



ACD REPORTS

v 2.0a

TFB TECHNOLOGY
FOR BUSINESS

TECHNICAL
GUIDE

INSTALLATION

ADMINISTRATION

TROUBLESHOOTING

ACD Reports Technician Guide

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1.1 ACD Reports

Introduction

This manual presents instructions for installing, maintaining, and troubleshooting the TFB ACD Reports system, interpreting reports, and using the extended features of the system.

A *CD reports* is designed for businesses that rely on their contact center for customer interaction, and that rely heavily on reporting to tell them what their agents and customers are doing. In most systems, the discrete technologies behind the call center, such as the ACD, CTI, and IVR, each have their own distinct reporting mechanisms. Integrating the reporting output from these systems can be difficult, if not completely impractical. What's more, reporting packages are often designed as closed systems, without mechanisms that allow automated output of data or extension of reporting capabilities.

TFB's *ACD Reports* offers a powerful alternative to traditional inflexible and closed telephony reporting systems. Its flexible reporting modules allow you to gather, print, and export call center metrics in the manner that best suits your organization. *ACD Reports* integrates transaction reporting from ACD, CTI, and IVR components into a single repository of data. Turnkey components let you get up and running quickly, while the open source and data give your technical staff the ability to step in and use the data how they see fit.

1.1.1.1 What this Guide Covers

This document is intended for MIS and telephony technicians who may need to install, reconfigure, or troubleshoot ACD Reports.

- **Module 1** **Planning for and Installing**
- **Module 2** **Reading Reports**
- **Module 3** **Report Reference**
- **Module 4** **Using the Search Tool**

This guide assumes the reader is familiar with the vocabulary of telephony and that of the NEAX switch specifically.

1.1.1.2 Important Vocabulary Used in this Guide

Although this manual assumes the reader already understands basic telephony concepts, the mix of computer and telephony disciplines makes it useful to define the following glossary of foundational words. A more complete glossary is in the appendices, and specific definitions of reporting labels are listed in Module 2.

Standard Glossary

Label	Definition
Answered	Call answered by an ACD agent.
Abandon	Indicates call disconnected in queue.
DNIS	Same as pilot, but it is the initial pilot registered on the call
Field	Any labeled column or row of data in a report
Monitored Pilot	A Pilot that is configurable and visible to the ACD
Pilot	A unique call route in the ACD, assigned a unique <i>Pilot Number</i> , and <i>Pilot Name</i>
Queued	The process of putting a call into an ACD split or splits.
IVR	Call disconnected on an IVR port but not in queue. Usually indicated caller hung up before completing the IVR session.
Split	A unique call route in the ACD, used interchangeably with DNIS

That's It?

Not quite. But those definitions are key to understanding the meaning of the labels, dispositions, and metrics used in reporting. For a more complete glossary, see the appendices, and the specific definitions of reporting labels are listed in Module 2.

1.2 Planning for and Installing ACD Reports

The ACD Reports Browser is the only interface required to read, print, export, and email reports. You can also search for data such as particular calls, customers or agent activity. It works like your web browser, and can be used by anyone on your LAN with very little training. There are just a few important things to know in order to use the browser and read every report in the system. This section shows you:

- § Call Flow and Configuration Planning Issues
- § Server and Client Requirements
- § Network Setup and Security Issues
- § Installing the Server Software
- § Installing the Client
- § Installation Test Plan

1.2.1 Call Flow and Configuration Planning Issues

The following issues are important considerations when planning call flow and system design. A strong point of ACD Reports is the capability to track a call across the ACD and the IVR, but certain call flow designs can break the tracking, particularly when a call is transferred outside these systems then back into the ACD.

- **Keep Design as Simple as Possible**
 - For clarity in any reporting system, it is recommended that calls be queued to multiple splits only when there is a significant advantage to doing so. Calls queued to multiple splits are necessarily included in the call count for each split.

- **ALWAYS Front-end call flow properly.**
 - All calls must be registered with ACD reports by either routing the call to the TFB server with an *IVR Announce 9* step in the CCV of the initial pilot, or queuing to a split. Note that the requirement to register the call, maintaining a vast array of DID's is inadvisable as those DID's must either queue to a split or send an IVR 9 to track inbound calls.
 - § If you need up front menus, use the TFB Auto Attendant. Using voice mail auto attendant does not properly register the call.
 - § If you don't need up front menus, ensure the call is properly registered by queuing to a split, either the actual split intended for the call OR the designated registration split. This ensures that calls are tracked right away

- **Avoid call paths that go out of ACD then back into ACD**
 - Doing this will cause the call tracking to register two separate calls

- **Thresholds for abandoned calls and grade of service are configurable by the user by split.**

1.2.2 Server, Client, and ACD Requirements

ACD Reports runs on the TFB Media Server platform, a Windows based PC that can be provided by TFB or by the user. Specifications for the Media Server are available in the Support section of TFB's web site at www.tfbc.com.

The following issues are worth reemphasizing important considerations when planning call flow and system design.

