Voice

Data

Internet

CDR Manual 4.5

ALTIGEN
COMMUNICATIONS

Shaping the Future of Converged Communications

Call Detail Reporting

for AltiWare Open Edition (OE) Release 4.5

Manual

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Toll fraud is committed when individuals unlawfully gain access to customer telecommunication systems. This is a criminal offense. Currently, we do not know of any telecommunications system that is immune to this type of criminal activity. AltiGen Communications, Inc. will not accept liability for any damages, including long distance charges, which result from unauthorized and/or unlawful use. Although AltiGen Communications, Inc. has designed security features into its products, it is your sole responsibility to use the security features and to establish security practices within your company, including training, security awareness, and call auditing.

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CHAPTER 5

Warranty

What The Warranty Covers

AltiGen Communications warrants its hardware products to be free from defects in material and workmanship during the warranty period. If a product proves to be defective in material or workmanship during the warranty period, AltiGen Communications will, at its sole option, repair, refund or replace the product with a like product.

How Long the Warranty Is Effective

All AltiGen Communications products are warranted for one (1) year for all parts from the date of the first end user purchase.

Whom the Warranty Protects

This warranty is valid only for the first end user purchaser.

What the Warranty Does Not Cover

1. Any product on which the serial number has been defaced, modified or removed.

2. Damage, deterioration or malfunction resulting from:

   a) Accident, misuse, neglect, fire, water, lightning, or other acts of nature, unauthorized product modification, or failure to follow instructions supplied with the product.

   b) Repair or attempted repair by anyone not authorized by AltiGen Communications.

   c) Any damage of the product due to shipment.

   d) Removal or installation of the product.

   e) Causes external to the product, such as electric power fluctuations or failure.

   f) Use of supplies or parts not meeting AltiGen Communications' specifications.

   g) Normal wear and tear.

   h) Any other cause which does not relate to a product defect.

3. Shipping, installation, set-up and removal service charges.

How to Obtain Service

End user customers should contact your Authorized AltiGen Dealer for service.

Authorized AltiGen Dealers must follow the steps below for service:

1. Take or ship the product (shipment prepaid) to your AltiGen distributor or to AltiGen Communications, Inc.

All materials being returned to AltiGen must have an associated RMA number. RMA numbers are issued by AltiGen Customer Service and can be obtained by calling 1-888-ALTIGEN (258-4436) or faxing an RMA form, available from the AltiGen website at http://www.altigen.com/partner/product.htm, to 510-252-9738, attention to Customer Service. AltiGen reserves the right to refuse return of any material that does not have an RMA number. The RMA number should be clearly marked on the outside of the box in which the material is being returned. For example:

> Attn.: RMA # 123
> AltiGen Communications, Inc.
> 47427 Fremont Blvd.
> Fremont, CA 94538

Upon authorization of return, AltiGen will decide whether the malfunctioning product will be repaired or replaced.

2. To obtain warranty service, you will be required to provide:

    a) the date and proof of purchase

    b) serial number of the product

    c) your name and company name

    d) your shipping address

    e) a description of the problem.

3. For additional information contact your AltiGen Dealer or AltiGen Communications, Inc. via e-mail at support@altigen.com.

Effect of State Law

This warranty gives you specific legal rights, and you may also have other rights which vary from state to state. Some states do not allow limitations on implied warranties and/or do not allow the exclusion of incidental or consequential damages, so the above limitations and exclusions may not apply to you.

Sales Outside the U.S.A.

For AltiGen Communications products sold outside of the U.S.A., contact your AltiGen Communications dealer for warranty information and services.

Using CDR Search

CDR Search is a client application that lets you search a Call Detail Reporting database. You can install CDR Search on either the AltiServ server or on an administrator client desktop. CDR Search works only with AltiWare OE Release 4.5 and higher.

CDR Search, WG CDR Search, WG Statistics

CDR client offers three ways to search call records.

- **CDR Search** lets you define a search by the type of call, incoming or outgoing. To perform this search, you must log in as the administrator.

- **WG CDR** lets you specify a search by workgroup. To perform this search, you can log in as the administrator or as a workgroup supervisor.

- **WG Statistics** lets you search workgroup call data captured from the real-time monitoring functions in the Workgroup Statistics tab of the AltiSupervisor client. To perform this search, you can log in as the administrator or as a workgroup supervisor.

Installing CDR Search on a Client System

System Requirements

- The client system must be running Windows 98, 2000, NT, Windows ME, or higher.

- AltiWare OE Release 4.5 or higher must be installed on the AltiServ system and the link to TCP/ IP enabled.

To install the CDR client:

1. Log in to the client machine using a domain account and make sure it is connected to the network on which AltiServ is running.

2. Exit all Windows applications.

3. Insert the AltiWare OE CD into the CD ROM drive.

4. In the CDR>CDRSearch_Client folder, run **Setup.exe**. Follow the step-by-step installation instructions as they appear on the screen.

Uninstalling CDR Search

1. From the Windows Start menu, select **Programs > CDR Search > Uninstall CDR Search 4.5.**

2. Click **OK** when the dialog box asks if you want to uninstall the program, and respond to any additional prompts.

Logging In

There are two ways to log in to CDR search.

Administrator login lets you perform all three types of search described in "CDR Search, WG CDR Search, WG Statistics" on page 1. To log in as an administrator, your extension must be designated as the Manager Extension in AltiAdmin. See your system administrator for details.

Workgroup supervisor login lets you run a WG CDR search or a WG Statistics search, described in "CDR Search, WG CDR Search, WG Statistics" on page 1.To log in as a workgroup supervisor, the option-pack license must be installed on the AltiServ server. For information on obtaining a license, contact your Authorized AltiGen dealer.

Before you log in

When you log in for the first time, you need to know either the IP address or the name of the server you'll be linking to. (If you use the server name rather than the IP address, CDR Search replaces the name with the IP address the next time you log in.)

To obtain the AltiServ IP address, ask your system administrator.

Note: If you are connecting to the Internet through a modem, establish a connection from your PC to your ISP before you log in to CDR search.

Logging in - Administrator login

1. From the Windows **Start** menu, select **Programs > CDR Search > CDR Search 4.5**. The Login window appears.

Figure 1.   Login window

2. Enter the IP address or name of the AltiServ server.

3. Enter your **Extension** and **Password**.

    Optionally, you can check the **Save password** check box to store your log in password for the next time you access CDR Search.

4. Select the database containing the data you want to access.

    •   **Internal database**—DBF database on the AltiServ server.

    •   **External database**—SQL database set up to log call records.

        Note: This option is available only when the external logger service is installed on the SQL Server, and External CDR Logging is enabled. Consult your system administrator for more information.

5.   Click **OK** to open the User Mode window.

Figure 2.   User Mode window

6.   Select **Administrator login** and click **OK.**

Logging in - Workgroup supervisor login

1.   From the Windows **Start** menu, select **Programs > CDR Search > CDR Search 4.5**. The Login window appears.
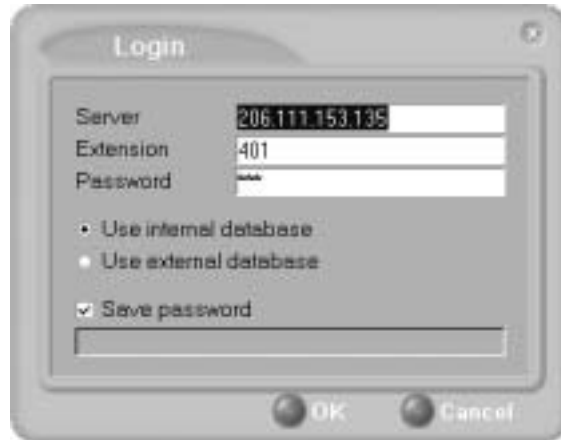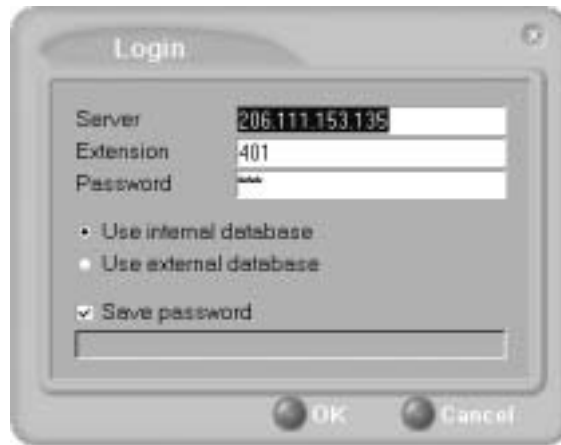

Figure 3.   Login window

2.   Enter the IP address or name of the AltiServ server.

3.   Enter your **Extension** and **Password**.

Optionally, you can check the **Save password** check box to store your log in password for the next time you access CDR Search.

4. Select the database containing the data you want to access.

    • **Internal database**—DBF database on the AltiServ server.

    • **External database**—SQL database set up to log call records.

       Note: This option is available only when the external logger
       service is installed on the SQL Server, and External CDR
       Logging is enabled. Consult your system administrator for
       more information.

5. Click **OK** to open the User Mode window.
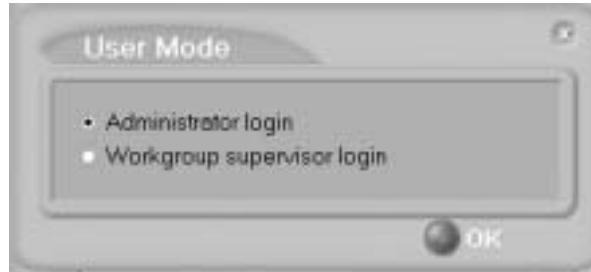

Figure 4.   User Mode window

6. Select **Workgroup supervisor login,** and click **OK.**

7. In the Password dialog box that appears, select the workgroups you
    want, enter the password for each, and click **OK** to open the CDR
    Search main window.

Figure 5.   Password window

This will allow access to the workgroup CDR and workgroup statistics.

If you enter an invalid password, the Password window reappears. A red X appears before the problem workgroup. Re-enter the password and click **OK.**

For multiple workgroups: If you re-enter an invalid password for *one* workgroup, the CDR Search main window will open, but the workgroup will not appear in the **Workgroup** drop-down and thus will not be available as a search criterion.

Figure 6.   Password window showing invalid password

Running a Search

The CDR Search main window has three tabs: CDR, WG CDR, and WG Statistics.

Figure 7.   CDR tab of the CDR Search main window

CDR Search

CDR Search lets you search all calls, internal and external. To perform this search, you must log in as the administrator.

To run a CDR search:

1. Select the time range for the search:

    • **User Define**—the From/To fields default to a range that includes the ten previous days. Edit the date and time for a custom range.

    • **Today**—sets the From/To fields to the current date

    • **Last 7 Days**—sets the From/To range to the previous seven days

2. Select the Type of search:

Logging In

- **All Calls**—calls involving: Auto Attendant, Ring No Answer, Queue, Voice Mail (no VM recorded or VM recorded), Connect, Logon, Logoff, All Trunks Busy, No session, VM Access, Forward, Transfer, VM Notify, WG Abandoned, Park, System Park, Conference, Call Monitor, Transfer Cancel, Call Redirect, Call Pick Up, Dial Cancel

- **Connected Calls & Messages**—Connected Calls plus Messages (see below)

- **Connected Calls**—incoming calls answered by a person, and outgoing calls that entered "Connected" state

  Note: For CDR records, Connected Calls refer to calls in these states: connected, transfer, park, system park, conference call and transfer cancel.

- **Messages**—incoming calls directed to voicemail

- **Unanswered Calls**—incoming or outgoing calls not answered by a person

  Note: For CDR records, Unanswered calls refer to calls abandoned while in these states: AA, forward, RNA, queue, voicemail, WG abandoned, call redirect, no more session, pick up by and dial cancel.

