push-Daily – Once a day at the time you select in the Transfer time box</p> <p>Push-Weekly – Once a week at the time and day you select in the Transfer Time box and Day of the week boxes</p> <p>Push-Monthly – Once a month at the time entered in the Transfer Time box and the date entered in the Day of Month box</p> <p>Pull – Sets the BCM 4.0 system in Pull mode, so that it will accept data file transfer requests from the central server. The Pull option is not used for scheduling a Data File Push Transfer.</p> <p>None – The files are not sent to a central server.</p> <p>The default for this parameter is None.</p>

Table 5 Data File Transfer settings

Setting	Description
IP Address or Machine Name	Applies only to Push Enter the IP address or Machine name of the central server that you are sending CDR information to. Enter the IP address in the format 10.10.10.1, for example. A machine name can be a maximum of 47 characters.
Remote User	Applies only to Push Enter the FTP login username that BCM 4.0 uses when connecting to the central server. The Remote Username must be the same as the username you assigned to BCM 4.0 in the central server configuration, and can be a maximum of 47 characters. If you leave the Remote User box blank, the system uses the user ID “anonymous” with no password to access the FTP server. Security Note: If you use the “anonymous” user ID, there is no security provided for CDR files on the FTP server. Anyone who logs on to the FTP server with the “anonymous” user ID can access your CDR information.
Remote password	Applies only to Push Enter the FTP login password that BCM 4.0 uses when connecting to the central server. The Remote Password must be the same as the password you assigned to BCM 4.0 in the central server configuration, and can be a maximum of 47 characters.
Destination FTP Alias	Applies only to Push Enter an FTP alias on the central server where CDR information is transferred. An example of a destination FTP alias is \Telephone_systems\Call_Records. In the central server configuration, you must grant FTP writing permission at this location for the username you entered in the Remote User box and the password you entered in the Remote Password box. The destination FTP alias can be a maximum of 47 characters. Note: If you leave the Destination FTP Alias box blank, CDR files are transferred to the FTP home directory for that particular user ID.
Number of Retries	Applies only to Push Enter the number of times, from 0 - 10, that the system tries to send CDR information to the central server if a data file transfer fails. The default is 0. If you enter 0, the system does not attempt to resend the data.
Compress files before transfer	Applies only to Push Select whether CDR data files are compressed into a zip file before they are transferred to the central server. The name of the zip file created is <i>BCM machine name + year (4 digits) + month (2 digits) + day (2 digits) + hour (2 digits) + minute (2 digits) + second (2 digits) + zip</i> . For example: SouthBCM20010915084522.zip. Select the check box to compress the files into a zip file, or leave the check box clear to send the files uncompressed. The default is to not to compress the files (check box not selected).
Include Metrics File	Applies only to Push Select this check box to ensure that Hunt Group hourly statistics and metrics files are included with the CDR data files when they are transferred to the central server.
Delete files after transfer	Applies only to Push Select whether CDR data files are deleted from the system after the files are successfully transferred to the central server. Select the check box to delete the files after they are successfully sent, or clear the check box to leave the files on the system. The default is not to delete the files (check box cleared).

Table 5 Data File Transfer settings

Setting	Description
Transfer time	Applies only to Push Select the time of day when CDR files are transferred to the central server. Enter the time in hours and minutes according to the 24 hour clock (00:00 to 23:59). The default for this parameter is 00:00 (midnight). Note: Transfer time is based on the local time of the BCM 4.0, not the time at the central server.
Transfer Day	Only one of the following three fields appears on the screen. Applies only to Push Appears if you select Push-Daily as the Transfer Type. This is a read-only field that always displays Daily.
Day of Week	Appears if you select Push-Weekly as the Transfer Type. Specify the day of the week when the transfer occurs. You can select Monday, Tuesday, Wednesday, Thursday, Friday, Saturday or Sunday. The default for this parameter is Monday.
Day of Month	Appears if you select Push-Monthly as the Transfer Type. Specify the day of the month when the transfer occurs, from 1 - 31. The default is 1. Note: If you select 29, 30 or 31, CDR files are not sent on some months if the months do not contain these dates. For example, the month of February never has 30 or 31 days. If you want the files sent at the end of every month, use the default values for Transfer Time (00:00) and Day of Month (1).



Note: If you are transferring Call Detail Recording files from several BCM systems to a single central server, Nortel Networks recommends that you stagger the time of the transfers so that the central server is not overloaded with too many requests.

Transferring Call Detail Recording information immediately

When you select the Push Now option, CDR ignores any time settings for reports and sends the CDR information immediately.



Note: The Transfer immediately option uses the Push method of Data File Transfer.

To transfer the Call Detail Recording information immediately

- 1 On the **Task Navigation Panel**, click the **Configuration** tab.
The Configuration folders appear.
- 2 Click the **Telephony** folder and click **Call Detail Recording**.
The Call Detail Recording panel appears with the Report Options tab displayed.
- 3 Click the **Data File Transfer** tab.

- 4 Set the parameters on the Data File Transfer page to specify the server to which CDR information is sent. For information about the parameters on this screen, refer to the table “Data File Transfer settings” on page 34.



Note: When you use the Transfer Immediately option, you do not need to set Transfer Time, Transfer Day, Day of Week and Day of Month.

- 5 Click **Push Now**.

The BCM starts transferring Call Detail Recording information to the specified servers.

Using CDR Livestream

The CDR Livestream is an application that you can use to monitor real-time call activity from a PC. You download the CDR Livestream to a PC, and are then able to connect to a BCM and view and print real-time call activity.