- **Older ACDs may not support some reporting features**
 - If you have a version prior to R14, it is important to have a TFB technician evaluate your ACD for suitability to run ACD Reports.
- **Very specific ACD configuration is required prior to installation**
 - This document notes ACD configuration requirements which must be completed prior to installation.
- **Users providing their own server must have the OS installed prior to TFB configuration**
- **Users providing their own server and OS are responsible for installing an OS version that supports the requisite RAM on the server.** Some OS versions have significant limits on RAM support.
- **Users or the primary telephony vendor should provide cables and cable runs for cross connect between CTI Server and Media Server**

1.3 Installation Plan

ACD Reports installation requires first configuring the ACD properly, then the ACD Reports software. If the software is set up first, reports will not properly register call and agent activity until the ACD configuration is complete. ACD configuration is not complicated but each step must be completed properly in order for the reports to be accurate.

1.3.1 ACD Installation Outline

1.3.1.1 Major ACD Installation Steps

1 ACD Version check

Ensure that the ACD version is R14 or greater or that a TFB technician has approved your version for your reporting requirements.

2 Ensure the switch environment has the available link resources

for all the systems to be integrated. TFB require an Infolink resource, an SMDR resource, and an MIS link resource.

3 Ensure Infolink is properly configured

4 Ensure MIS is properly configured

5 Ensure SMDR is properly configured, and that the CTI Server is recording the raw files in '\tfb\smdr\'.

6 Set proper messages in the ACD MAT:

This includes setting the 'Infolink with Split Info' to checked, and the 'Incoming Call Msg' to 'lq' (lowercase), NOT 'lQ' (uppercase).

The screenshot shows the 'System Data' configuration window with two tabs: 'User Settings' and 'Time Out Settings'. The 'User Settings' tab is active. The window contains several configuration options:

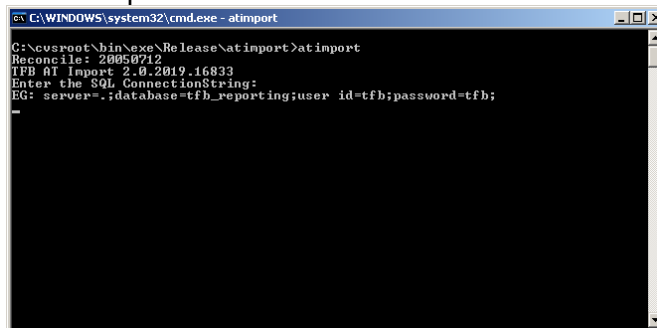
- CCV Tally DN: [Empty text box]
- Send A0 (MIS) Msg:
- Display 'ANI NDNE':
- Queue High Priority:
- Display IVR Header:
- ETA Includes Excess Work:
- Infolink with Call ID:
- Call Timeout Audit:
- Orig Detail Codes:
- MIS High Priority Threshold: [9] [Spinners]
- Dash: [Empty text box]
- Min Len: [7] [Spinners]
- Index 1: [5] [Spinners]
- Index 2: [8] [Spinners]
- Index 3: [11] [Spinners]
- Index 4: [0] [Spinners]
- Index 5: [0] [Spinners]
- Infolink with Split Info:
- Incoming Call Msg: [lq] [Dropdown]
- Outbound Call Disp: [IZ] [Dropdown]
- Reclaim IVR Call to: [Music] [Dropdown]
- Work Key Press: [Ready Mode] [Dropdown]
- Non-telephony break type: [9] [Spinners]

Buttons on the right side include 'Update', 'List', and 'Close'.

7 Insert proper CCV steps on all inbound pilots, so that an 'IVR Ann 9' or 'QUE' event initiates call auditing.

1.3.1.2 Major Software Installation Steps

- 1 **Ensure proper ACD Setup** (above)
- 2 **Start audit trail logging on CTI Server** by configuring either the 'tfb.cfg' file or using the 'config manager' and branding the system.
- 3 **Prepare the Media Server**
 - a. Install OS Update
 - b. Install SQL and service packs
 - c. Install TFB.NET
 - d. Run \TFB.NET\sql\update_db.bat to update the SQL database with the required tables, functions and views.
 - e. Turn off quick edit mode
 - f. Run "atimport.exe"



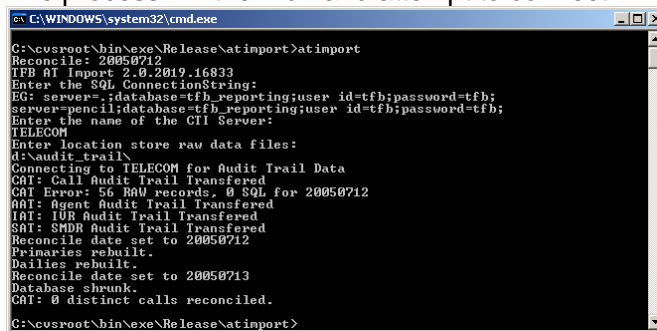
```

C:\WINDOWS\system32\cmd.exe - atimport
C:\Newsroot\bin\exe\Release\atimport>atimport
Reconcile: 20050712
TFB AT Import 2.0.2019.16833
Enter the SQL ConnectionString:
EG: server=.;database=tfb_reporting;user id=tfb;password=tfb;

```

You will be prompted to enter the SQL Connection String, which is a standard ADO.NET connection string to the SQL Server database instance in which all the reporting data is stored. The format is shown on the command line as a reminder. You will be prompted to enter the name of CTI Server and the location that you want the archived raw data to be stored.

The process will then run and attempt to connect.