- **All Trunks Busy**—outgoing calls aborted due to busy signals

Note: See "CDR Call Format" on page 56 for call data details.

3. Define the type of calls in the Caller/Callee fields and enter values for the Trunk and Extension, if applicable.

- **All**—searches for both incoming and outgoing calls

- **To search for outgoing calls only**—set Caller to Extension and Callee to Trunk, then enter the appropriate numbers

- **To search for incoming calls only**—set Caller to Trunk and Callee to Extension, then enter the appropriate numbers

- **To search for internal (station to station) calls**—set Caller and Callee to Extension

Use the drop down lists (located to the right of the **Caller** and **Callee** value fields) to further define the value match for your record search:

- **Exact** - retrieves records that exactly match the field value entered

- **Like** - retrieves records that begin with the field value entered

- **Pat** - retrieves records that contain the field value in any part of the extension/trunk digits.

Example: "252" is the Callee value entered in the blank field. If **exact** is selected, any record with only "252" in the Callee field is retrieved. If **like** is selected with this value, any records where "252" begins the Callee field (e.g. **252**-9712, **252**-9713) is retrieved. If **pat** is selected with this value, any records with "252" in any part of the Callee field is retrieved (e.g: **252**-9712, 946-**252**5).

4. In the search criteria fields, enter data for **DNIS, Tenant,** or **Acct Code** as desired.

    Use the drop down lists (located to the right of the **DNIS, Tenant** and **Acct Code** value fields) to further define the value match for your record search:

    - **Exact** - retrieves records that exactly match the field value entered

    - **Like** - retrieves records that begin with the field value entered

    - **Pat** - retrieves records that contain the field value in any part of the DNIS/Tenant/Acct Code digits.

5. Select to **Sort by:**

    - **Date/Time**—sorts day-by-day (or hour-by-hour if you select Today as the time range for the search).

    - **Extension**—sorts by extension.

    - **Trunk**—sorts by trunk.

    - **N/A**—search without sorting, retrieves total number of records.

        Note: For faster searching, using **N/A** to sort records is recommended.

    (For example, when you search for Connected Calls, the time range as "Today," and sorting by N/A, CDR will retrieve the total number of connected calls for "today."

Note: If the time range for the search is less than 1 day, and Date/Time is selected for Sort by, CDR will list records hourly. If time range for the search is longer than 1 day, and Date/Time is selected for Sort by, CDR will list records daily.

6. Click **Search.** During the search, a progress window appears. To cancel the search, click **Cancel.**

7. Search results appear in the **Summary** window. Refer to "Search Results" on page 15 for details on working with search results.

Workgroup CDR Search

Workgroup CDR search lets you specify a search by workgroup. To perform this search, you can log in as the administrator or as a workgroup supervisor.

Figure 8.   WG CDR tab of the CDR Search window

To run a WG CDR search:

1. Select the time range for the search:

    • **User Define**—the From/To fields default to a range that includes the ten previous days. Edit the date and time for a custom range.

    • **Today**—sets the From/To fields to the current date

    • **Last 7 Days**—sets the From/To range to the previous seven days

2. Select the Type of search:

- **All Calls**—calls involving: Auto Attendant, Ring No Answer, Queue, Voice Mail (no VM recorded or VM recorded), Connect, Logon, Logoff, All Trunks Busy, No session, VM Access, Forward, Transfer, VM Notify, WG Abandoned, Park, System Park, Conference, Call Monitor, Transfer Cancel, Call Redirect, Call Pick Up, Dial Cancel

- **Connected Calls & Messages**—Connected Calls plus "Messages (see below)

- **Connected Calls**—incoming calls answered by agent and outgoing calls made by agent (when an **Outgoing Workgroup** is selected for the agent in the Workgroup Extension Configuration in AltiAdmin).

- **Messages**—calls directed to voicemail

- **Unanswered Calls**—incoming calls not answered by agent or workgroup (abandoned in AA, forward, RNA, queue, voicemail, WG abandoned, call redirect, no more session, pick up by and dial cancel).

- **All Trunks Busy**—outgoing calls aborted due to busy signals

- **Agent Login/out**—calls sorted by the login/out times of workgroup member extension numbers

Note: See "CDR Call Format" on page 56 for call data details.

3. Select the **Workgroup** whose call records you want to search.

4. In the search criteria fields, enter data for **Caller, Target, DNIS, Tenant,** or **Acct Code** as desired. Select **Exact match** for an exact match. Otherwise, CDR Search will retrieve every record that contains the number(s) you enter.

5. Select to **Sort by:**

- **Date/Time**—sorts day-by-day (or hour-by-hour if you select Today as the time range for the search)

- **Agent**—sorts by agent

- **Workgroup**—sorts by workgroup

- **Trunk**—sorts by trunk

- **N/A**—search without sorting, retrieves total number of records.

   Note: For faster searching, using **N/A** to sort records is recommended.

(For example, when you search for Connected Calls, the time range as "Today," and sorting by N/A, CDR will retrieve the total number of connected calls for "today."

Note: If the time range for the search is less than 1 day, and Date/Time is selected for Sort by, CDR will list records hourly. If time range for the search is longer than 1 day, and Date/Time is selected for Sort by, CDR will list records daily.

6. Click **Search.** During the search, a progress window appears. To cancel the search, click **Cancel.**

Search results appear in the Summary window. Refer to "Search Results" on page 15 for details on working with search results.

Workgroup Statistics Search

Workgroup Statistics lets you search workgroup call data (rtmData.mdb records) captured from the real-time monitoring function in the Workgroup Statistics tab of the AltiSupervisor client. To perform this search, you can log in as the administrator or as a workgroup supervisor.
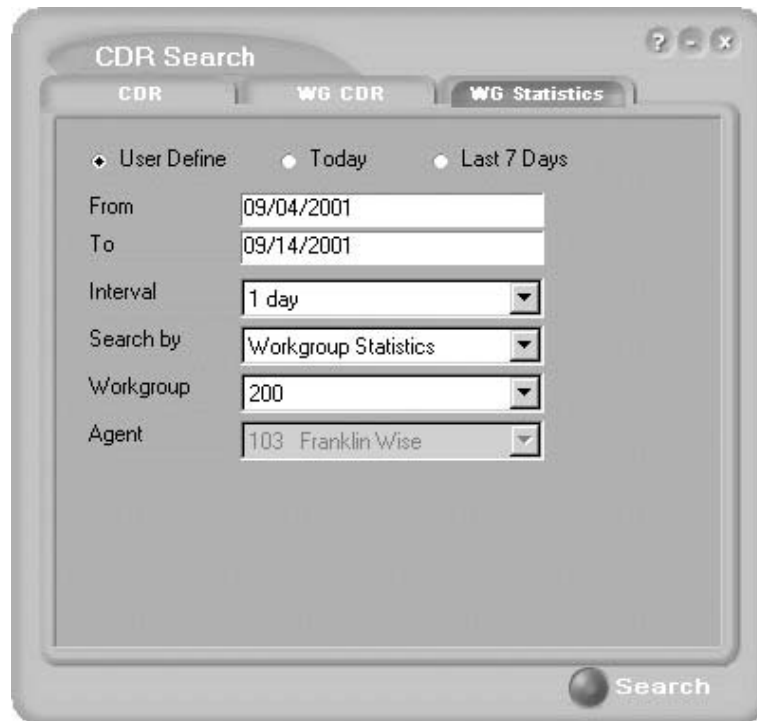
Figure 9.   WG Statistics tab of the CDR Search window

To run a WG Statistics search:

1. Select the time range for the search:

    • **User Define**—the From/To fields default to a range that includes the ten previous days. Edit the date and time for a custom range

    • **Today**—sets the From/To fields to the current date

    • **Last 7 Days**—sets the From/To range to the previous seven days

2. Select the **Interval** (1 day, 1 hour, or 15 minutes) to specify the granularity of your search results.

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> **Note:** This selection is overridden by the interval setting in AltiAdmin. If your search results produce greater intervals than you specified, consult your system administrator.

3. Select the type of search:

   • **Workgroup Statistics**—statistics on a specific workgroup

   • **Agent Statistics per Workgroup**—statistics on a specific agent for a specific workgroup

   • **Agent Statistics**—statistics on a specific agent for every workgroup to which he/she belongs

   > **Note:** See "CDR Search and WG CDR Search Results Windows" on page 39 for workgroup statistics call data details.

4. Depending on the type of search you selected, specify a **Workgroup** and/or **Agent** to search on.

5. Click **Search.** During the search, a progress window appears. To cancel the search, click **Cancel.**

   Search results appear in the Statistics window. Refer to "Search Results" on page 15 for details on working with search results.

Search Results

The type of search you perform determines the type of results you see: **Summary,** which also enables drilldown to call **Details** and **Records** windows, or **Statistics.**

All Results windows have the following buttons:
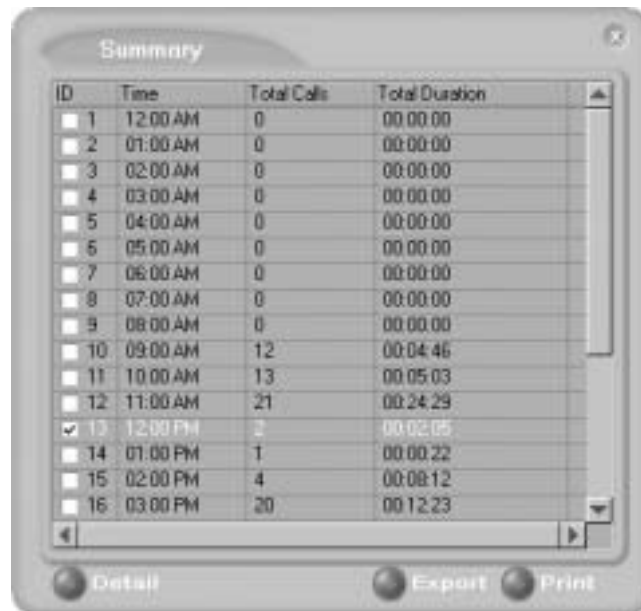
- **Export** - exports selected calls to a csv file. Refer to "Exporting Records" on page 19 for details.

- **Print** - prints the selected calls. Refer to "Printing Records" on page 19 for details.

All Statistics windows (WG, Agent Statistics Per WG, Agent) also have a **Stop** button.

For explanations of records and database schema, see *Chapter 5, Records and Data Schema*.

Summary (CDR Search and WG CDR Search)

For CDR Search and WG CDR Search, the Summary window displays the results.

Figure 10.   Summary window

- The **Detail** button opens the Detail window for a selected call. Refer to "Call Details" on page 16 for details.
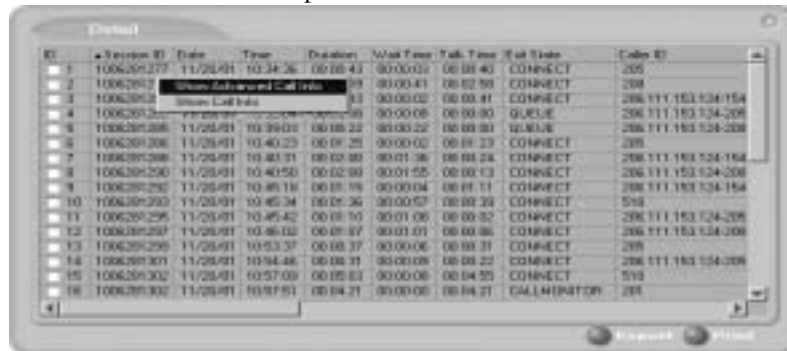
Call Details

You can drill down for detailed information on call records.

1. To see details on a call, select a record in the Summary window and click **Detail.**

The Detail window opens.