To use CDR Livestream you require:

- a client PC to view the data
- a CDR user account with privileges for the CDR User Group on the BCM
- the CDR Livestream application installed and configured

To install CDR Livestream

- 1 Exit any Windows programs that are running.
- 2 Start a browser session and connect to the BCM web page.
The BCM Login dialog box appears.
- 3 Enter your username and password and click **OK**.
The Welcome to BCM page appears.
- 4 Click the **Administrator Applications** link.
The Administrator Applications page appears.
- 5 Click the **CDR Clients** link.
The CDR Clients download page appears.
- 6 Click the **Download CDR Clients** link.
The File Download dialog box appears.
- 7 Click **Save** and save the application to where you want to install it.
- 8 After the application downloads, double-click it to launch the installation, and follow the instructions in the Installation Wizard.



Note: The CdrClientInstaller.exe file installs the CDR Livestream and the CDR Pull Client.



Note: The CDR Livestream application for BCM 4.0 only allows you to view records from a BCM50 system. To use Livestreaming with earlier versions of BCM (BCM 3.x), use the appropriate 3.x version of the sample CDR Livestream application. The CDR Livestream sample applications for BCM 4.0 or BCM50 do not run with BCM 3.x systems.

Call Detail Recording display

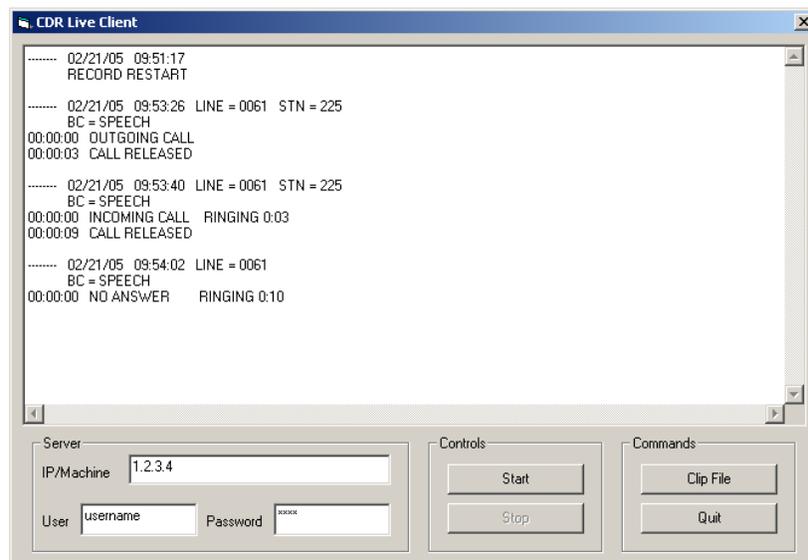
With the CDR Livestream you can monitor records remotely as calls occur.

To access the CDR Livestream

- 1 Click the **Start** button and click **Programs**.
- 2 Click **Nortel** and click **CDR Livestream**.

The CDR Livestream window appears. The CDR Livestream window displays real-time statistics that you can view and print.

Figure 2 CDR Livestream window



To use the CDR Livestream



Note: You must have a Call Detail Recording user account on the BCM to use the CDR Livestream.

- 1 Type the server name of the BCM 4.0 you want to connect to.
- 2 Type the username and password to authenticate the user.
Must be part of CDR User Group on BCM.
- 3 Click the **Start** button to view call activity records.



Note: If you do not know the server name, ask your System Administrator.

- 4 Click **Stop** to stop viewing call activity records.

To print records as you view them

- 1 Select the record you want to print or right-click on the mouse to Select All.
- 2 Right-click on the mouse to copy the record to the clipboard.
- 3 Paste the record into a text application such as Word Pad or Notepad.
- 4 Print the record.



Note: The CDR Livestream maintains a limited number of records. New records replace old records after the buffer is full. All records are maintained on the BCM system. Use the CDR data file transfer to obtain records and print files.

Chapter 4

Call Detail Recording reports

Call Detail Recording (CDR) provides two types of reports:

- “SL-1 reports”
- “Norstar reports”

SL-1 reports

Use the SL-1 report when you are supplying the output to legacy commercial accounting packages or equipment. SL-1 reports are in the form of one or two lines in ASCII characters.

This section describes the SL-1 reports and explains how to interpret them.

SL-1 report types

The CDR supports two different SL-1 report types:

- “SL-1 Standard reports”
- “SL-1 CLID reports”

The SL-1 Calling Line Identification (CLID) format is similar to the SL-1 Standard format with the addition of CLID information. For lines that do not support CLID, or when the BCM server does not deliver CLID information, calls report in an SL-1 Standard format.

SL-1 report field definitions

Table 6 and Table 7 show summaries of field definitions for SL-1 reports, line 1 and line 2.

Table 6 Field definitions for line 1

Column	Name	Format	Definition
1	RecType	Y	report type
2	Blank	N/A	Blank space
3-5	RecNo	XXX	report sequence number
6	Blank	N/A	Blank space
7-8	CustNo	00	Customer number
9	Blank	N/A	Blank space
10-16	OrigID	TXXXXXX DNXXX CF00001	Line number STN number Conference number
17	Blank	N/A	Blank space

Table 6 Field definitions for line 1

Column	Name	Format	Definition
18-24	TerID	TXXXXXX DNXXXX	Line number STN number
25-37	Blank	N/A	Blank space
38-48	TimeStamp	MM/DD HH:MM	Time stamp
49	Blank	N/A	Blank space
50-57	Duration	HH:MM:SS	Call duration
58	Blank	N/A	Blank space
59-90	Digits	XXX...X	Dialed digits
50-61	AccCode	XXX...X	Account code (C report)

Table 7 Field definitions for line 2

Column	Name	Format	Definition
3-18	CLID	XXX...X	CLID number
11-15	AOCE	XXXXXX.XX	Call charges
11-15	Pulse Charge	nnnnn (00000-32767)	Pulse charge for the call. Valid only for ETSI ISDN lines which support AOCE.
17-22	Currency Charge	nnnnn (000000-999999)	Currency charge for the call. Valid only for DASS2 and ETSI ISDN lines that support AOCE.