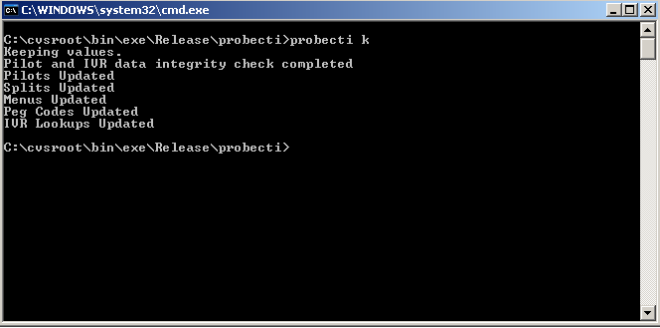


```

C:\WINDOWS\system32\cmd.exe
C:\Newsroot\bin\exe\Release\atimport>atimport
Reconcile: 20050712
TFB AT Import 2.0.2019.16833
Enter the SQL ConnectionString:
EG: server=.;database=tfb_reporting;user id=tfb;password=tfb;
server=pencil;database=tfb_reporting;user id=tfb;password=tfb;
Enter the name of the CTI Server:
TELECOM
Enter location store raw data files:
d:\audit_trail\
Connecting to TELECOM for Audit Trail Data
CAT: Call Audit Trail Transferred
CAT Error: 56 RAW records, 0 SQL for 20050712
ARI: Agent Audit Trail Transferred
IAT: IUR Audit Trail Transferred
SAT: SMDR Audit Trail Transferred
Reconcile date set to 20050712
Primitives rebuilt.
Dailies rebuilt.
Reconcile date set to 20050713
Database shrunk.
CAT: 0 distinct calls reconciled.
C:\Newsroot\bin\exe\Release\atimport>

```

g. Run "probedti.exe"

A screenshot of a Windows command prompt window. The title bar reads "C:\WINDOWS\system32\cmd.exe". The command prompt shows the following text:

```
C:\newsroot\bin\exe\Release\probedti>probedti k
Keeping values.
Pilot and IVR data integrity check completed
Pilot's Updated
Splits Updated
Menus Updated
Peg Codes Updated
IVR Lookups Updated
C:\newsroot\bin\exe\Release\probedti>
```

h. What if you set up server off site then bring to site?
Don't do steps e and f.

4 Get snap shot update of TFB.NET from website**5 Install Scheduling daemon and check tasks**

Go to the 'TFB.NET\bin' directory and type 'acdrd -i -d' to install and start the feeder service.

Type 'tasktimer -i -d' to install and start the task timer.

6 Reboot**7 Check connectivity** by running 'atimport now'**8 Begin Initial Testing**

1.3.2 Test Plan

The ACD Reports Browser is used to run reports, export data to Excel, and print. It works a lot like your web browser. Each report is a web page with links to more detailed data. After starting the Report Browser, you'll notice also that it has **Forward**, **Back**, and **Stop** buttons, like a browser.

1.3.2.1 Major Test Steps

- 1 Test Connectivity between servers.**
Use 'atimport' to check that the 'tfbfsvr' service is running on the CTI Server and the Media Server can connect.
- 2 Test Connectivity from client.**
Install the browser on the server, and check that it runs and can open a report page.
- 3 Review the Event Report**
Look for errors in the 'Application Log'. Warnings are OK.
- 4 Make test calls and check reports**
All test calls should be from a trunk unless specifically testing station to station SMDR.
- 5 Add a pilot and split to the ACD and make sure it gets into the reports**
Be sure to run 'probedt k' to keep exsiting data and update with the new information.
- 6 Check that scheduled tasks are set up and running**
Check the event log for the TaskTimer service. In the report browser, check the 'Server Activity Log' for events showing that the various tasks are being run according to the 'c:\tfb.net\data\cron.dat' file.
- 7 Check system integrity** through the reboot process
- 8 Check all clients** for proper access
- 9 Test print, export, and email functions**
- 10 Check voice logger playback** (optional)
Requirement: Voice logger installation is complete

1.3.3 Starting the Reports Browser

The ACD Reports Browser is used to run reports, export data to Excel, and print. It works a lot like your web browser. Each report is a web page, with links inside it to more detailed data. After starting the Report Browser, you'll notice also that it has **Forward**, **Back**, and **Stop** buttons, like a browser.

1.3.3.1 To Start the Browser

- 1 Double-click the ACD Reports Icon on your Windows desktop



- 2 If the Server is not found, ask your IT department for the *TFB Media Server* IP address.