Figure 11.   The Detail window

2. To view call records, right-click a record in the Detail window and select **Show Call Info** or, for raw data on trunk calls, **Show Advanced Call Info.**

Figure 12.   The Record window (Call Info)

Figure 13.   The Record window (Advanced Call Info - trunk calls only)
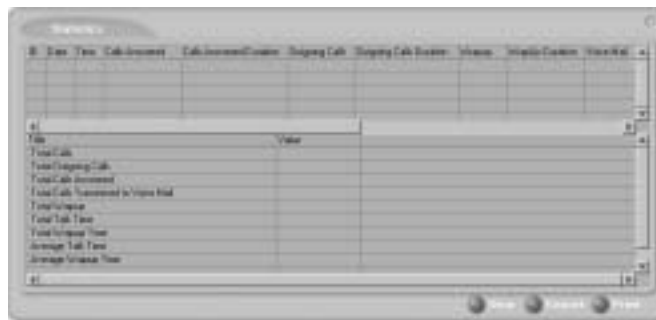
Statistics (WG Statistics)

For Workgroup Statistics searches, the Statistics windows display the results of your search. There are different windows for the three types of WG Statistics searches you can perform.
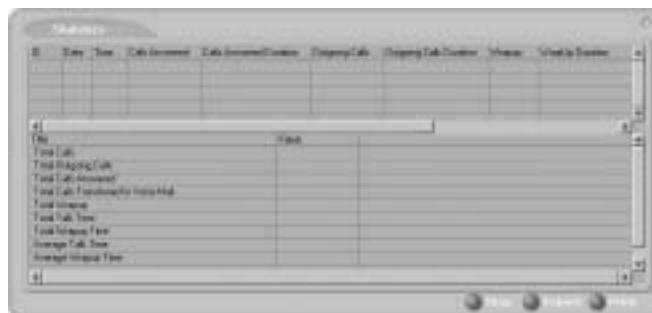
Figure 14.   The Workgroup Statistics window

Figure 15.   The Agent Statistics per Workgroup window

Figure 16.   Agent Statistics window

Exporting Records

You can export records in csv format from the Statistics, Summary, Detail, and Record windows.

To export records from the Statistics window:

1. Click **Export.**

2. Click **OK** to open the Save As dialog box.

To export records from the Summary, Detail, and Record windows:

1. Do one of the following:

   • To export specific records, select the records you want, then click **Export.** In the Select window that appears, select **Export only selected records.**

   • To export all records, click **Export.** In the Select window that appears, select **Export All Records.**

2. Click **OK** to open the Save As dialog box.

Printing Records

You can print records from the Statistics, Summary, Detail, and Record windows.

To export records from the Statistics window:

1. Click **Print.**

2. Click **OK** to open the Windows Print dialog.

To print records from the Summary, Detail, and Record windows:

1. Do one of the following:

   • To print all records, click **Print.** In the Select window that appears, select **Print out all records.**

   • To print specific records, select the records you want, then click **Print.** In the Select window that appears, select **Print out only selected records.**

2. Click **OK** to open the Windows Print dialog.

Printing Records

CDR Overview

AltiGen's Call Detail Recording (CDR) solutions include data creating, recording, collecting, and reporting. While CDR can be used for individual and departmental billing, timecards, and market analysis, this manual places special emphasis on CDR's use for call center applications. The data schema are designed to provide information for PBX, call center, billing, multi-tenant, and performance tracking information.

Real-time Monitoring and the CDR Client

New with AltiWare OE Release 4.5, workgroup call data is captured from the real-time monitoring function of the AltiSupervisor client application and made available to a dedicated feature—the "WG Statistics" tab—in the CDR Search client. The difference between call detail recording (described immediately below) and the RTM records is that call detail recording tracks every individual call, from auto-attendant through disconnect, while RTM reporting takes "snapshots" of call center data at continuous intervals ranging from every 15 minutes to every 24 hours.

Such data contains statistics—counts, sums, totals, averages, and percentages—on items such as the number of calls in the workgroup's queue, the amount of time callers waited in the queue, and the number of calls that were abandoned from the queue, during the searched time period. This data is stored in its own database, which is configured for backups, storage limits, and the granularity of your data (determined by the interval size) via settings in AltiAdmin.

The RTM Statistics Database

The RTM statistics database, called "rtmData.mdb," is installed automatically with AltiServ in a folder called "AltiDB," in any location the user chooses.

Figure 1.   AltiServ installation

After installing AltiServ, the user configures rtmData.mdb using the Call Reports window in AltiAdmin.
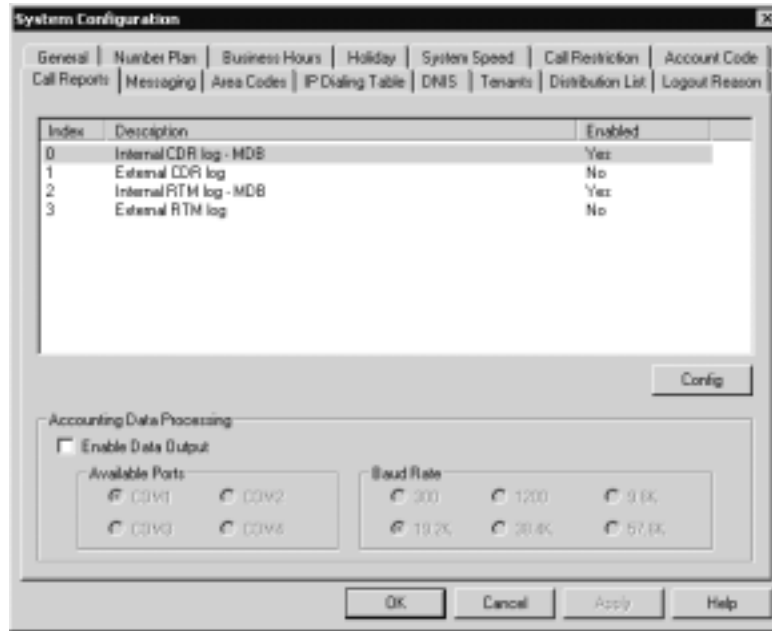
Figure 2.   Call Reports window, System Configuration

When **RTM Data - MDB** is selected, the **Config** button opens a dialog box where the user can enable and configure these records.
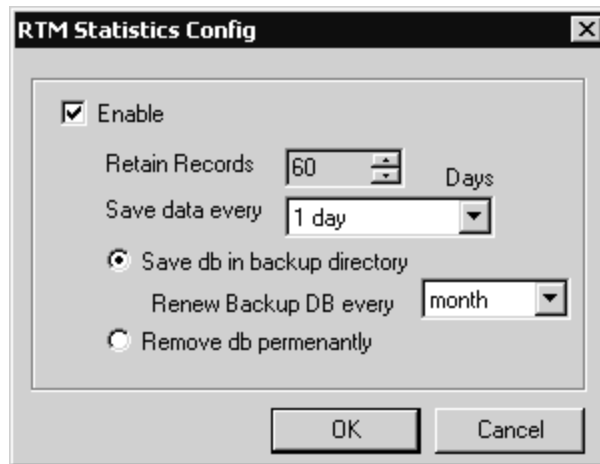
Figure 3.   Configuring AltiDB for WG call data collection

The **Enable** and **Retain Records** parameters are unchanged from the previous version of AltiWare, except that the lower limit for retaining records is now 1 day instead of 5 days. The Buffer Size settings are also gone.

The new parameters function as follows:

- **Save data every** - specifies how often to save WG call data from the real-time monitor. This setting, with intervals ranging from 15 minutes to 24 hours, provides the minimum level of granularity at which RTM statistics can subsequently be reported from the CDR Search client.

- **Save, Renew** and **Remove options** - specify whether and how often to save backup files into the DBBackup folder.

If **Save** is selected, **Remove** is disabled and AltiWare saves all data that overflows the **Retain Records** setting each day at midnight.

Example:

- **Retain Records** is set to 60 days
- **Save db** is selected
- **Renew Backup** is set to every month

   On day 61 a backup file is started in the DBBackup folder. Each day's RTM data is added to this file for one month. At the end of a month, a new file is started in DBBackup, which is likewise appended with each day's RTM data every day at midnight.
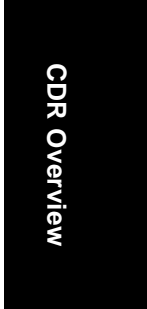
— Naming conventions for the backup files are *<yyyymmdd>*.mdb. Backup files are not overwritten by the Renew process.

— Backup files are dated and renewed according to the following schedule, regardless of when the user actually makes the **Renew** selection.

Table 3.   AltiDB backup schedule

Renew setting	Renewal Dates
day	daily, at midnight
week	every Sunday
2 weeks	the 1st and 15th of every month
month	the first of every month
3 months	December, March, June, September
6 months	January and June
year	January

If **Remove** is selected, the **Save** and **Renew** settings are disabled and no backups are created. When the **Retain Records** limit is reached, the

oldest day's data is replaced by the current day's data each day at midnight.

Call Center Events and CDR

In call detail recording, every individual call is tracked from its start time to its end time. An incoming trunk call, for instance, starts with auto-attendant answer. The auto-attendant offers the caller specific routing choices, and/or collects information to intelligently route a call. Queuing, if it happens, starts with the call leaving the auto attendant, includes ring time of the agent phone, and ends when an agent answers the phone. Disconnects (call abandons) can happen at any time during the process. All of this activity is summarized under talk time and wrap-up time. It is searchable via the "CDR" and "WG CDR" tabs of the CDR Search client.

Past and Present CDR

Database Schema. The CDR data schema has been redesigned and streamlined. If you have a reporting package using past versions of AltiGen's CDR or SMDR, the reporting package vendor will have to rewrite the reporting program to work with the new schema.

Rate Tables. AltiWare 4.0 and higher does not support rate tables, unlike previous releases. This function must now be obtained by external applications found in reporting tools. The CDR database has sufficient information to support rate and charge evaluation by external applications.

Migration. If you are upgrading from OE 3.5, you will not be provided with any conversion tool for CDR records stored under OE 3.5 or prior releases.

If you are upgrading from OE 4.0, you can convert ILS data using a conversion tool called **AltiDBReader.** Instructions on using and installing AltiDBReader are located in the *AltiWare System Installation and Administration Manual.*

Extension-to-Extension Call Reporting. Unlike past releases, AltiWare's OE 4.5 CDR solution includes records for internal calls between extensions, and from internal extensions to workgroups. This is in addition to information on incoming and outgoing trunk calls.

SMDR Cautions. SMDR is a Mitel-defined data schema for delivering basic call information out the RS232 serial port to external recording and reporting applications.   While AltiGen has provided an SMDR interface, it has had many problems in terms of accuracy and consistency of information delivery. SMDR is **not** CDR. CDR is historical, and is a database containing call records. SMDR is a real time delivery of a subset of this information. We recommend that you use the new CDR, not the SMDR, for reporting and billing applications. No improvements or corrections have been made to SMDR.

CDR Overview

Past and Present CDR

C H A P T E R 3

Data Storage

CDR Search can store data using either an Internal Logger Service (ILS) or an External Logger Service (ELS). These two storage systems are described below.

Internal Logger Service

In AltiWare OE Release 4.5, call reporting distinguishes between *call detail* data, which records every call made to, out of, and within the AltiServ system, and *RTM* data, which is workgroup-related statistical data captured from the real-time monitoring function used in the AltiSupervisor client application. Both types of data can be set up for call reporting, or logging, although their storage systems are different.

- **Call detail data** can be logged to your local drive, to a remote server, and/or exported via a COMM port.

- **RTM data** is always logged to your local drive.