SL-1 report options

Call Detail Recording generates the SL-1 report options using letter codes, as shown in [Table 8](#).

Table 8 SL-1 report options and letter codes

Letter code	Report option	Notes
I	Initialization report	Contains only the report type and time stamp
N	Normal report	
S	Start report	Does not contain the duration field
E	End report	Does not contain the duration field
A	Authorization report	Does not contain any dialed digits
C	Charge report	Does not contain the duration field
M	Conference Charge report	Does not contain the duration field
X	Transfer	



Note: The I report does not contain the Call Information number; all other report types contain the Call Information number (if delivered).

SL-1 Standard reports

The following figures show examples of SL-1 Standard reports.

Figure 3 Outgoing call on line 52 from station set 7425

N 027 00 DN7425 T052000	04/04 14:03 00:01:32	5551212
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Figure 4 Incoming call on line 47 to station set 2221

N 028 00 T047000 DN2221	04/04 14:22 00:12:04	
-------------------------	----------------------	--

Figure 5 Call transfer

An outgoing call on line 38 from station set 7447 and transferred to station set 2221.

S 029 00 DN7447 T038000	04/04 15:02	8761344
X 030 00 T038000 DN2221	04/04 15:03	
E 031 00 T038000 DN2221	04/04 15:07	

Figure 6 Conference call

A two-line conference call with two outgoing calls.

S 000 01 DN6545 T038000	04/04 12:23	9369552
E 001 01 CF0001 T038000	04/04 12:27	
S 002 01 DN6789 T047000	04/04 12:23	8082635
E 003 01 CF0001 T047000	04/04 12:27	

Ad Hoc Multiparty Conferencing feature

In SL-1 format, the Ad hoc multiparty conferencing feature tracks a multiparty conference as a Start (S), Transfer (X), End (E) record sequence, where the destination of the transfer is the conference server for external parties only. The End record indicates the conference server as the originating identifier.

A set of SL-1 records involving at least four parties in a conference displays any external party involved in the conference call, regardless of the number of internal parties. All conference call participants (both internal and external) produce a Start (S), Transfer (X) and End (E) record.

SL-1 CLID reports

The SL-1 CLID report has two lines. The CLID information, if available, appears in the third character position of the second line.

The CLID number is always 16 digits. Any missing numbers are represented by an "x." If there is no CLID Information available, no CLID Information report is delivered.

Figure 7 Incoming call with CLID

An incoming call on line 38 to station set 2221 with CLID enabled. The CLID number available is 4037692000.

N 034 00 T038000 DN2221 4037692000xxxxxxx	04/04 15:32 00:10:24
--	----------------------

Figure 8 Incoming call with Call Information and no CLID

An incoming call on line 37 to station set 2211 with Call Information enabled. The CLID number is not available.

N 035 00 T037000 DN2211	04/04 14:22 00:12:04
-------------------------	----------------------

Figure 9 Incoming call transferred with CLID

An incoming call on line 38 to station set 7447 and transferred to station set 2223. Call Information is enabled, and the CLID is 4032919001.

S 029 00 T038000 DN7447 4032919001xxxxxxx	04/04 15:02
E 030 00 T038000 DN2223 4032919001xxxxxxx	04/04 15:07

SL-1 Target line/Physical lines

When target lines are used on digital trunks, reports show both the target line number and the physical line number.

Figure 10 Target line transfer

An incoming call on target line 103 and transferred to another station set. The physical line is 37.

S 029 00 T037103 DN7499	04/04 15:02
E 030 00 T037103 DN7370	04/04 15:07

Auto Attendant and Call Center station set numbers

If the Auto Attendant answers incoming calls, the station set number reports with the DN of the Auto Attendant. If Call Center answers incoming calls, the station set number reports with the Control DN (CDN) of the Skillset that answers the call.

Advice of charges at end of call (AOCE)

On Integrated Services Digital Network (ISDN) ETSI lines only, the cost of a call is available on an SL -1 record. Cost appears in dollars or pulse units. The maximum amount chargeable to an SL-1 account is \$999999 or 99999 units.

Figure 11 End of call with charges rounded down

End of call with currency charges of \$123.45. The amount is rounded down to the nearest dollar.

```
N 003 00 DN0285 T181000 07/19 16:43 00:00:02 999
      00000 000123
```

Figure 12 End of call with charges rounded up

End of call with currency charges of \$123.50. The amount is rounded up to the nearest dollar.

```
N 002 00 DN0285 T181000 07/19 17:21 00:00:03 888
      00000 000124
```

Figure 13 End of call with pulse charges

End of call with pulse charges of 456 units.

```
N 012 00 DN0285 T181000 07/19 17:31 00:00:02 99
      00456 000000
```

Figure 14 End of call with no charge

End of call with zero charges.

```
N 013 00 DN0285 T181000 07/19 17:33 00:00:04 45678
      00000 000000
```

Figure 15 Sample end of call with charges not available

End of call with charges not available.

```
N 001 00 DN0285 T181000 07/19 17:43 00:00:02 888
```

Norstar reports

Use Norstar reports when you assign the CDR output to a call accounting package that supports the Norstar report format.