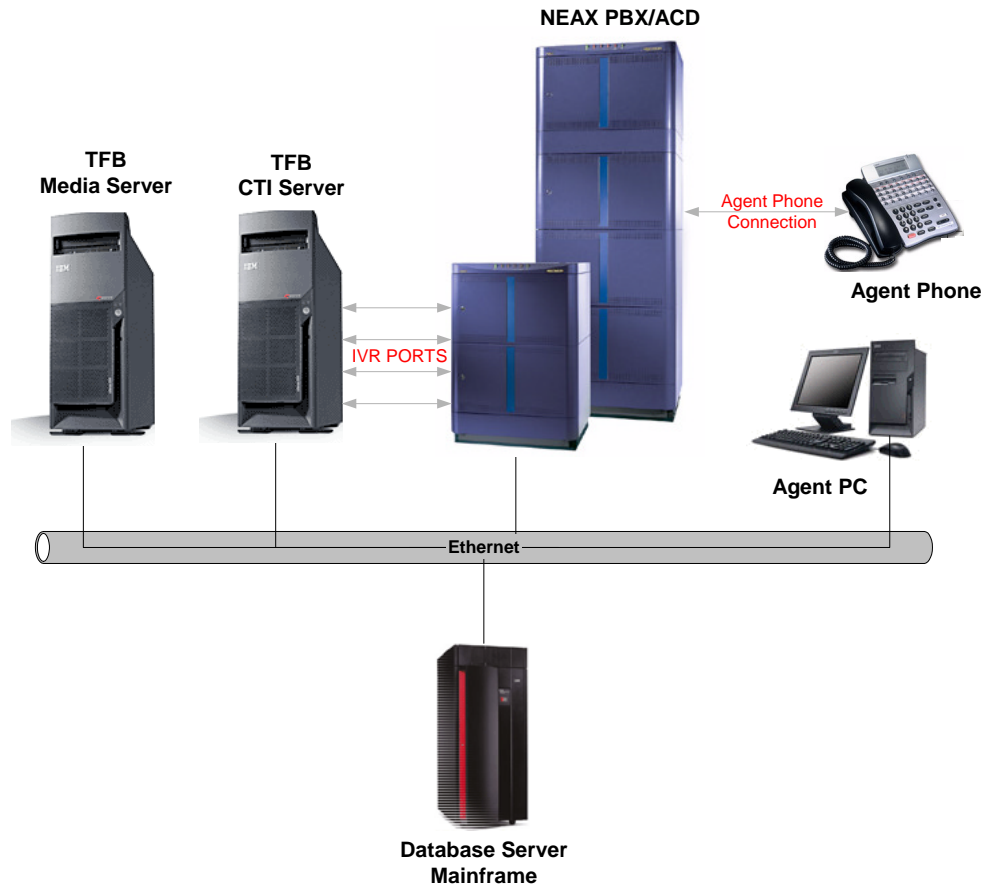
When you start the Reports Browser for the first time, make sure it has been properly installed with the correct IP address of the TFB Media Server. Your IT staff should be able to help you with this. If there is no ACD Reports browser icon on your desktop, it is probably not installed on your system.

If the Report Browser opens no data appears it is probably not looking at the correct server. Your IT staff can supply you with the correct address or server name. Use the following procedure to change the server used by your Report Browser.

1.3.3.2 Setting the Server IP

- 1 Double-click the ACD Reports Icon
- 2 If the Server is not found, ask your IT department for the *TFB Media Server* IP address.

1.4 Major System Components



2.1 Maintenance and Upgrades

The *TFB Media Server* is simply a Windows-based server, with no proprietary hardware. Users are responsible for standard maintenance such as backups, security, and OS upgrades.

This module discusses:

- § Standard Maintenance – Backups, Hard drive, Rebooting
- § OS and SQL Upgrades
- § Switch Maintenance that Affects ACD Reports

2.1.1 Standard Maintenance Requirements

The following issues are worth reemphasizing important considerations when planning call flow and system design.

2.1.1.1 Stopping and Starting the Server

The mediaserver uses services to control all functions. The primary services are:

1. TaskTimer

The task timer is the master service and controls all the scheduled tasks on the server. It also triggers the stop and start of the secondary services during maintenance processes and sanity checks.

2. ACDRD

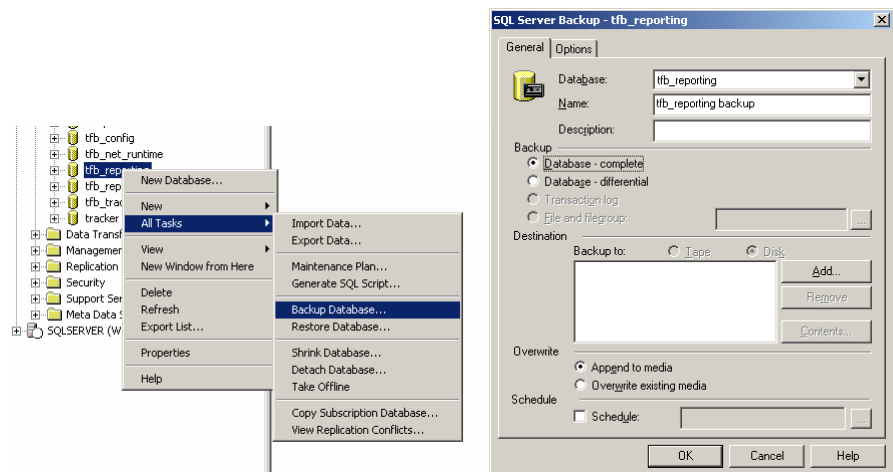
The ACDRD service is the main feeder service and is responsible for subscribing to the CTI Server's data feed. This service is stopped and started during any reconcile process, and should not be monitored.

3. TFBID

The ID service is the backbone of the alarm broadcast system. It too is controlled by the TaskTimer service and should not be monitored.

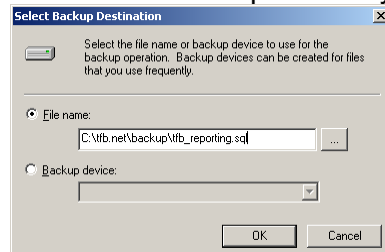
2.1.1.2 Backup database

Backing up the database is not a difficult task. *The SQL Server Enterprise Manager* has a wizard to make the process simple.