Data logged to your local drive is stored in a directory called **AltiDB,** which is located by default on the root of the drive where AltiWare is installed. Files are stored in .mdb format. Settings in AltiAdmin determine how long to retain the records, and whether to and how often to create backup files. For RTM data, another setting determines how often to save. These intervals, ranging from every 15 minutes to every 24 hours, determine the granularity of your search results.

Backups, if you choose to make them, are created in a subdirectory called **DBBackup,** which in turn contains three subdirectories: **MCDR** for Advanced Call Data, **RTMCALL** for Call Data, and **RTMDATA** for RTM data. These three types of data have separate report screens in the CDR Search client, which are described in the CDR client documentation.

See the "Call Reports" description in the *AltiWare System Installation and Administration Manual* for details on the administrative settings described above.

External Logger Service

External Logger Service is an optional add-on feature to CDR and requires the purchase and activation of an External Logger license key. License keys for Contact Advantage and External Logger must be installed and activated through AltiWare Administrator. For external CDR data storage, you must purchase and install MicroSoft's SQL 7 and SQL 2000 database server software. Using the AltiGen-provided External Logger Service program to access RTM statistics through external logger, , you can achieve a centralized repository for all CDR records and RTM records coming from one or more AltiServ systems. This is centralized CDR. Each AltiServ system records its node ID in all the records it sends to the External Logger Service. Up to two separate central repositories can also be supported.

AltiWare OE 4.5 sends its CDR/RTM records in real time (behaving as a client) to the External Logger Server over TCP/IP. On a separate server, the External Logger Service receives the CDR/RTM record and writes the CDR/RTM record into a Microsoft SQL 7.0 and SQL 2000 database. Consequently, the records in this SQL database are constantly being updated with the latest information.

The following items summarize the software implementation:

- Currently the external CDR logger works with Microsoft SQL7 and SQL 2000. Due to software conflicts, Microsoft SQL7 and AltiWare *cannot* be on the same server. However, Microsoft SQL7 and the External Logger *must* be installed on the same server.

- The SQL server must be in "Start" condition to receive data.

- If an ODBC Driver Manager error message occurs during AltiWare installation, click OK to overwrite the ODBC32.dll.

- System integrators or developers need to write custom query programs to extract data from the SQL server. AltiGen provides only the logging service.

- If multiple AltiServ systems can send CDR records to a single common SQL server for call reporting or billing purposes, each AltiServ system need to have a different system ID.

External Logger Service Installation

You must install the ELS to the MSQL7/2000 server.

To install the External Logger Service (ELS) program on the SQL server:

1. Insert the AltiWare OE 4.5 CDROM into the target server CDROM drive.

2. Using Windows Explorer (or similar mechanism), locate the *External Logger Service* directory and then find the setup file.

3. Run setup.

    The ELS install program will install the ELS and configure the CDR data schema into the MSQL7/MSQL2000 database service.

During the setup process, a setup dialog box appears. Set the parameters as follows:

*   **SQL Server**—Enter the computer name of the SQL server.

*   **SA Name**—Enter the SQL System Administrator login name. Since "sa" is one of the system administrator accounts created by SQL installation, we will use this account as our example.

*   **SA Password—**Enter the SQL System Administrator password.

*   **Database Name**—Enter the name of the database for CDR logging. If you use the default, the installation process will create a database called "calldb."

*   **DB Device Drive**—This is the drive in which the calldb database will be created. This installation program will create the calldb database under the root directory of the drive letter you specify. You can not enter any sub-directory in this field. If you want to change the calldb database location, use the SQL server management utility to relocate the calldb database.

*   **DataDevice Size**—Enter the size you wish to allocate for the calldb database. To estimate the size, use the following equation:

    Months of records you wish to keep: {M = months} (22 working days per month)

    Average call volume per day {Call = inbound and outbound}; (Each call record is about 1kbyte in size.)

    Database Size (MB) = (M*22*Call*1kbyte)/1024

*   **LogDevice Size—**Enter the size for the log file. Typically this is the same size as the database file.

Data Storage

After starting the ELS, and after configuring the AltiWare external CDR options, the AltiServ system begins delivering CDR records and the ELS writes these records into the MSQL7 database.

To set up the Logger and WatchDog services:

After rebooting the SQL server, verify the following services:

• Logger Server service is started and type is "Manual."

• Logger Watchdog service is started. Startup type is "Automatic." The Watchdog service will check the status of the logger service every 15 minutes. If it detects that the logger service is not functioning, it will try to start the logger service automatically.

To activate external CDR logging in AltiWare:

Do not perform this step before the external logger in SQL is ready to receive data.

1. Go to System Configuration > Call Reports and double-click "External CDR Log."

2. Enter the IP address of the SQL server and click on the Apply button.

3. Select AltiGen External Server option and click on the Apply button.

To verify SQL logging activity:

1. Make several connected outbound calls.

2. Open Query Analyzer from MSQL7/MSQL2000.

3. Type a query script "select" from "RTMCall" which will query against the CallInfo table.

    The CDR records should show up in the query results window.

SQL Backup and Maintenance

AltiGen does not provide any SQL backup and restore utilities. We strongly recommend that you use the SQL Backup and Maintenance utility to perform daily backup and maintenance jobs, and use the restore utility to restore tables to the database. If you need to reconstruct the SQL server, run ELS to create an empty calldb database before restoring the tables.

For efficient CDR functions, follow recommended SQL database maintenance procedures. If there are over 100,000 records, searching can take a long time. If there are over 10,000 records, record deletion can take a long time and cannot be canceled.

External Logger Service

CDR and Workgroup CDR Search — Typical Searches

This section contains examples of how to run various CDR and Workgroup CDR searches that are typically used by call centers. Identify the type of search you would like to perform, go to the CDR Search main window, define the search date, set the fields and settings as directed, then click the **Search** button to run the search.

Note: *Connected Calls* include Connected Calls, Transferred Calls and Conference Calls.

All includes Auto Attendant, Ring No Answer, Queue, Voice Mail (no VM recorded or VM recorded), Connect, Logon, Logoff, All Trunks Busy, No session, VM Access, Forward, Transfer, VM Notify, WG Abandoned, Park, System Park, Conference, Call Monitor, Transfer Cancel, Call Redirect, Call Pick Up, Dial Cancel.

Unanswered Calls include calls abandoned while in these states: AA, Forward, RNA, Queue, Voicemail, WG abandoned, Call Redirect, No More Session, Pick Up By and Dial Cancel.

Example CDR Searches	
To run a search on:	*Use these fields and settings:*
All outgoing trunk calls, system-wide	Set **Type** to *Connected Calls*
	Set **Caller** to *All*
	Set **Callee** to *Trunk*
All incoming trunk calls, system-wide	Set **Type** to *Connected Calls*
	Set **Caller** to *Trunk*
	Set **Callee** to *Extension,* enter *particular extension*, select *Exact*

Example CDR Searches	
To run a search on:	***Use these fields and settings:***
All outgoing trunk calls for a particular extension	Set **Type** to *Connected Calls*
	Set **Caller** to *Extension,* enter *particular extension*, select *Exact*
	Set **Callee** to *Trunk*
All connected incoming trunk calls for a particular extension	Set **Type** to *Connected Calls*
	Set **Caller** to *Trunk*
	Set **Callee** to *Extension,* enter *particular extension*, select *Exact*
All internal and external calls from a particular extension	Set **Type** to *Connected Calls*
	Set **Caller** to *Extension,* enter the *particular extension*, select *Exact*
	Set **Callee** to *All*
All incoming (trunk to extension and trunk to trunk) calls (system-wide) originated by extensions	Set **Type** to *Connected Calls*
	Set **Caller** to *Trunk*
	Set **Callee** to *All*
All internal and external connected calls (system-wide)	Set **Type** to *Connected Calls*
	Set **Caller** to *Extension*
	Set **Callee** to *All*
All incoming calls to a particular extension <u>from trunk</u>	Set **Type** to *All*
	Set **Caller** to *Trunk*
	Set **Callee** to *Extension*
All internal calls	Set **Type** to *Connected Calls*
	Set **Caller** to *Extension*
	Set **Callee** to *Extension*

Example CDR Searches	
To run a search on:	*Use these fields and settings:*
All internal calls to/from a particular extension	Set **Type** to *Connected Calls*
	Set **Caller** to *Extension,* enter *particular extension*, select *Exact*
	Set **Callee** to *Extension,* enter *particular extension*, select *Exact*
All trunks busy	Set **Type** to *All Trunks Busy*
	Set **Caller** to *All*
	Set **Callee** to *All*

Example Workgroup CDR Searches	
To run a search on:	*Use these fields and settings:*
All incoming workgroup calls <u>per agent</u>	Set **Type** to *Connected Calls*
	Enter *Workgroup Number*, select *Inbound*
	Set **Sort By** to *Agent*
All incoming workgroup calls <u>per workgroup</u>	Set **Type** to *Connected Calls*
	Enter *Workgroup Number*, select *Inbound*
	Set **Sort By** to *N/A*
All unanswered calls by workgroup	Set **Type** to *Unanswered Calls*
	Enter *Workgroup Number*, select *Both*
	Set **Sort By** to *N/A* or *Date/Time*
All workgroup voicemail messages by workgroup	Set **Type** to *Messages*
	Enter *Workgroup Number*, select *Both*
	Set **Sort By** to *Workgroup*

Sample CDR Searches
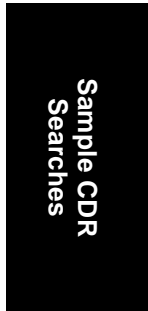
Example Workgroup CDR Searches	
To run a search on:	*Use these fields and settings:*
All calls to workgroup	Set **Type** to *All Calls*
	Enter *Workgroup Number*, select *Both*
	Set **Sort By** to *N/A* or *Date/Time*
All calls to workgroup via specific DNIS	Set **Type** to *All Calls*
	Enter *Workgroup Number*, select *Both*
	Enter *DNIS* digits, select *Exact*
	Set **Sort By** to *Workgroup*
All trunks busy for workgroup trunks (for outbound calls)	Set **Type** to *All Trunks Busy*
	Enter *Workgroup Number*, select *Outbound*
	Set **Sort By** to *N/A*
All Unanswered Calls by Agent	Set **Type** to *Unanswered*
	Enter *Workgroup Number*, select *Both*
	Set **Sort By** to *Agent*

Records and Data Schema

This section contains explanations of the CDR search results records, including the data schema and a Glossary of terms.

Search Results

This section explains the fields in all the CDR Search results windows.