Norstar report types

CDR supports four Norstar report types:

- “Norstar Standard reports”
- “Norstar CLID reports”
- “Norstar Real-time report”
- “Norstar All report”

Norstar Standard reports

Norstar Standard reports start with a header line that contains the date (MM/DD/YY), time (HH/MM/SS), and LINE and STN fields. The reports have at least one event line showing an event and time stamp.

Figure 16 Outgoing call

An outgoing call in Standard format

-----	04/04/99	11:39:43	LINE = 0003	STN = 7425
00:00:00	OUTGOING CALL			
	DIGITS DIALED	5551212		
00:00:37	ACCOUNT CODE 87			
00:12:59	CALL RELEASED			

Figure 17 Incoming call

An incoming call in Standard format.

-----	04/04/99	12:00:01	LINE = 0083	STN = 7726
00:00:00	INCOMING CALL RINGING 0:32			
00:00:39	HOLD			
00:01:12	UNHOLD			
00:02:47	CALL RELEASED			

Norstar CLID reports

With this option, CLID information received from the BCM 4.0 server for an incoming call appears between the report header and the event lines. There is one occurrence of CLID information per call. CLID information does not appear in the report if CLID information is not available.



Note: CDR reports CLID information only for lines that are capable of delivering CLID. Your BCM 4.0 must have delivery of CLID information enabled.

Norstar report field definitions

Calling number

The first line after the header line is the calling number, which can have a maximum of 11 characters. If the calling number information is incomplete, one of the following messages appears:

- If the number is truncated, a forward slash (/) precedes the digits received.
- If a partial CLID number is received, 'x' follows the digits received.
- If the number field does not receive data, UNKNOWN appears.

Name

The second line is the name, which can have a maximum of 15 characters. If the name field does not receive data, UNKNOWN appears.

Call type

The third line is the call type. This line appears if the call is a long-distance call. If the call type field does not receive data, UNKNOWN appears.

Figure 18 Incoming call with CLID

```

----- 04/04/99 11:12:01 LINE = 0013 STN = 7465
CALLING NUMBER 4032919123
NAME UNKNOWN
UNKNOWN
BC = SPEECH
00:00:00 INCOMING CALL RINGING 0:32
00:00:39 HOLD
00:01:12 UNHOLD
00:02:47 CALL RELEASED

```

Figure 19 Call with CLID not answered

An abandoned (not answered) incoming call with CLID.

```

----- 04/04/99 20:30:00 LINE = 0035
CALLING NUMBER 4032919123
NAME UNKNOWN
UNKNOWN
BC = SPEECH
00:00:00 NO ANSWER RINGING 3:15

```

Figure 20 Call with truncated CLID

```

----- 04/04/99 11:12:01 LINE = 0013 STN = 7465
CALLING NUMBER /12345678901
NAME UNKNOWN
UNKNOWN
BC = SPEECH
00:00:00 INCOMING CALL RINGING 0:32
00:00:39 HOLD
00:01:12 UNHOLD
00:02:47 CALL RELEASED

```

Figure 21 Call with partial CLID

```

----- 04/04/99 11:12:01 LINE = 0013 STN = 7465
CALLING NUMBER 1234567890x
NAME UNKNOWN
UNKNOWN
BC = SPEECH
00:00:00 INCOMING CALL RINGING 0:32
00:00:39 HOLD
00:01:12 UNHOLD
00:02:47 CALL RELEASED

```

Norstar Real-time report

Real-time call records are one line long. All real-time records begin with an asterisk (*) to differentiate them from non-real-time call records. Real-time records are generated only when CLID Information is available. You can also generate real-time records for five call states and four hospitality types.

You can use the record information to drive external PC database applications; for example, to compile customer information by extracting the CLID data from the real-time records.

Table 9 Norstar real-time report options and letter codes

Letter code	Report option	Description
G	Ringing	Ringing is unique to real-time records, and indicates a line that is ringing when CDR receives the CLID Information.
D	Dialed Number Identification Service (DNIS)	Reported only if the line delivers the DNIS information. If present, it appears after Ringing information.
A	Answered	
N	No Answer	
T	Transferred	
R	Released	
HV	Hospitality vacant	
HB	Hospitality basic	
HM	Hospitality mid	

Figure 22 Call with DNIS

A call, ringing with DNIS, answered and released

*030198	154615	0019		6137635114	John Doe	U G
*030198	154615	0019		6137635114	4037352000	U D
*030198	154623	0019	7832	6137635114	John Doe	U A
*030198	154831	0019	7832	6137635114	John Doe	U R

Figure 23 Transferred call

*041197	094105	0003		7692000	Alan Smith	U G
*041197	094105	0003		7692000	7305432	U D
*041197	094111	0003	7344	7692000	Alan Smith	U A
*041197	094156	0003	7440	7692000	Alan Smith	U T
*041197	094414	0003	7440	7692000	Alan Smith	U R

Norstar All report

This report contains Standard, CLID Information and real-time records.