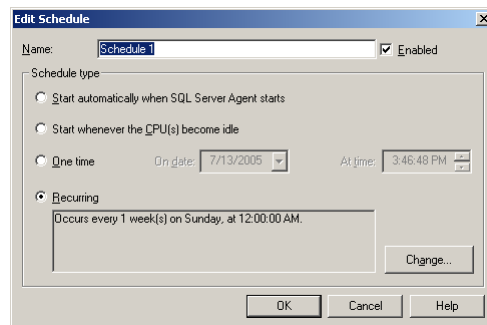


Click on “Add...” to add a location to store the backup of the database. In this example, we are backing up the database to the “tfb_reporting.sql” in

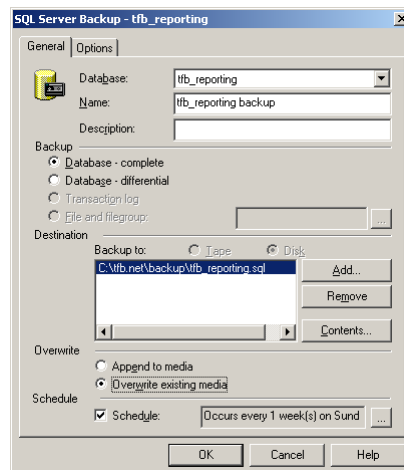
the 'c:\tfb.net\backup\' directory.



To simply life, it is recommended that the backup be scheduled to occur automatically. This requires that you check "Schedule" and set a schedule.



Now you are ready. In this example, we are backing up the database every week on Sundays to a file, and overwriting the old backup. Your IT department may then back this up to tape, or use an existing enterprise backup system that you already have in place.



2.1.1.3 Backup log files on CTI Server

The 'atimport.exe' application in the 'tfb.net\bin' directory backs up the raw files in a location specified

2.1.1.4 Virus and Security Software

Ensure that your virus protection software is certified to run on a SQL Server, and will ignore the mdb files that the Server uses as its storage. Scanning these files will have serious negative impacts on performance and reliability.

2.1.1.5 Defrag HD

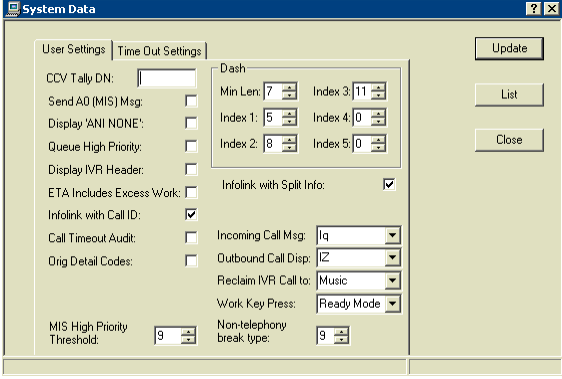
TFB recommends that the Media Server have all drives defragmented twice a month. Please use any tools that meet the needs of your IT department. Systems with large amounts of data may wish to defrag on a weekly basis.

2.1.2 OS and SQL Upgrades

- Windows Patches can be applied at any time to the Media Server. Since the Media Server only processes data, and does not collect it, there is no chance of irrecoverable data loss by maintenance tasks on the server. If data is missing, simply reconcile the day with the missing data.
- Restarting the Server
 - Restarting the server can be done at any time. However; we recommend trying to schedule reboots after business hours to avoid an interruption in reporting services.
 - Restarting/rebooting will not cause you to lose any data. Data will not be inserted for the time the server was down, but will be automatically inserted during the next reconcile. You may expedite this by reconciling the current day with the 'reconcile now' command.
 - After a restart, you may wish to check that the tasktimer is running and that the acdrd service has also started.
- SQL Service Packs
 - TFB recommends that all MS SQL Server Service Packs be applied in a timely manner. Like all server maintenance, this is best done when the end user will not be using the system.
 - Under no circumstances will a Service Pack cause a loss of data.

2.1.3 Switch Changes that Affect ACD Reports

- Upgrading and Resetting the Switch
 - Before upgrading your ACD, please contact TFB to ensure that there are no compatibility issues.
 - Afterwards, check that the 'Infolink with Split Info' is checked, and the 'Incoming Call Msg' is 'Iq' (lowercase), NOT 'IQ' (uppercase).



The screenshot shows the 'System Data' configuration window with the 'Time Out Settings' tab selected. The window contains several settings:

- User Settings:** CCV Tally DN: (empty), Send A0 (MIS) Msg: , Display 'ANI NONE': , Queue High Priority: , Display IVR Header: , ETA Includes Excess Work: , Infolink with Call ID: , Call Timeout Audit: , Orig Detail Codes: , MIS High Priority Threshold: 9.
- Time Out Settings:** Dash: (empty), Min Len: 7, Index 3: 11, Index 1: 5, Index 4: 0, Index 2: 8, Index 5: 0.
- Other Settings:** Infolink with Split Info: , Incoming Call Msg: Iq, Outbound Call Disp: Z, Reclaim IVR Call to: Music, Work Key Press: Ready Mode, Non-telephony break type: 9.

Buttons for 'Update', 'List', and 'Close' are visible on the right side of the window.

- Adding or Changing Pilots, Agents, Splits
 - Changes to the ACD configuration are only reflected by the reporting package at the next reconcile period – typically after midnight.
 - If you need the change to take effect immediately, run a 'reconcile now' to update the settings in the reporting database.