CDR Search and WG CDR Search Results Windows

Summary Window	
Shown in "Summary (CDR Search and WG CDR Search)" on page 15	
Field	**Definition**
ID	Number assigned by CDR Search to this record
Time	Start time for this record
Total Calls	Total calls of the type searched for
Total Duration	Sum of duration of the calls in this record, where duration lasts from **Start Time** to **End Time** (see "Record Window for "Call Info"" on page 41 for explanations of these fields)

Detail Window	
Shown in "Call Details" on page 16	
Field	**Definition**
ID	Number assigned by CDR Search to this record
Session ID	Unique number assigned by AltiWare to this call

Records and
Data Schema

Search Results

Detail Window	
Shown in "Call Details" on page 16	
Field	**Definition**
Date	Date of call
Time	Start time of call
Duration	Duration of call in seconds (**EndTime** minus **StartTime**; see Table 1, "CDR Call Format," on page 56 for explanations of these schema)
Wait Time	**AADuration** plus **VMDuration** plus **HoldDuration** plus **WaitDuration** (see Table 1, "CDR Call Format," on page 56 for explanations of these schema)
Talk Time	**TalkDuration** plus **RecordDuration** plus **VMRecordDuration** (see Table 1, "CDR Call Format," on page 56 for explanations of these schema)
Exit state	State of call when it was disconnected (see Table 1, "CDR Call Format," on page 56 for details)
Caller ID	Caller phone number of an incoming call
Caller Name	Caller name for an incoming call
Target ID	Target number for an outgoing call
Target Name	Target name for an outgoing call
DNIS	DNIS information for an incoming call
Acct Code	Account code
URL	URL when "call" is initiated by AltiWeb user clicking the make-call button
User Data	Agent input

Record Window for "Call Info"	
Shown in "Call Details" on page 16	
Node ID	Server ID (System ID) assigned to an AltiServ system in AltiAdmin
Session ID	Session ID: a unique number, usually 9 digits or larger, assigned by AltiWare to a call
Internal Call	Internal or external call
Direction	Direction of the call (incoming or outgoing)
Start Time	*Outgoing* call: Time and date when caller receives ringback, busy, or connect signal *Incoming* call: Time and date when AA picks up
End Time	Timestamp when call was disconnected
Duration	Duration of call in seconds (**End Time** minus **Start Time**)
Caller Type	Type of line for an incoming call (see Table 1, "CDR Call Format," on page 56 for details)
Caller PAD	Line's physical address for incoming call
Caller ID	Caller number for incoming call
Caller Name	Caller name for an incoming call
Target Type	Type of line for an outgoing call (see Table 1, "CDR Call Format," on page 56 for details)
Target PAD	Physical address of line for an outgoing call
Target ID	Target number for an outgoing call
Target Name	Target name for an outgoing call

Records and
Data Schema

Record Window for "Call Info"	
Shown in "Call Details" on page 16	
Workgroup Number	Workgroup number for an incoming call
Outgoing Workgroup	Workgroup number for an outgoing call, as set in AltiAdmin or by agent at logon
DNIS	DNIS number for incoming call
Tenant	Tenant name for trunk, as set in AltiAdmin
Account Code	Account code
Attendant Duration	Duration in seconds call was connected to the Auto Attendant
Ring Duration	Duration in seconds that incoming call was ringing *This field corresponds to **WaitDuration** in CDR call format results.
Queue Duration	Duration in seconds that incoming call was in queue
VM Duration	Duration in seconds after a call goes into voicemail box; includes greeting, false attempts at messages, and review of message, but does not include **VM Record Duration**
VM Record Duration	Duration in seconds of recording time for a VM message that was completed; in AltiView, this corresponds to **Length** field of a voicemail.
Hold Duration	Duration in seconds while call was on hold
Talk Duration	Duration in seconds from the time the call is answered by a person until it is disconnected (**EndTime** minus time when call was answered by human minus **HoldDuration**; see Table 1, "CDR Call Format," on page 56 for details)

Record Window for "Call Info"	
Shown in "Call Details" on page 16	
Record Duration	Duration in seconds of NOVO recording
Exit State	State of call when it was disconnected (see Table 1, "CDR Call Format," on page 56 for details)
URL	URL when "call" is initiated by AltiWeb user clicking the make-call button
User Data	Agent input

Record Window for "Advanced Call Info"		
Shown in "Call Details" on page 16		
Note: Advanced Call Info is available only for trunk calls.		
MAIN	**Node ID**	Server ID (System ID) assigned to an AltiServ system in AltiAdmin
	Session ID	Session ID: a unique number, usually 9 digits or larger, assigned by AltiWare to a call
	Direction	Direction of the call (incoming or outgoing)
	Start Time	*Outgoing* call: Time and date when caller receives ringback, busy, or connect signal
		Incoming call: Time and date when AA picks up
	End Time	Timestamp when call was disconnected

<table>
<tr><td colspan="3">

Record Window for "Advanced Call Info"

Shown in "Call Details" on page 16

Note: Advanced Call Info is available only for trunk calls.

</td></tr>
<tr><td></td><td>**Duration**</td><td>Duration of call in seconds (**End Time** minus **Start Time)**</td></tr>
<tr><td></td><td>**Trunk Count**</td><td>Number of "Trunk" records for this call (always=1)</td></tr>
<tr><td></td><td>**Party Count**</td><td>Count of sets of "Party" records for this call</td></tr>
<tr><td></td><td>**User Data Count**</td><td>Count of User Data entries for this call</td></tr>
<tr><td>**TRUNK**</td><td>**Type**</td><td>**CallerType** or **CalleeType** (see Table 1, "CDR Call Format," on page 56 for explanations and details on these schema)</td></tr>
<tr><td></td><td>**Pad**</td><td>Physical address of line</td></tr>
<tr><td></td><td>**Number**</td><td>Caller or target number</td></tr>
<tr><td></td><td>**SubNumber**</td><td>Last digits of an IP call to an extension (represents extension number)</td></tr>
<tr><td></td><td>**Name**</td><td>Caller or target name</td></tr>
<tr><td></td><td>**Tenant**</td><td>Tenant name for trunk, as set in AltiAdmin</td></tr>
<tr><td></td><td>**DNIS**</td><td>DNIS number for incoming call</td></tr>
<tr><td></td><td>**Account Code**</td><td>Account code</td></tr>
<tr><td></td><td>**Route**</td><td>Outcall Route Name, as set in AltiAdmin</td></tr>
</table>

	Record Window for "Advanced Call Info"	
	Shown in "Call Details" on page 16	
Note:	Advanced Call Info is available only for trunk calls.	
	Route1	Outcall Route Name, as set in AltiAdmin
	Route2	Outcall Route Name, as set in AltiAdmin
PARTY	**Start Time**	*Outgoing* call: Time and date when caller receives ringback, busy, or connect signal *Incoming* call: Time and date when AA picks up
	End Time	Timestamp when call was disconnected
	Duration	Duration of call in seconds (**End Time** minus **Start Time)**
	Type	**CallerType** or **CalleeType** (see Table 1, "CDR Call Format," on page 56 for explanations and details on these schema)
	Pad	Physical address of line
	Number	Caller or target number
	Name	Caller or target name
	Tenant	Tenant name for trunk or extension, as set in AltiAdmin

Records and Data Schema

Record Window for "Advanced Call Info"	
Shown in "Call Details" on page 16	
Note: Advanced Call Info is available only for trunk calls.	
Workgroup Number	Workgroup number for an incoming call
Outgoing Workgroup	Workgroup number for an outgoing call, as set in AltiAdmin or by agent at logon
Auto Attendant Name	Auto Attendant Item Name, as set in AltiAdmin
Attendant Duration	Duration in seconds call was connected to the AA
Ring Duration	Duration in seconds that incoming call was ringing
Queue Duration	Duration in seconds that incoming call was in queue
VM Duration	Duration in seconds after a call goes into voicemail box; includes greeting, false attempts at messages, and review of message, but does not include **VM Record Duration**
VM Record Duration	Duration in seconds of recording time for a VM message that was completed
Hold Duration	Duration in seconds while call was on hold

Record Window for "Advanced Call Info"	
Shown in "Call Details" on page 16	
Note: Advanced Call Info is available only for trunk calls.	
Talk Duration	Duration in seconds from the time the call is answered by a person until it is disconnected (**EndTime** minus time when call was answered by human minus **HoldDuration**; see Table 1, "CDR Call Format," on page 56 for details)
Record Duration	Duration in seconds of NOVO recording
Exit State	State of call when it was disconnected (see Table 1, "CDR Call Format," on page 56 for details)

WG Statistics Search Results Windows

Agent Statistics Window	
Shown in "Statistics (WG Statistics)" on page 18	
Field	**Definition**
Upper half of window	
ID	Number assigned by AltiWare to this record
Date	Date of call
Time	Time interval for these call statistics

Records and Data Schema

Search Results

<table>
<tr><td colspan="2" align="center">**Agent Statistics Window**

Shown in "Statistics (WG Statistics)" on page 18</td></tr>
<tr><td align="center">**Field**</td><td align="center">**Definition**</td></tr>
<tr><td>**Calls Answered**</td><td>Count of calls that were answered by an agent; if a single call is routed to several agents, the counter is increased</td></tr>
<tr><td>**Calls Answered Duration**</td><td>Sum of duration of **Calls Answered,** where duration lasts from the time an agent answers the call until the time the call is disconnected or transferred to VM, to another agent, or out of the WG</td></tr>
<tr><td>**Outgoing Calls**</td><td>Count of outgoing calls</td></tr>
<tr><td>**Outgoing Calls Duration**</td><td>Sum of duration of **Outgoing Calls,** where duration lasts from the time the call enters "Connected" state until the time the call is disconnected</td></tr>
<tr><td>**Wrapup**</td><td>Same as setting for "Allow Wrapup Time" from AltiAdmin plus the number of times the agent presses the "Wait" button</td></tr>
<tr><td>**Wrapup Duration**</td><td>Same as setting for "Allow Wrapup Time" from AltiAdmin plus the number of times the agent presses the "Wait" button</td></tr>
<tr><td>**Voice Mail**</td><td>Count of agent's voice mail messages</td></tr>
<tr><td>**Voice Mail Duration**</td><td>Sum of duration of agent's VM messages</td></tr>
<tr><td colspan="2" align="center">**Lower half of window (Totals, Averages, and Percentages)**</td></tr>
<tr><td>**Total Calls**</td><td>Total of all calls, including **Answered, Outgoing** and **Transferred to VM**</td></tr>
<tr><td>**Total Outgoing Calls**</td><td>Total of **Outgoing Calls**</td></tr>
</table>

Agent Statistics Window	
Shown in "Statistics (WG Statistics)" on page 18	
Field	**Definition**
Total Calls Answered	Total of **Calls Answered**
Calls Transferred to Voice Mail	Count of calls transferred to VM (by caller pressing # or by being automatically transferred to VM after RNA for every agent), where caller leaves a message
Total Wrapup	Total of **Wrapup** time after call (time that user enables "Allow Wrapup Time" in AltiAdmin) and **Wrapup** time.
Total Talk Time	Total duration of **Calls Answered** and **Outgoing Calls.** For Calls Answered, duration lasts from the time an agent answers the call until the time the call is disconnected or transferred to VM, to another agent, or out of the WG; for Outgoing Calls, duration lasts from the time a call enters "Connected" state until it is disconnected
Total Wrapup Time	Total of **Wrapup Duration**
Average Talk Time	**Total Talk Time** divided by (**Total Calls Answered** plus **Total Outgoing Calls)**
Average Wrapup Time	The average of **Wrapup** time after call (time that user enables "Allow Wrapup Time" in AltiAdmin) plus the number of times the agent presses the "Wait" button

Records and
Data Schema

Agent Statistics per Workgroup Window	
Shown in "Statistics (WG Statistics)" on page 18	
Field	**Definition**
Upper half of window	
ID	Number assigned by AltiWare to this record
Date	Date of call
Time	Time interval for these call statistics
Calls Answered	Count of calls that were answered by an agent; if a single call is routed to several agents, the counter is increased
Calls Answered Duration	Sum of duration of **Calls Answered,** where duration lasts from the time an agent answers the call until the time the call is disconnected or transferred to VM, to another agent, or out of the WG
Outgoing Calls	Count of outgoing calls
Outgoing Calls Duration	Sum of duration of **Outgoing Calls,** where duration lasts from the time the call enters "Connected" state until the time the call is disconnected
Wrapup	Same as setting for "Allow Wrapup Time" from AltiAdmin
Wrapup Duration	Same as setting for "Allow Wrapup Time" from AltiAdmin
Voice Mail	Count of agent's voice mail messages
Voice Mail Duration	Sum of duration of agent's VM messages

Agent Statistics per Workgroup Window

Shown in "Statistics (WG Statistics)" on page 18

Field	Definition
Login Time	Time agent logged in to WG
Logout Time	Time agent logged out of WG
Logout Reason	Logout Reason

Lower half of window (Totals, Averages, and Percentages)