Figure 24 Sample call with Standard, CLID and Real-time information

The figure shows a call record when All is selected. The RINGING record shows the call-received time with CLID Information, not the start alert-time. The call was answered 15 seconds after the ringing began. The call was transferred 25 seconds after it was answered and was released two minutes after it was transferred.

```

*030298 154920 0022          4037692000    UNKNOWN    D G
*030298 154920 0022          4037692000    8002349876  D D
*030298 154935 0022    7101    4037692000    UNKNOWN    D A
*030298 155000 0022    7169    4037692000    UNKNOWN    D T
*030298 155200 0022    7169    4037692000    UNKNOWN    D R

----- 03/02/98 15:49:20  LINE = 0022  STN = 7101
          CALLING NUMBER 4037692000
          NAME           UNKNOWN
          LONG DISTANCE
          DNIS NUMBER    8002349876
          BC = SPEECH
00:00:00 INCOMING CALL  RINGING 0:15
00:00:20 HOLD
00:00:25 TRANSFERRED

----- 03/02/98 15:50:00  LINE = 0022  STN = 7169
00:00:00 FROM TRANSFER
00:00:00 UNHOLD
00:02:00 CALL RELEASED

```

Auto Attendant and Call Center station set numbers

If the Auto Attendant answers incoming calls, the station set number appears as the DN of the Auto Attendant. If Call Center answers incoming calls, the station set number appears as the Control DN (CDN) of the Skillset that answered the call.

Standard Hospitality record format

The Hospitality record shows four states of room occupancy: vacant, basic, mid, and full. Room number lengths can be from one to five digits.

Figure 25 Room status vacant

A Standard Hospitality record with room 12345 status set as vacant.

```

----- 23/01/98 23:49:00  STN = 12345
          HOSPITALITY VACANT

```

Figure 26 Room status basic

A Standard Hospitality record with room 732 status set as basic

```
----- 23/01/98 23:49:00 STN = 732
        HOSPITALITY BASIC
```

Figure 27 Room status mid

A Standard Hospitality record with room 73 status set to mid

```
----- 23/01/98 23:49:00 STN = 73
        HOSPITALITY MID
```

Figure 28 Room status full

A Standard Hospitality record with room 7 status set to full

```
----- 23/01/98 23:49:00 STN = 7
        HOSPITALITY FULL
```

Target line/physical lines

If you use target lines on digital trunks, the Call Detail Recording reports show both the target line and the physical line number.

Figure 29 Target line and physical line

An incoming call on a target line. The target line number is 101 and the physical line number is 38. Station 7468 answers the call.

```
----- 12/12/97 12:00:01 LINE = 0101 STN = 7468
00:00:00 INCOMING CALL
        LINE = 0038
00:28:33 CALL RELEASED
```

Busy reports

CDR produces two types of busy reports:

- Direct Inward Dial
- Target Line

Direct Inward Dial busy

A call rings busy when the digital line is set up as a Direct Inward Dial (DID) line that requires receive digits to route the call through the BCM 4.0 server via a target line. If all target line destinations are busy, the unit returns a busy signal instead of routing the call to the prime station set. CDR produces a busy report.

Figure 30 Busy call with DID

```

----- 03/02/99 15:09:32 LINE = 0235
00:00:00 BUSY
          LINE = 0035

```

Target line busy

A call rings busy when a target line is involved with a call, and a second incoming call tries to use the same line. CDR produces a busy report, but does not include the target line information. Figure 31 shows an example of a call to a busy target line.

Figure 31 Call to a busy target line

```

----- 03/02/99 14:36:02 LINE = 0035
00:00:00 BUSY

```

CDR reports busy only if the BCM 4.0 server is programmed to provide busy treatment.

Bearer Capability data

When you assign Call Detail Recording to report in the Norstar CLID report format, Call Detail Recording provides Bearer Capability information associated with the call.

Figure 32 Incoming call with Bearer Capability

```

----- 12/03/99 14:36:00 LINE = 0035
          CALLING NUMBER 7355303
          NAME            UNKNOWN
          UNKNOWN
          EC = SPEECH
00:00:00 NO ANSWER      RINGING 0:02

```



Note: This information appears in the Norstar report if your BCM 4.0 server supports Bearer capabilities.

PRI call-by-call service

If the ISDN Primary Rate Interface (PRI) trunk is installed in the BCM 4.0 server, Call Detail Recording provides PRI call-by-call service information as part of the CLID call records in Norstar CLID format. The record provides both the service type and service ID for incoming and outgoing calls.

Figure 33 PRI

An incoming call using the TIE service with service ID 0 and the corresponding outgoing call using the PUBLIC service

-----	01/01/98	01:38:00	LINE = 0001	STN = 221
	CALLING NUMBER	6135551212		
	NAME	UNKNOWN		
	UNKNOWN			
	DNIS NUMBER	9772210		
	BC = SPEECH			
	PRI SERVICE	TIE 0		
00:00:00	INCOMING CALL	RINGING 0:00		
00:01:35	CALL RELEASED			
-----	01/01/98	01:38:00	LINE = 0023	STN = 223
	BC = SPEECH			
	PRI SERVICE	PUBLIC		
00:00:00	OUTGOING CALL			
	DIGITS DIALED	9772210		
00:01:35	CALL RELEASED			



Note: BCM 4.0 supports PRI only with the necessary hardware installation and the PRI trunks configuration to deliver PRI call-by-call service information.

Voice over IP calls

Calls, both incoming and outgoing, that use Voice over IP (VoIP) appear in the CLID report.