3.1 Troubleshooting

The Media Server is a web server running IIS with PHP for server-side scripting. Troubleshooting generally happens in three categories – data, connectivity, and user features like printing and export.

Because the client uses your installed version of Internet Explorer, many of the same troubleshooting approaches apply to this as to any thin-client web system. Security and access setting affect the client just as they would IE.

This module discusses:

- § Troubleshooting Data Issues
- § Troubleshooting Connectivity Issues
- § Troubleshooting browser access and Features

3.1.1 Troubleshooting Data Issues

This is for issues that involve data not adding up, missing calls, and so forth.

- Types of Issues
 - Numbers don't match between reports

Make sure the numbers are supposed to match. For instance, you cannot add up the split totals to get the daily call volume, since a call may go to many splits.
 - Numbers don't match *Navigator*

Navigator counts calls each time they enter the IVR – inflating the actual number of calls. *Navigator* also uses preset minimum thresholds to determine whether calls should be included in particular totals, which can skew calculated values. Keep in mind, that all numbers in *TFB ACD Reports* can be derived again by drilling down further into the data; you cannot do this with *Navigator*.
 - Missing calls or call data
 - § Trunk reports from your telco provider can give you useful data for comparison. But even with this, there are things to keep in mind.
 - Discarded calls by the PBX. The PBX will not report calls below a certain threshold duration. (consult your PBX vendor)
 - Not all calls will get to the ACD. Calls not registered by the ACD are not included in the totals of most reports.
 - Nightmode / Week schedule considerations.
 - Call detail
 - § If the Call Detail report displays a message indicating that *a reconcile is required*, the data may have dropped off the server, or this may be an artifact call.
 - § If you see strange events, keep in mind that ACD Reports simply displays data as reported from the ACD CTI link. Try reconciling the day to see if additional records show up.

If you still see something odd, it is time to look at your CCVs.

- If a field seems to be calculated incorrectly, the raw data is always available for comparison. Please send complete screen shots and details to 'reports@tfbc.com'.

- Here are a list of things to consider as a general approach to trouble shooting ACD Reports:
 - Is it a data interpretation issue?
 - § Between reports
 - § Navigator
 - § Trunk reports
 - Discarded calls
 - Calls that don't get to the ACD

 - Is it the switch, CTI Server, Media Server? Or the Browser?
 - § Running the atimport to get comparative data.
 - § Reading raw logs

 - Is this a call flow issue?

 - Is it a case of the messenger getting the blame?

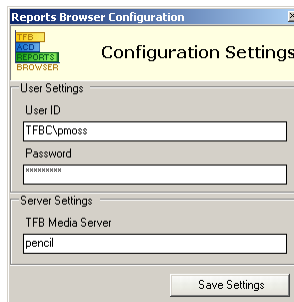
 - Are they losing data?

3.1.2 Troubleshooting Connectivity Issues

This is for issues that involve connectivity.

- Types of Issues
 - One or more browsers not getting data

If a browser is not getting data, the most common cause is that the browser is incorrectly configured. In the browser, under 'Actions', select 'Configure'.



This dialog will allow you to configure the location of the Media Server.

- No Browsers getting data

This is more than likely an issue with the network. Port 80 might be blocked, or their proxy might not consider the Media Server an acceptable HTTP host. Contact your network administrator to see if your workstations have http rights to the Media Server.

- Media Server not getting data

If 'atimport' cannot get data, use the TFB port map diagram to list the ports that need to be opened and contact your network administrator about opening those port. Using a cross over cable on secondary NICs is also a good option – it reduces traffic on your network.

- General Approach
 - Check the workstations for general connectivity to the host in question.
 - Check the 'Server Activity' log under 'Actions' in the Browser for connectivity errors.

3.1.3 Troubleshooting Browser Features

This is for issues that involve the browser.

- Types of Issues
 - Printing
If there is an issue with printing; make sure that the workstation can print from IE. The report browser uses IE for its printing engine.
 - Exporting to Excel
Ensure that the workstation has Excel. If Excel is installed, take complete screenshots and send to 'reports@tfbc.com'.
 - Emailing Reports
Make sure that IE can email webpages. The same functions are used in the browser. Again, screen shot and email if the problem persists.
- General Approach
 - Make sure the feature is supported in their environment.

3.2 Glossary

Although this manual assumes the reader already understands basic telephony concepts, your staff is likely to have a wide variety of backgrounds from IT or telephony, to non-technical management. This mix of business and technology disciplines makes it useful to include the following glossary.

Reports use the standard row and column labels listed here as *statistics*, *dispositions*, and *labels*. You can refer to this chart when reading reports you are not yet familiar with. Statistics