Field	Definition
Total Calls	Total of all calls, including **Answered, Outgoing** and **Transferred to VM**
Total Outgoing Calls	Total of **Outgoing Calls**
Total Calls Answered	Total of **Calls Answered**
Calls Transferred to Voice Mail	Count of calls transferred to VM (by caller pressing # or by being automatically transferred to VM after RNA for every agent), where caller leaves a message
Total Wrapup	Total of **Wrapup**
Total Talk Time	Total duration of **Calls Answered** and **Outgoing Calls.** For Calls Answered, duration lasts from the time an agent answers the call until the time the call is disconnected or transferred to VM, to another agent, or out of the WG; for Outgoing Calls, duration lasts from the time a call enters "Connected" state until it is disconnected
Total Wrapup Time	Total of **Wrapup Duration**

Agent Statistics per Workgroup Window	
Shown in "Statistics (WG Statistics)" on page 18	
Field	**Definition**
Average Talk Time	**Total Talk Time** divided by (**Total Calls Answered** plus **Total Outgoing Calls**)
Average Wrapup Time	The average of **Wrapup** time after call (time that user enables "Allow Wrapup Time" in AltiAdmin)

Workgroup Statistics Window	
Shown in "Statistics (WG Statistics)" on page 18	
Field	**Definition**
Upper half of window	
ID	Number assigned by AltiWare to this record
Date	Date of call
Time	Time interval for these call statistics
Calls in Queue	Count of calls in queue; if a call is recycled into the queue after RNA, the counter is increased
Calls Answered	Count of calls that were answered by an agent; if a single call is routed to several agents, the counter is increased
Calls Answered Duration	Sum of duration of **Calls Answered,** where duration lasts from the time an agent answers the call until the time the call is disconnected or transferred to VM, to another agent, or out of the WG

Workgroup Statistics Window

Shown in "Statistics (WG Statistics)" on page 18

Field	Definition
Outgoing Calls	Count of outgoing calls
Outgoing Calls Duration	Sum of duration of **Outgoing Calls,** where duration lasts from the time the call enters "Connected" state until the time the call is disconnected
Calls Transferred to Voice Mail	Count of calls transferred to VM (by caller pressing # or by being automatically transferred to VM after RNA for every agent), where caller leaves a message
Calls Abandoned in Queue	Count of calls in queue that were disconnected or transferred out of the WG (to VM or by caller pressing 0 for operator) without being answered by an agent
Calls Abandoned during Ring	Count of calls abandoned by caller while ringing workgroup agents PLUS queue overflow count; (counts all calls to any destination device, except VM)
Calls Abandoned during VM	Count of calls disconnected after being transferred to VM (by caller pressing # or by being automatically transferred to VM after RNA for every agent), where the caller did not leave a message
Queue Overflow	Count of calls that overflowed the queue
Wait Time for Answered Calls	Sum of time **Calls Answered** waited before being answered
Wait Time for Abandoned Calls	Sum of time **Calls Abandoned in Queue** waited in queue before being abandoned
Service Level (%)	Percentage of queued calls exceeding the service level threshold

Workgroup Statistics Window	
Shown in "Statistics (WG Statistics)" on page 18	
Field	**Definition**
Lower half of window (Totals, Averages, and Percentages)	
Total Calls	Total of all calls, including **Answered, Outgoing, Transferred to VM,** and all **Abandoned** calls
Total Calls in Queue	Total of **Calls in Queue**
Total Outgoing Calls	Total of **Outgoing Calls** (All outgoing calls are considered workgroup calls, unless the agent logs out of the workgroup.)
Total Calls Answered	Total of **Calls Answered**
Total Calls Transferred to Voice Mail	Total of **Calls Transferred to Voice Mail**
Total Calls Abandoned in Queue	Total of **Calls Abandoned in Queue**
Total Calls Abandoned during Ring	Total of **Calls Abandoned during Ring**
Total Calls Abandoned during VM	Total of **Calls Abandoned during Voice Mail**
Total Calls Queue Overflow	Total of **Queue Overflow**
Total Talk Time	Total duration of **Calls Answered** and **Outgoing Calls.** For Calls Answered, duration lasts from the time an agent answers the call until the time the call is disconnected or transferred to VM, to another agent, or out of the WG; for Outgoing Calls, duration lasts from the time a call enters "Connected" state until it is disconnected

Workgroup Statistics Window

Shown in "Statistics (WG Statistics)" on page 18

Field	Definition
Total Wait Time for Answered Calls	Total of **Wait Time for Answered Calls**
Total Wait Time for Abandoned Calls	Total of **Wait Time for Abandoned Calls**
Average Talk Time	**Total Talk Time** divided by **(Total Calls Answered** plus **Total Outgoing Calls)**
Average Wait Time for Answered Calls	**Total Wait Time for Answered Calls** divided by **(Total Calls in Queue** minus **Total Calls Abandoned in Queue**
Average Wait Time for Abandoned Calls	**Total Wait Time for Abandoned Calls** divided by **Calls Abandoned in Queue**
Percent of Calls Answered	**Calls Answered** divided by **Total Calls** minus **Outgoing Calls**
Percent of Calls Abandoned	**(Total Calls Abandoned during Ring** plus **Total Calls Abandoned during VM** plus **Total Calls Abandoned in Queue)** divided by **(Total Calls** minus **Outgoing Calls),** expressed as a percentage
Percent of Calls Transferred to Voice Mail	**Calls Transferred to Voice Mail** divided by **(Total Calls** minus **Outgoing Calls),** expressed as a percentage

Data Schema

This section describes the data schema used in CDR and RTM records.

Table 1: CDR Call Format

Database Element	Definition	Type	Specification
NodeID	Server ID (System ID) assigned to an AltiServ system in AltiAdmin	ULONG	value: 1–100
SessionID	Session ID: a unique number, usually 9 digits or larger, assigned by AltiWare to a call	ULONG	
InternalCall	Internal or external call	UBYTE	0=External 1=Internal
Direction	Direction of the call (incoming or outgoing)	UBYTE	1=None (logon/ off) 2=Incoming 4=Outgoing (includes silent monitor, barge-in)
StartTime	*Outgoing* call: Time when caller receives ringback, busy, or connect signal *Incoming* call: Time when AA picks up	ULONG	
EndTime	Timestamp when call is disconnected	ULONG	

Records and Data Schema

Table 1: CDR Call Format

Database Element	Definition	Type	Specification
CallerType	Type of line for an incoming call	UBYTE	0=Unknown 1=Ext analog 2=Ext IP 3=Ext PHS (not used) 4=Ext virtual 5=Ext WG 11=trk analog 12=trk T1 13=trk IP 14=trk PRI 15=trk PHS (not used)
CallerPad	Line's physical address for an incoming call	UCHAR (5)	E.g. "0004", where "00"=slot, "04"=channel Always "-1-1" for WG or virtual extension
CallerNum	Caller phone number of an incoming call (extension number or off-net PSTN)	UCHAR (41)	
CallerName	Caller name for an incoming call (provided by CO for trunk calls; as entered in AltiAdmin for extension calls)	UCHAR (65)	

Records and Data Schema

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Table 1: CDR Call Format

Database Element	Definition	Type	Specification
TargetType	Type of line for an outgoing call	UBYTE	0=None 1=Ext analog 2=Ext IP 3=Ext PHS (not used) 4=Ext virtual 5=Ext WG 11=trk analog 12=trk T1 13=trk IP 14=trk PRI 15=trk PHS (not used)
TargetPad	Physical address of line for an outgoing call	UCHAR (5)	E.g. "0004," where "00"=slot and "04"=channel
TargetNum	Target phone number of an outgoing call (extension number or off-net PSTN)	UCHAR (41)	
TargetName	Target name for an outgoing call (as entered in AltiAdmin for extension calls)	UCHAR (65)	
WGNum	Workgroup number for an incoming call	UCHAR (8)	
OutGoingWG	Workgroup number for an outgoing call, as set in AltiAdmin or by agent at logon	UCHAR (8)	
DNIS	DNIS number for incoming call	UCHAR (33)	

Table 1: CDR Call Format

Database Element	Definition	Type	Specification
Tenant	Tenant name for trunk	UCHAR (31)	
AccountCode	Account code	UCHAR (11)	1—10 digits in length
AADuration	Duration in seconds an incoming call is connected to the Auto Attendant; multiple connections to AA in a single session produces multiple records	ULONG	
WaitDuration	Duration in seconds a call is ringing and in workgroup queue	ULONG	
VMDuration	Duration in seconds after a call goes into a voicemail box; includes greeting, false attempts at messages, successful message, and review of message	ULONG	
VMRecordDuration	Duration in seconds of recording time for a VM message that was completed	ULONG	
HoldDuration	Duration in seconds while a call is on hold	ULONG	
TalkDuration	Duration in seconds of talk time	ULONG	
RecordDuration	Duration in seconds of NOVO recording	ULONG	

Table 1: CDR Call Format

Database Element	Definition	Type	Specification
ExitState	State when call is terminated	ULONG	(see boxed inset)

Specification

[documented (HEX)] - [data output (Decimal)] - [exit state definition]

"0x0001" - 1 - Auto Attendant

"0x0002" - 2 - Ring No Answer

"0x0003" - 3 - Queue

"0x0004" - 4 - Voice Mail (no VM recorded)

"0x0005" - 5 - VM (VM recorded)

"0x0006" - 6 - Connect

"0x0007" - 7 - Logon

"0x0008" - 8 - Logoff

"0x0009" - 9 - All Trunks Busy

"0x000A" - 10 - No session

"0x000B" - 11 - VM Access

"0x000C" - 12 - Forward

"0x000D" - 13 - Transfer

"0x000E" - 14 - VM Notify

"0x000F" - 15 - WG Abandoned

"0x0010" - 16 - Park

"0x0011" - 17 - System Park

"0x0012" - 18 - Conference

"0x0013" - 19 - Call Monitor

"0x0014" - 20 - Transfer Cancel

"0x0015" - 21 - Call Redirect

"0x0016" - 22 - Call Pick Up

"0x0017" - 23 - Dial Cancel

Table 1: CDR Call Format

Database Element	Definition	Type	Specification
LogoffReason	Logoff reason code	UBYTE	
URL	URL when "call" is initiated by AltiWeb user clicking the make-call button	UCHAR (255)	
User Data	Agent input	UCHAR (255)	

Table 2: RTM Data Format

Database Element	Definition	Type	Specification/ * CDR Client Field
Workgroup Data			
NodeID	Server ID (System ID) assigned to an AltiServ system in AltiAdmin	ULONG	value: 1–100
Date	Day information	ULONG	mm/dd/yy *** Time**
Time	Time interval	short	hh:mm *** Period**
WGNum	Workgroup Number	UCHAR (8)	
MaxWaitTimeInQ	Longest waiting time in queue during searched time interval	short	*Queue is not an accumulated value; it is recorded at a specific point in time.