Figure 34 Incoming call with VoIP

-----	12/03/99	14:36:00	LINE = 0035	
	CALLING NUMBER	7355303		
	NAME	UNKNOWN		
	UNKNOWN			
	BC = SPEECH			
	VOIP CALL			
00:00:00	NO ANSWER	RINGING 0:02		

Dialed number identification service

Certain trunk types support the delivery of Dialed Number Identification Service (DNIS). CDR supports the reporting of DNIS as part of the CLID call reports. Both the Norstar CLID and Norstar Real-time format support DNIS reporting.

Figure 35 Incoming call with DNIS

```

----- 01/01/99 01:38:00 LINE = 0001 STN = 221
CALLING NUMBER 6135551212
NAME UNKNOWN
UNKNOWN
DNIS NUMBER 9772210
BC = SPEECH
PRI SERVICE TIE 0
00:00:00 INCOMING CALL RINGING 0:00
00:01:35 CALL RELEASED

```



Note: BCM 4.0 support DNIS only with the necessary hardware installation and trunk configuration to deliver DNIS information.

Call connected digit separator

CDR usually reports all the digits that a user dials to connect a call. The digits can include digits responding to prompts from the Automated Attendants, extension transfer, or voice mail service. To identify the digits dialed to connect the call, and the digits dialed after the call is connected, you can insert an exclamation mark (!) between them.

Figure 36 Outgoing call with digit separator

```

----- 01/01/99 01:38:00 LINE = 0023 STN = 223
BC = SPEECH
00:00:00 OUTGOING CALL
DIGITS DIALED 9772210!0132
00:01:35 CALL RELEASED

```



Note: Call Detail Recording cannot differentiate between the digits required to connect a call and extra digits dialed before the call is connected. Not all units support the delivery of call-connected signals so this feature is not available on all BCM 4.0 servers.

External call forwarding

External call forwarding occurs if an extension is configured to externally forward calls in these situations:

- Call Forward All Calls (CFAC)
- Call Forward Busy (CFB)
- Call Forward No Answer (CFNA)

If an incoming call is unanswered and externally forwarded, CDR reports the call as outgoing. The reports show:

- incoming line or extension
- outgoing line

- extension responsible for the external call forward
- reason for the external call forward
- digits dialed



Note: For more information, refer to the Installation and Maintenance Guide for your system.

Figure 37 Sample external call with external call forward

An incoming call on line 0001 that was externally forwarded to line 0002. Extension 221 is responsible for the external call forward event.

-----	12/31/99	11:59:59	LINE = 0001	LINE = 0002
	CALLING NUMBER	4032919123		
	BC = SPEECH			
	EXT CALL FWD		STN = 221	REASON = CFAC
00:00:00	OUTGOING CALL			
	DIGITS DIALED	5551212		
00:02:47	CALL RELEASED			

Figure 38 Sample internal call with external call forward

An internal call that was externally forwarded to line 0002. Extension 222 originated the call. Extension 221 is responsible for the external call forward event.

-----	12/31/99	11:59:59	STN = 222	LINE = 0002
	CALLING NUMBER	4032919123		
	BC = SPEECH			
	EXT CALL FWD		STN = 221	REASON = CFAC
00:00:00	OUTGOING CALL			
	DIGITS DIALED	5551212		
00:02:47	CALL RELEASED			

Ad hoc multiparty conference calls

The Ad hoc multiparty conferencing feature allows CDR to track multiparty conference calls and provide information on when parties have joined or left the conference. You can use this data for call accounting purposes and for statistical tracking of conference resources.

With the introduction of Ad hoc multiparty conferencing feature, a station involved in a three-party conference can add more participants using Feature 3. When a fourth participant is added, all conferenced parties are transferred to a new conference serve, and a bridge is created. When the bridge is created, a conference server record is also created. In Norstar reports, the start and end times of all participants, both internal and external, are recorded.

Norstar report field definitions

Figure 39 Standard and CLID report formats

This figure shows all of the lines available for printing by CDR in the Norstar report

```

0          1          2          3          4          5          6          7
1234567890123456789012345678901234567890123456789012345678901234567890
----- MM/DD/YY  HH:MM:SS  LINE = XXXX  STN = XXXXXXXX
----- MM/DD/YY  HH:MM:SS  LINE = XXXX  LINE = XXXX
----- MM/DD/YY  HH:MM:SS  LINE = XXXX
----- MM/DD/DY  HH:MM:SS
RECORD RESTART
00:00:00  INCOMING CALL  RINGING 0:00
00:00:00  OUTGOING CALL
00:00:00  NO ANSWER  RINGING 0:00
00:00:00  FROM TRANSFER
00:00:00  INVALID PASSWORD
00:00:00  HOLD
00:00:00  UNHOLD
00:00:00  ACCOUNT CODE  123
00:00:00  BUSY
00:00:00  DIGITS DIALED  9369552
00:00:00  CONFERENCE  STN2 = 7425
00:00:00  CONFERENCE  LINE2 = 0052
00:00:00  CONFERENCE END
00:00:00  RESTRICTION PASSWORD 99
00:00:00  CALL CHARGES = PULSES
00:00:00  CALL RELEASED
00:00:00  TRANSFERRED
00:00:00  FROM TRANSFER
00:00:00  RECORDS LOST
00:00:00  LINE = 0015
00:00:00  BC = SPEECH
00:00:00  BC = UNRESTRICTED DIGITAL
00:00:00  BC = RESTRICTED DIGITAL
00:00:00  BC = 3.1 KHZ AUDIO
00:00:00  BC = 7 KHZ AUDIO
00:00:00  BC = VIDEO
00:00:00  CALLING NUMBER  4032919123
00:00:00  CALLING NUMBER  /12345678901
00:00:00  CALLING NUMBER  4032919123x
00:00:00  NAME  Peter Pan
00:00:00  LONG DISTANCE
00:00:00  UNKNOWN
00:00:00  DNIS NUMBER  4032652300
00:00:00  PRI SERVICE  PUBLIC
00:00:00  PRI SERVICE  PRIVATE
00:00:00  PRI SERVICE  TIE
00:00:00  PRI SERVICE  FX
00:00:00  PRI SERVICE  OUTWATS
00:00:00  PRI SERVICE  SWITCHED DIGITAL
00:00:00  PRI SERVICE  INWATS
00:00:00  PRI SERVICE  INTL INWATS
00:00:00  PRI SERVICE  900
00:00:00  HOSPITALITY VACANT
00:00:00  HOSPITALITY BASIC
00:00:00  HOSPITALITY MID
00:00:00  HOSPITALITY FULL
00:00:00  EXT CALL FWD  STN = 4221  REASON = CFAC
00:00:00  EXT CALL FWD  STN = 4222  REASON = CFB
00:00:00  EXT CALL FWD  STN = 4227  REASON = CFNA
00:00:00  VOIP CALL