GLOSSARY

- Abandoned [subtype]** *Statistic.* Calls in this category disconnected while assigned to an ACD queue, or while ringing on an ACD line (*Abandoned at Agent*). This typically means that the caller simply hung up while waiting in queue. Displayed as a total number.
For **subtype** = [blank], Indicates any call abandoned, incl. all subtypes
For **subtype** = *In Queue*, indicates any call abandoned in queue, exclusive of other subtypes
For **subtype** = *In IVR and Queue*, indicates any call abandoned in queue while also connected to an IVR port, exclusive of other subtypes
For **subtype** = *At agent*, indicates any call abandoned while transferred by the ACD from a queue to an agent, exclusive of other subtypes
- ABN** *Abbrev. Statistic.* See *Abandoned*. Displayed as a total number.
- ABR** *Abbrev.* Standard abbreviation for *Abandoned Rate*. Displayed as a percentage of abandoned calls to total calls.
- Account** The 'account' field associated with a particular call. This can be configured for use by many different types of data. So, although it is called 'account', and is most frequently used for the callers account number, it is possible that your system uses it for another type of data.
- ACD No.** Refers to the particular ACD the data was generated from in a multi-ACD environment. Your telephony vendor can tell you the number assigned to each ACD.
- ACD CID** Refers to the unique ACD call ID assigned to each call. This number is assigned to the call by the ACD.
- Agent** Indicates calls answered by an agent. This is used only in Versions of ACD Reports prior to 1.9 and is the same as the label 'Answered'. See Answered.
- AIS** *Abbrev. Statistic.* Agents in Split. Refers to an agent total for a specified split.
- ANS** *Abbrev. Statistic or Disposition.* See *Answered*.

- Answered** *Statistic or Disposition.* In reports, indicates a call answered by an agent. As a disposition, indicates calls for which the last recorded event was and 'Answered' (by agent) event. This typically means that they were transferred from a business line to an unmonitored extension.
- As a disposition this should be seen *infrequently*.
- This disposition can also be seen as the result of a call disconnected. between states. Very small numbers of calls in this category are not typically cause for concern.
- ASA** *Abbrev. Statistic.* Average speed of answer in seconds.
- ATT** *Abbrev. Statistic.* Average talk time in seconds.
- Average Speed of Answer** *Statistic.* Average speed of answer in seconds. Measured from the time the call was queued to the time it was answered by an agent.
- Average Talk Time** *Statistic.* Average talk time in seconds. Each talk time is measured from the time the agent answers the phone to the time the call is disconnected or transferred
- Call Key** *Label.* Unique identifying number for a specific call. It is a combination of the ACD call control number and the Julian date. The format is YYYYDDD<ACDccn>.
- For example 2002157270594
- Callback** *Label.* Indicates an *ASAP*, *Internet*, or *Scheduled Callback* inserted into the ACD queue. This only appears as the disposition if the callback was not completed and disconnected normally.
- This disposition should be seen *infrequently*.
- Closed Normal** *Disposition.* Agent eMail. Indicates an Email message that was successfully routed, delivered, and handled by an agent.
- CMP** *Abbrev. Disposition.* See *Completed*.
- Completed** *Disposition.* Calls in this category disconnected properly, and were not in an ACD queue when they disconnected. Typically this means the caller hung up after talking with an agent, or using the IVR. Most call disconnects should be of this type. Note that in ACDR versions prior to 2.0, this stat was called *disconnected normal*.
- Created Callback** *Label.* ASAP and Scheduled Callback. A callback was placed in queue. Usually this is because a customer in queue opted for callback, but other applications can place calls in queue.
- Dis-connected In IVR** *Disposition.* Indicates a successful IVR session, disconnected normally.
- DNIS** *Label.* The original pilot of the call. The actual 10-digit number mapped to the DNIS is stored in, and controlled by, the switch configuration. See also *pilot*.

Field	<i>Disposition.</i> Any space within a report used to display data, typically at a particular column and row within the report.
Forwarded	<i>Label. Agent eMail.</i> Indicates an Email message pulled from queue and delivered to agent.
GOS	<i>Abbrev. Statistic. See Grade of Service.</i>
Grade of Service	<i>Statistic.</i> By default, this is the percentage of calls answered in less than 120 seconds. This threshold can be customized by split if desired.
Hold	A call placed on hold by agent.
IUR	<i>Abbrev. Statistic. See IVR Utilization Rate.</i>
IVR Utilization Rate	<i>Statistic.</i> Same as IUR. Percentage of total calls that used an IVR port.
LWC	<i>Abbrev.</i> Longest waiting call, a duration in the format HH:MM:SS HH-Two-digit hours, MM-Two-digit minutes, SS-Two-digit seconds
Misc	<i>Label.</i> The 'misc' field associated with a particular call. Like the 'misc' field, the 'misc' field can be configured for use by many different types of data. Consult your supervisor to determine how this field is used at your site.
Name	<i>Label.</i> The 'name' field associated with a particular call. Like the 'account' field, the 'name' field can be configured for use by many different types of data. So, although it is called 'name', and most frequently is actually used for the caller's name, it is <i>possible</i> that your system uses it for another type of data.
Outbound Connected	ASAP and Scheduled Callback, and Automated Outbound Campaigns. Outbound call was answered
Outbound Result [result]	ASAP and Scheduled Callback, and Automated Outbound Campaigns. For result = <i>success</i> , Outbound call was successfully completed. For result = <i>failure</i> , Most recent attempt failed to complete the Outbound call. For result = <i>failed</i> , All attempts failed to complete the Outbound call and no further attempts are scheduled. The failed calls are typically because a tri-tone, ring no answer, busy was detected.
Pilot	<i>Label.</i> A unique path defined for a given call at a given moment in the switch. A call can only have one pilot associated with it at a time, but multiple calls can use the same pilot simultaneously. The <i>pilot number</i> is the unique number associated with the current path of the call in the switch.