Table 2: RTM Data Format

Database Element	Definition	Type	Specification/ * CDR Client Field
PeakQLength	Maximum queue length since midnight	short	
PeakWaitTimeI nQ	Maximum queued time since midnight	ULONG	
QLength	Number of calls routed into the queue; if a call is recycled into the queue after RNA, the count is increased	short	*** Calls in Queue**
DurationInQ	Time calls waited in queue during searched time interval before being abandoned or answered	ULONG	*It is not an accumulated value, it is recorded at a specific point in time.
NumInCall	Calls answered by an agent; if a call is forwarded to and answered by multiple agents, the count is increased	short	*** Calls Answered**
InCallDuration	Duration of incoming calls (NumInCall), starting from the time an agent answers a call until the call is disconnected or transferred out of the WG	ULONG	*** Calls Answered Duration**

Table 2: RTM Data Format

Database Element	Definition	Type	Specification/ * CDR Client Field
NumOutCall	All outgoing trunk and station-to-station calls that entered "Connected" state	short	*** Outgoing Calls**
OutCallDuration	Duration of outgoing calls (NumOutCall); from the time the call enters "Connected" state until disconnect	ULONG	*** Outgoing Calls Duration**
NumCallToVM	Count of voicemail messages (calls transferred to VM from queue by caller pressing #, and calls automatically transferred to WG VM after RNA for every agent)	short	*** Calls Transferred to Voice Mail**
NumCallAbandoneDuringRing	Count of calls abandoned while ringing an agent	short	**A** *** Calls Abandoned During Ring**
NumCallAbandonedInQ	Count of calls abandoned while waiting in queue	short	**B** *** Calls Abandoned in Queue**

Table 2: RTM Data Format

Database Element	Definition	Type	Specification/ * CDR Client Field
NumCallAbandoneBeforeAnswer	Total abandoned calls (during VM, queue, and RNA)	short	**C** C–A–B= *** Calls Abandoned during VM**
NumQueueOverflow	Calls routed to the WG but not queued due to AltiAdmin settings that specify acceptable queue length and/or wait time	short	*** Queue Overflow**
BeforeAnswerDuration	Time calls waited in queue before being answered	ULONG	*** Wait Time for Answered Calls**
DurationInQOfCallAband	Total wait time of all calls abandoned in queue (NumCallAbandonedInQ)	ULONG	*** Wait Time for Abandoned Calls**

Table 2: RTM Data Format

Database Element	Definition	Type	Specification/ * CDR Client Field
ServiceLevel	Service Level		number of calls in queue - X / # of calls in queue X = number of calls in queue exceeding threshold ***ServiceLevel** is not an accumulated value, it is recorded at a specific point in time.
Agent Data			
NodeID	Server ID (System ID) assigned to an AltiServ system in AltiAdmin	ULONG	value: 1–100
Date	Day information	ULONG	mm/dd/yy *** Time**
Time	Time interval	short	hh:mm *** Period**
AgentNum	Agent extension number	UCHAR (8)	

Table 2: RTM Data Format

Database Element	Definition	Type	Specification/ * CDR Client Field
NumInCall	Calls answered; if a call is rerouted to and answered by the same agent, the count is incremented	short	*** Calls Answered**
InCallDuration	Duration of incoming calls (NumInCall), starting from the time the agent answers a call until the call is disconnected or transferred out of the WG	ULONG	*** Calls Answered Duration**
NumOutCall	All outgoing trunk and station-to-station calls that entered "Connected" state	short	*** Outgoing Calls**
OutCallDuratio n	Duration of outgoing calls (NumOutCall); from the time the call enters "Connected" state until disconnect	ULONG	*** Outgoing Calls Duration**

Table 2: RTM Data Format

Database Element	Definition	Type	Specification/ * CDR Client Field
NumWrapUp	Number of times agent entered Wrapup, where Wrapup lasts from agent-set "Not Ready" to "Ready" status	short	*** Wrapup**
WrapUpDuration	The amount of time for Wrapup, where Wrapup lasts from agent-set "Not Ready" to "Ready" status	ULONG	*** Wrapup Duration**
NumCallToVM	Count of voicemail messages	short	*** Voice Mail**
VMDuration	Total duration of voicemail messages	ULONG	*** Voice Mail Duration**
nGroups	Count of workgroups agent is logged in to.		
Agent Per Workgroup			
NodeID	Server ID (System ID) assigned to an AltiServ system in AltiAdmin	ULONG	value: 1–100
Date	Day information	ULONG	mm/dd/yy *** Time**

Table 2: RTM Data Format

Database Element	Definition	Type	Specification/ * CDR Client Field
Time	Time interval	short	hh:mm *** Period**
AgentNum	Agent extension number	UCHAR (8)	
WGNum	Workgroup number	UCHAR (8)	
Login	Log state	UBYTE	0=Logout 1=Login
LogTimeStamp	Login/logout time stamp	ULONG	
ReasonCode	Logout reason code	UBYTE	
NumInCall	Calls answered; if a call is rerouted to and answered by the same agent, the count is incremented	short	*** Calls Answered**
InCallDuration	Duration of incoming calls (NumInCall), starting from the time the agent answers a call until the call is disconnected or transferred out of the WG	ULONG	*** Calls Answered Duration**

Table 2: RTM Data Format

Database Element	Definition	Type	Specification/ * CDR Client Field
NumOutCall	All outgoing trunk and station-to-station calls that entered "Connected" state	short	*** Outgoing Calls**
OutCallDuratio n	Duration of outgoing calls (NumOutCall); from the time the call enters "Connected" state until disconnect	ULONG	*** Outgoing Calls Duration**
NumWrapUp	Number of times agent entered Wrapup, where Wrapup lasts from agent-set "Not Ready" to "Ready" status	short	*** Wrapup**
WrapUpDurati on	The amount of time for Wrapup, where Wrapup lasts from agent-set "Not Ready" to "Ready" status	ULONG	*** Wrapup Duration**
NumCallToVM	Count of voicemail messages	short	*** Voice Mail**
VMDuration	Total duration of voicemail messages	ULONG	*** Voice Mail Duration**

Glossary of Terms

A

Abandonment - Incoming call where the caller decides to disconnect *before completing* a call processing state in the phone system: listening and handling auto attendant, while waiting in queue, or while in voice mail. (*See also* short calls.)

Note: This is not the same as the Abandonment from Queue found in Center 4.0 real time screens. In that case, the system is measuring calls leaving the queue only, but not necessarily abandoning the call from the system.

Account Code - A number entered by a caller to represent how the call should be tracked or billed.

Agent - A service representative who consistently handles customer inquiries of all types.

Agents Signed On - Number of agents, signed on to the phone system to be agents, using their phone or Center 4.0 to sign-on.

All Trunks Busy - An All Trunks Busy record should have dialing extension in party1, dialing number in *Trunk Remote Number*. If the call is made by out call routing, out call route and overflow routes should be set.

All Trunks Busy means that there were no free outgoing trunks available for a given route.

Analog - Telephone lines going to the central office (trunks) and/or telephone lines going to the phone system desktop phonesets using standard analog communication; voltage variations represent voice signals.

ANI (Automatic Number Identification) - The phone number of the person or site making a phone call to the system. ANI is provided on T1/PRI circuits only, and represents the billing number of the caller, not necessarily the phone number. For example, ANI for people calling from a company.

ASA (Average Speed of Answer) - The amount of time, on average, that a company wishes to answer incoming calls. Also, the actual average amount of time it takes before a caller is answered by an agent.

Auto Attendant Duration - The amount of time a caller is listening and responding to call processing steps in the phone system auto attendant process.

Average Call Duration - The average amount of time calls are taking from phone system answer to phone system disconnect.

C

CallerID - The phone number of the calling party. CallerID differs from ANI in that CallerID is the phone number of the phone from which the caller is calling as opposed to the billing number for the phone. If a caller is calling from a business, the CallerID will be different from the ANI number, in most cases.

Calls in Queue - The number of calls waiting in a queue for an agent or answering device.

Carrier - Voice telephone network provider such as AT&T, MCI, and Sprint.

Carrier # - The 10XXX dialed number which is used by a caller or the system to inform the local switching system which Carrier has been selected to handle the phone call. For example, AT&T is 10288.

CLID (Caller Line Identification) - European term for CallerID.

D

Disconnect - When a call disconnects from the phone system; if an extension disconnects first, then…; if a incoming caller disconnects first, then…

DNIS (Direct Number Inward Service) - The phone number dialed by the caller. Usually companies purchase a block of DNIS numbers from the local central office so they may give customers direct access to key employees. DNIS numbers can be 800 numbers, which represent specific types of service offered to the public by a company. DNIS numbers, in call centers, therefore, can conceptually be regarded as applications.

Call Duration (Duration) - Average the amount of time a call takes from phone system answer to phone system disconnect.

E

Exit State - The state of the call in the phone system when the caller decided to disconnect. The nominally correct exit state is when a caller disconnects during conversation with a person or after leaving a voice message. Exit state numbers help reporting tools describe and total calls which early abandon as well as normal calls.

ExitQ - When the call exited a workgroup queue.

ExitVM - When the call exited voicemail.

Extension - The phone number of a phone on the phone system. AltiWare has extension numbers representing phonesets (analog, IP), virtual extensions (logical locations), and workgroups (queues for agents).

H

Handled Calls - The number of calls actually processed successfully to a normal disconnect exit state. For example, answered by a person, or the person completed a voice message or listening to a prompt.

Handled WG - The number of calls handled by a workgroup in the phone system.

I

In WG Average Duration - The amount of time, on average, calls spent waiting for a free agent while in a queue.

Inbound - Calls arriving into the phone system over trunks, either public or private tie trunk lines.

IP (Internet Protocol) - IP is used to represent the concept and practice of encapsulating voice into data packets carried on data networks, both private and public, including the Internet.

IP Extension - An extension within the AltiServ phone system based on encapsulated voice connections (IP voice) as opposed to analog phonesets. AltiServ supports physical phonesets and software phones using the IP method of voice transmission.

IP Trunk - A digital connection to a LAN or Wide Area Network (WAN) that can handle IP encapsulated voice transmissions.

L

Line - Pairs of wires that carry voice over analog circuits to the central office (i.e., trunks). Sometimes also used as station lines (extensions) and trunk lines (trunks).

Log-off with reason code - An agent can log out of a workgroup because they have a lunch break, classes, or other reasons. The manager establishes the meaning of numeric codes, and AltiAdmin records them when used.

M

MaxWaitTime - The maximum amount of time a call has waited in queue to be handled.

Minutes (outbound) - While many fields may represent duration in minutes or seconds, in this case the use of minutes is the number of billable minutes for phone calls. This is particularly of interest for outbound phone calls, and is useful for billing comparisons.

N

NodeID - The AltiServ system number (from 0–128) that was assigned to a given AltiServ system in AltiAdmin. The number is used to separate CDR records from different AltiServ systems when the records are collected jointly at one site using one database server for consolidated reporting.

O

Outbound - Calls placed by users of the phone system to the outside world over public or private trunk circuits within the AltiServ system including analog, digital, and IP types.

Outbound Workgroup - Outgoing calls placed by a workgroup agent who is assigned and logged in to an Outgoing Workgroup.

OutCall Routing - Calls dialed on the AltiServ phone system can be processed by the system using routing tables. The routing tables and their configuration options are referred generically as outcall routing. Outcall routing permits companies to restrict the types of outbound calls, change their dialing pattern, determine the type of trunk to be used, and determine the type of carrier to be used.

Overflow Calls - Calls that cannot be handled by a primary service and spill over to an alternative service. In the case of AltiServ/AltiWare, this applies to outgoing calls finding all trunks busy for a given route table.

P

PAD - A **P**hysical **AD**dress generalized to represent the physical slot on the processor chassis where an interface board is located, and the channel assigned on that interface board represents an extension or trunk port.

Party1 - Party1, found in the database schema, represents the first extension originating an outbound call or answering a incoming call from a trunk. In a call center, Party1 is typically the first agent to answer the caller.

Party2 Party2, found in the database schema, represents the second extension answering an incoming call as the result of receiving the call via a call transfer or call pick-up. In a call center, Party2 is typically the second agent (often a supervisor) who answered the call.

Note: Party2 accumulates the call handling time for any additional successive call transfers or call processing. Therefore, the times shown for Party2 can represent more than one additional extension to have handled an incoming call. The "MoreThan2WG" CDR field will indicate if the Party2 field represents multiple extensions handling the call after the first Party1 agent.