```

Figure 40 Real-time record format

This figure shows the lines available for printing by CDR in the real-time report

0	1	2	3	4	5	6	7
1234567890123456789012345678901234567890123456789012345678901234567890							
*MMDDYY	HMMSS	LINE	STATION	CLID NUMBER	NAME/DNIS	TYPE	EVENT
*030193	154615	0019		6137635122	Alan Smith	U	G
*030193	154615	0019		6137635122	4032632300	U	D
*030193	154615	0019	7343	6137635122	Alan Smith	U	A
*030193	154615	0019	7343	6137635114	Alan Smith	U	N
*030193	154615	0019	7343	6137635122	Alan Smith	U	T
*030193	154615	0019	7343	6137635114	Alan Smith	U	R
*012398	234900		12345			H	V
*012398	234900		12345			H	B
*012398	234900		12345			H	M
*012398	234900		12345			H	F

Norstar Standard and CLID report description

For non-Real-time Standard and CLID reports, each line has a maximum of three fields (except for the header line).

The header line has a maximum of five fields:

Field	Contents
1	8 dashes
2	date the call originated
3	time the call originated
4	line used
5	line, or station using line from 4th field

Line descriptions

The Norstar standard and CLID reports can have three, four, or five fields. The date and time reflect the date and time the call started. For incoming calls, the start time is when the call is answered. For outgoing calls it is the time the line is seized. The LINE field is fixed at four digits. The STN directory number (DN) ranges from two to seven digits in length. For outgoing tandem calls, both the fourth and the fifth fields are LINE.

Figure 41 Start header line

The header line indicates the start of a call report, or the continuation of a call report after a transfer.

```
----- MM/DD/YY HH:MM:SS LINE = XXXX STN = XXXXXX
```

Figure 42 Restart line

The restart line follows the header line when CDR or the BCM 4.0 server restarts

```
RECORD RESTART
```

Figure 43 Call ringing line

The line following the header line (with all five fields), or after the CLID Information. The time in the header line shows when the call was answered. This time minus the ringing duration (the third field) shows when the call started ringing.

Call Detail Recording reports calls based on events (change of call states):

- First field: time the associated event occurred. The time is an offset from the start time of the call indicated in the header.
- Second field: describes the event associated with the call. Events can be either a call state, such as hold or transfer, or a user action, such as account code entry.
- Third field: data that describes the action in the second field.

```
00:00:00 INCOMING CALL RINGING 0:04
```

Figure 44 Outgoing line

The line following the header line (with all five fields). The time in the header line field shows when the call was initiated.

```
00:00:00 OUTGOING CALL
```

Figure 45 Sample unanswered call line

The line following the header line if an incoming call is unanswered.

```
00:00:00 NO ANSWER RINGING 0:22
```

Figure 46 Sample busy line

The line that appears if an incoming call receives busy treatment

```
00:00:00 BUSY
```

Figure 47 Hold and off-hold lines

The line that appears if a call is put on hold or taken off hold

```
00:00:04 HOLD
00:00:06 UNHOLD
```

Figure 48 Conference start and end lines

The line that shows the start and the end of a conference. The third party in the conference can be a second station set or a second line as indicated in the third field.

```
00:10:32 CONFERENCE STN2 = 7425
00:12:12 CONFERENCE LINE2 = 0052
00:12:45 CONFERENCE END
```

Figure 49 Call transfer line

The line that appears if a call is transferred

```
00:00:00 TRANSFERRED
```

Figure 50 Call transfer from line

The line that appears if a call was transferred. It indicates the start of the call at the new station set that received the transfer.

```
00:00:00 FROM TRANSFER
```

Figure 51 End call line

The line that shows the last state of a call. It is followed by a carriage return and two line feeds so that there is a blank line before the start of the next call report.

```
00:00:00 CALL RELEASED
```

Figure 52 Digits dialed line

The line that shows the digits dialed. This line appears in outgoing call reports. A maximum of 32 digits or characters can appear. If the call connected digit separator option is enabled, an exclamation mark (!) appears between digits dialed before and after the call connects.

```
DIGITS DIALED XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX
DIGITS DIALED 123456789!1234
```

Figure 53 Invalid password line

The line that appears if a user or caller enters an invalid password

```
00:00:00 INVALID PASSWORD
```

Figure 54 Account code line

The line that appears if an account code is entered. Account codes can be a maximum of 12 digits.

```
00:00:00 ACCOUNT CODE XXXXXXXXXXXX
```

Figure 55 Password

The line that appears if a password is entered. The password ID is a maximum of two digits (00-99). The report indicates the password override ID and not the password itself.

```
00:00:00 RESTRICTION PASSWORD XX
```

Figure 56 Last line

The line that shows the last line of a call report if call states are missed, or if a call is missed altogether. This line is followed by a carriage return and two line feeds so that there is a blank line before the start of the next call report.

```
REPORTS LOST
```

Figure 57 Physical line

The line that identifies the physical line of an incoming call on a target line. The line number is fixed at four digits (with leading zeroes).

```
LINE = XXXX
```

Figure 58 CLID information

The lines that appear if CLID information is available. The calling number can be a maximum of 12 characters, of which a maximum of 11 can be digits. If a number received is longer than 11 digits, then slash (/) is the first character, followed by the 11 least significant digits. The name can be a maximum of 15 characters. Each of the number and name can contain UNKNOWN. The third line is the call type, which indicates either LONG DISTANCE or UNKNOWN if call type information is not available. The DNIS number, if available, appears after the call type. The DNIS number is followed by the Bearer Capability. The last line is the PRI call-by-call service, which appears only when the PRI service information is available.

```
CALLING NUMBER XXXXXXXXXXXX
NAME XXXXXXXXXXXXXXXX
UNKNOWN
DNIS NUMBER XXXXXXXXXXXX
BC = SPEECH
PRI SERVICE TIE XXXXX
VOIP CALL
```

Figure 59 Room status

The lines that appear if the room occupancy status of a room changes to vacant.

```
----- 23/01/98 23:49:00 STN = 12345
HOSPITALITY VACANT
```

Figure 60 Sample external call forward

The line that appears if a call is externally forwarded. This line shows the extension that is responsible for the external call forward.

EXT CALL FWD STN = 221 REASON = CFAC
--

Norstar Real-time record description

Table 10 Real-time record

The Real-time record is one line long, beginning with an asterisk (*) to differentiate it from other Norstar records. This record contains eight fields.:

Field	Description
Date	In MMDDYY format The month, day or year are preceded by a leading 0 to keep the field length fixed. For example, 010501 is January 5, 2001.
Time	In HHMMSS format There are no separators between hour, minute, and second.
Line number	Line number associated with call Fixed at four digits and can have leading zeros. For example, 0019 is line 19. As the Real-time Hospitality record does not use the third field, it does not contain any characters and appears blank.
Station set number	Station set number associated with call Station set numbers range from 2 - 7 digits. If the number is less than seven digits there are no leading zeros because this field is not fixed. In the Real-time Hospitality record this field shows the room number. Room numbers range from 1 - 5 digits.
CLID number	Shows the calling number The number is a maximum of 12 characters (11 digits maximum and the (/) and "x" characters). There is always information in this field. If no number is available, either UNKNOWN or PRIVATE appears in this field. As the Real-time Hospitality record does not use this field it appears blank.
CLID name or DNIS number	Shows the name, which is a maximum of 15 characters. If no name is available, UNKNOWN appears in this field. DNIS information in "D" records replaces this field. The DNIS is a maximum of 10 digits. In the Real-time Hospitality record this field shows the room occupancy status indicator.
Call type	Shows either long distance (D) or unknown (U) status.
Call state	Contains a call state indicator, followed by a carriage return and two line feeds.

Real-time Hospitality record format

The Ragtime Hospitality record shows four states of room occupancy:

- vacant
- basic

- mid
- full

Room number lengths range from one to five digits.

Figure 61 Room status vacant

*012398 234900	12345	H V
----------------	-------	-----

Figure 62 Room status basic

*012398 234900	732	H B
----------------	-----	-----

Figure 63 Room status mid

*012398 234900	73	H M
----------------	----	-----

Figure 64 Room status full

*012398 234900	7	H F
----------------	---	-----

Advice of charges at end of call

On ISDN ETSI lines only, the cost of a call is available on a Norstar record. Cost appears in dollars or pulse units.

Figure 65 Charges in dollars

-----	07/19/00	16:13:11	LINE = 0181	LINE = 285
			BC = SPEECH	
00:00:00			OUTGOING CALL	
			DIGITS DIALED 54672	
			CALL CHARGE = 123.45 \$	
00:00:08			CALL RELEASED	

Figure 66 Charges in lira

-----	07/19/00	16:16:56	LINE = 0181	LINE = 285
			BC = SPEECH	
00:00:00			OUTGOING CALL	
			DIGITS DIALED 98	
			CALL CHARGE = 123 Lira	
00:00:03			CALL RELEASED	

Figure 67 Charges in units

```
----- 07/19/00 16:28:15 LINE = 0181 LINE = 285
          BC = SPEECH
00:00:00 OUTGOING CALL
          DIGITS DIALED 546
          CALL CHARGE = 456 PULSES
00:00:04 CALL RELEASED
```

Figure 68 No charge

```
----- 07/19/00 16:29:40 LINE = 0181 LINE = 285
          BC = SPEECH
00:00:00 OUTGOING CALL
          DIGITS DIALED 55
          CALL CHARGE = 0
00:00:03 CALL RELEASED
```

Figure 69 Charges not available

```
----- 07/19/00 16:26:13 LINE = 0181 LINE = 285
          BC = SPEECH
00:00:00 OUTGOING CALL
00:00:02 CALL RELEASED
00:00:02 CALL RELEASED
```

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