PRI - ISDN Primary trunks

Q

Queued Call - A call that has entered the queue as a result of not finding any free agents in a workgroup or for an extension and must now wait for an extension to become free. The queue duration associated with a queued call includes the ringing time of the target extension.

R

Rate Tables - *AltiWare 4.0 does not have rate tables, unlike past releases.* Instead, the bundled reporting package, Call Analyst, uses AltiWare's CDR records and its own rate tables to produce reports that cost outbound calls according to user-defined rates: cost/minute.

Reason Code - A number, from 0–255, that was entered by a workgroup agent using the Center 4.0 client application to indicate the reason they made themselves unavailable to receive calls even though they may be scheduled for work. For example, code 20 could represent a lunch break.

RNA (Ring No Answer) - the condition when a call reaches an extension and the called extension does not answer. This can be true for any type of call to any extension. However, within a call center, failure to reach an agent whose phone is in the "signed-on and idle" state, getting an RNA is a problem. Calls getting an RNA from an agent phone will be sent back to the queue (this is configurable) in most cases. The agent's phone will then be taken out of service.

Route Name - The name of an outbound (outcall) route table entry. This is useful to identify the type of routing treatment that was given to a call.

Route Table - A set of outbound call routing choices, provided by AltiWare within outcall routing, are defined within a route table. The route table identifies the trunks that should be used for calls assigned this route table. It also provides for how the dialed number should be modified, if at all, and whether the number needs to be preceded by a carrier code such as 10XXX.

Route Table Name - Same as Route Name. Route Table Name is the name assigned to the route, and Route Name is the same name shown in reports under the title Route Name.

Routes - Route is the selected trunk to carry a phone call to the outside world. Route Tables determine which routes should be used and how to use them. If one route is too busy (no trunks available), then the Route Table can be configured with an alternative choice. Ultimately, the call takes a single, final route.

S

Score - This may or may not be found in the reports created within Call Analyst depending on applications created by the customer, not Call Analyst or AltiGen. Score is a number that represents how well a supervisor believes an agent has handled a particular call that the supervisor has silently monitored. Using the UserDefined fields provided in AltiWare's ActiveX AltiLink protocol and in its CDR data schema, a customer can associate a score with a call.

Note: This is a custom implementation.

Service Level% - The percentage of calls meeting the expectation for service set by the owner of the call center system.

When reported in the Center 4.0 client screens, Service Level% is a real time snap shot of any given exact moment in the workgroup queue of calls meeting or exceeding performance.

When reported in Call Analyst or via other custom reporting packages based on historical CDR data, the service level will represent the average over a given time interval defined by the program.

Service level is the number of calls waiting less than a threshold time interval divided by the total number of calls in queue over the same interval. The threshold, which is the maximum amount of time the company would like a caller to have to wait for an agent, is configurable in AltiAdmin.

Note: *See also* data schema descriptions.

Session ID Number - A unique number, usually 9-digits or larger, assigned by AltiWare to a call. This number uniquely identifies a call. If an incoming call is transferred by an agent to an outside trunk, then an additional new CDR record is created, however, this additional record retains the same SessionID. This permits reporting programs to combine CDR records for the same call.

Short Calls - Short Calls, a statistic that only appears in Call Analyst reporting, provides the total number of outgoing calls that disconnected less than X seconds after actually getting answer supervision from the central office.

Short Duration - Like Short Calls, Short Duration is a proposed statistic for Call Analyst reporting, which provides the total number of incoming calls that lasted fewer than X seconds after starting. The start of an incoming call is when an extension has rung and been answered, not when the trunk was seized.

SignOff - The timestamp when a workgroup agent signed off from the workgroup.

SignOn - The timestamp when a workgroup agent signed on to the workgroup.

SignOn Duration - The difference between Sign-on and Sign-off pairs; times in closest proximity. An agent can sign-on and off more than once each day, so there may be multiple such pairings in the CDR database.

Spillover - Overflow from one route table to the next.

T

T1 - T1 is a digital facility from the phone system (customer premise) to the central office, or from one CPE site to another between AltiServ systems (T1 tie trunks). Voice is encoded as zeros and ones on a channel (i.e., conceptual trunk) using industry standard encoding.

Talk Duration - The amount of time, totaled or averaged, that an extension services an incoming or outgoing call. Average talk durations are useful in call centers to measure how well an agent handles callers.

Tenant OutCalls - AltiWare provides some, not all, of the features businesses find useful in shared tenant environments.

One supported area is tracking who placed an outbound call by business name or dialing plan. This name is called the tenant name, is configured in AltiWare under each extension, and is placed in the CDR record each time that particular extension places an outbound call. The field is multi-purpose, so it can also be used by businesses wanting to track calls by department for bill-back purposes. Mixed use is not supported, for example, tenant and department.

Threshold - The maximum amount of time a company wants an incoming caller to wait before they are serviced by an extension (i.e., an agent). This is related to service level, and is expressed as "we want calls be serviced 90% of the time (service level) in less than 20 seconds (threshold)."

Transferred Calls - Calls transferred to an extension, another workgroup, AutoAttendant, voice messaging, or an outgoing trunk.

Trunk - The conceptual term for a voice connection to the outside world, such as the central office or another site. When analog circuits are involved, the physical wire pair is called a trunk.

When digital circuits are involved, the trunk is a logical, dedicated channel on the digital connection.

When IP trunks are mentioned, it means a data packet with a specific destination IP address, being sent out on a LAN or WAN network.

Trunk PAD Number - The board and channel numbers respectively: "0102."

Trunk Remote Number -
•	The target phone number of an outgoing call, or
•	The CALLID/ANI for an incoming call, or
•	The IP address of the target far-end system for either incoming or outgoing IP calls.

Note:	The use of "trunk" is a misnomer.

Transfer-Trunk Number - If a call is *transferred* by an extension to a phone number outside the phone system, then the target phone number is placed in this field.

U

URL - If a caller enters AltiServ via the Internet using AltiGen's AltiWeb software (Web Button) then this field will contain the URL address for the caller accessing the system.

User Data -

- If a call comes in from the Web via AltiWeb, then this field *may* contain form data from the web page if you designed your web page to do so.
- If a call is processed via auto-attendant and information is collected and offered to an external application using the DDR function in auto-attendant, then the external application can populate this field with information about the call, collected or otherwise.
- The structure of user data is an array or buffer of name-value pairs. You can have as many pairs as you wish, but the total buffer is only 128 bytes long. A name-value pair is your own field name followed by the field value. Each name-value pair is separated from others by an @ character.
- User data can be loaded into messages sent to AltiServ via AltiGen's ActiveX control, AltiX.
- User Data can be received within messages sent by AltiServ to an external application via the auto-attendant DDR step and received by an application using AltiGen's ActiveX control, AltiX.
- User data is preserved when calls are transferred between extensions, and between extensions across multiple AltiServ systems.
- User data is useful for screen pops and automated processing application.

The customer needs to employ a system integrator in order to implement the use of User Data.

V

VM Box Extension - The voice message mailbox is an extension number where calls are sent to leave messages. VM box extensions are used for workgroups in call centers as well as the standard uses for individuals.

VM Start Time - The time a call enters the voice mail system to potentially record a message.

W

WorkGroup - The workgroup is an extension representing a collection of individual extensions, such that each of these individual extensions can service a call arriving at the workgroup extension number. If none of these extensions is available at the time a call arrives, then the call is queued for this particular workgroup—a workgroup queue.

In the call center sense, the workgroup can be configured for longest available agent queuing.

WorkGroup Number - The extension number for a workgroup.

Wrapup Duration - The amount of time an agent takes to handle transaction information on another system or on paper after handling a caller. Once the caller disconnects, the agent's phone can be configured to be "unavailable" to the workgroup queue for a fixed or variable period of time even though the agent's extension is still signed onto the queue. This allows the agent time to wrapup.

The wrapup time can be a fixed number of minutes after which the agent is forced back into taking calls, or it can be variable, controlled by the agent through Center 4.0 clients, where the agent "releases" their phone for the next call. The settings can be designed to allow agents to control the wrapup time until a limit occurs (the fixed time).

Configuration Areas Affecting CDR Information

Routing and Route Name

How calls are routed in outcall routing is reflected in the CDR record. The route names configured in AltiAdmin will appear in the route table name area of the records.

Multi-Tenant Naming

Each extension table entry in AltiAdmin has a field to identify the extension owner. If a name is placed in this field, that name will be used in the CDR record to represent the tenant or department associated with the particular extension.

Wrapup

Setting the wrapup time or supporting AltiX ActiveX controls can affect the level of CDR information. For example, using ActiveX for AltiLinkPlus, a client application can place wrapup data into the User Defined data field of the CDR record. This is useful if the user wants to correlate business information with call handling information; revenue achieved versus talktime by agent. A system integrator is required to use AltiGen's AltiX ActiveX control.

Ring No Answer Configurations and VM

Agents sign on to workgroups and answer calls. On occasion, an agent or extension might be signed on, but negligently walk away from their station. Under these conditions, AltiAdmin allows the administrator to define what AltiServ should do if it encounters a Ring No Answer condition on a phone.

For example, the call can be sent to voice mail, to another agent, back to queue, or to auto attendant. How this configuration is set up determines the types of CDR records that will be recorded for this condition. Since AltiWare tracks all incoming calls from a trunk to an extension, this also applies to calls routed to regular extensions, not just workgroups.

Sign-on and Sign-off

The CDR records database also supports a special record type. This record type records when agents sign on and sign off from a workgroup. The information tells only when the action has taken place and which agent signed on and off. Therefore, a reporting program should always check to see if the record it is using or examining is for sign-on/off or for tracking the nature of a call. An agent logon/logoff record should have the agent's extension number and PAD information.

Conference Call Limitation

When an extension initiates a conference call with another extension, this "Conference" state between extensions is NOT logged in the CDR or RTM database.

Example Call Sequences and their Effect on CDR Records

One objective of the CDR record is to track the talk time of agents and individuals for incoming and outgoing calls. Many call sequences are possible. The following are examples of inbound and outbound calls to a call center and sequences of recorded results in the CDR Detail report:

Example 1 - Ext. 102 calls Operator, Operator transfers Ext. 102 to Ext. 309, Ext. is connect to Ext. 309. The result is three sessions logged for this event.

Figure 1.   CDR record sessions for Example 1

Example 2 - External party calls and connects directly to Ext. 105. The result is one sessions logged for this event.

Figure 2.   CDR record sessions for Example 1

Example 3 - External party calls office and gets Automated Attendant, then dials out Operator. The result is two sessions logged for this event.

Figure 3.   CDR record sessions for Example 3

**Records and
Data Schema**

Reporting Fields Glossary

CDR Timestamps and Dates

The CDR data schema is provided with basic definitions. As with past OE releases, the StartTime, EndTime, and other timestamps in the OE 4.0 CDR database are in seconds and are offset numbers from a standard industry reference point of January 1, 1970 UTC. A reporting tool must compute the actual date and time for use in reports. When writing a program from C, the standard function call would be to: ctime (&1time) where &1time points to the UTC value (for example, 768027063). The call returns the Unix time and date (Wed May 04 04:51:03 1994).

Start time

- Start time can vary depending on the use and configuration of AltiWare for CO trunks.

- Start time will be a few seconds (typically two) after incoming trunk seizure if the incoming trunk type is a tie trunk or an analog or T1 C.O. trunk not supporting Caller ID or ANI signaling.

- Start time will be seven (7) seconds or more if the incoming analog or T1 trunk supports Caller ID/ANI since the Central Office (CO) first sends these digits between the first and second ring cycles before the target device is to be connected. This is good, since carrier billing does not start until the target device answers.

- Start time for outgoing trunks is immediately when AltiWare **attempts to seize** an outgoing trunk; hence even for outgoing calls that hit an all trunks busy signal.

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