- Priority** Indicates calls that changed priority.
- Queued** *Disposition.* Call queued by ACD.
- Ringng** *Disposition.* A call ringing on agent phone.
- Returned** *Disposition.* Call sent from IVR port back to ACD. Next ACD step is followed.
- Routed** *Disposition.* Call routed by Enhanced Call Center routing by ANI match
- State** Agent eMail only.
- Change** For **type** = *review*, Email sent to supervisor for review.
[type] For **type** = *read*, Indicates an Email message pulled from queue and delivered to agent.
For **type** = *change*, Indicates an Email message transferred by an agent to another queue, different from the original.
- [time]** All six-digit times refer to hours, minutes, and seconds in the format HH:MM:SS
All four-digit times refer to minutes, and seconds in the format MM:SS
The time stamps are based on the CTI Server clock unless otherwise noted.
- Transferred** *Disposition.* Indicates calls transferred between pilots.
- XFR** *Abbrev. Disposition.* See *Transferred*.

3.3 Interpreting Reports

With a good grasp of the labels and statistics defined in the previous section, it is useful to understand some important ACD issues, as well as how totals are calculated in the reports, and how to compare statistics among reports. This section should help answer questions from staff, resolve apparent reporting contradictions, and interpret comparisons to other reporting systems.

3.3.1 Does it Add Up?

There are several important facts to remember about the design of the ACD.

- **A call has only one associated DNIS** (the original pilot of the call)
 - Therefore total calls by *DNIS* = *Total calls presented to the ACD*
 - Therefore total calls by *DNIS* • *Total calls by split*, because a single call can be queued (or presented) to multiple splits.
- **A call can be queued to multiple splits simultaneously**
 - This increases the total number of calls presented to the split, therefore, the total number of calls presented to splits can be much greater than the total calls by DNIS
 - A call can only be answered in a single split, so total calls presented to a split might be greater than total calls answered in that split, even with 0 abandons
- **Calls are only answered in a single split**
 - Therefore total calls presented to a split might be greater than total calls answered in that split, even with 0 abandons
- **DNIS Totals and Split totals almost never match!**
 - A single call can only be associated with one DNIS, but that same call can be queued to multiple splits, thereby increasing the total calls queued to that split.
- **Other Factors**
 - Calls transferred out of the ACD are not tracked further

- Other reporting tools will see a single call as multiple calls if it is transferred to CTI Server then back to the ACD
- PBX call tracking is available only with integration to SMDR and MIS link

3.3.2 How is it Calculated?

Various metrics appear throughout reporting that are calculated by predetermined conventions. These are primarily Abandon Rate (ABR), Abandons (ABN), Grade of Service (GOS), and IVR Usage.

IMPORTANT CALCULATIONS IN REPORTS

ABR *Abbrev.* Standard abbreviation for *Abandoned Rate*. A percentage.

$$\text{ABR \%} = (\text{ABN} \div \text{Total Calls}) \times 100$$

ASA *Abbrev.* Average speed of answer in seconds.

$$\text{ASA} = (t_{\text{answer } 1} + t_{\text{answer } 2} \dots + t_{\text{answer } N}) \div N$$

Where $t_{\text{answer } 1}$ is the answer time in seconds of the first call, $t_{\text{answer } 2}$ is the answer time in seconds of the second call, and so on. N is the total number of calls for the interval and across the split(s), DNIS(s), or Pilot(s) specified in the report.

ATT *Abbrev.* Average talk time in seconds. This is average duration of caller-agent interaction.

$$\text{ASA} = (t_{\text{talk } 1} + t_{\text{talk } 2} \dots + t_{\text{talk } N}) \div N$$

Where $t_{\text{talk } 1}$ is the talk time in seconds of the first call, $t_{\text{talk } 2}$ is the talk time in seconds of the second call, and so on. N is the total number of calls for the interval and across the split(s), DNIS(s), or Pilot(s) specified in the report.

Calls Typically the label for total calls in a reporting unit. Although call counts are gathered in various ways, depending on the report, total calls for a given DNIS should be the sum of calls in all disposition categories for the same time period.

Calls By DNIS = ABN + ANS + ALL OTHER DISPOSITIONS

Note that total calls by split typically do not equal the sum of all dispositions, because calls can be queued to more than one split, increasing the per split call total, but a call has only one disposition.

Calls By Split • ABN + ANS + ALL OTHER DISPOSITIONS

IMPORTANT CALCULATIONS IN REPORTS (cont'd)

GOS *Abbrev.* Grade of Service. By convention, this is the percentage of calls answered in less than 120 seconds. (This threshold can be customized for each split)

$$\text{GOS} = (\text{Answ}_{\text{undergrade } 1} + \text{Answ}_{\text{undergrade } 2} \dots + \text{Answ}_{\text{undergrade } X}) \div N$$

Where $\text{Answ}_{\text{undergrade } 1} = 1$, and represents the first call answered within the desired threshold (under 120s for instance), $\text{Answ}_{\text{undergrade } 2} = 1$, and represents the first second call answered within the desired threshold, up to $\text{Answ}_{\text{undergrade } X} = 1$, which represents the last call in the specified interval that is answered within the desired threshold. N is the total number of calls for the interval and across the split(s), DNIS(s), or Pilot(s) specified in the report.

IUR *Abbrev.* IVR Utilization rate. Percentage of total calls in category listed that used an IVR port.

$$\text{IUR \%} = (\text{Total calls using IVR port} \div \text{Total Call pool}) \times 100$$

Pilot The unique number associated with the path of the call in the switch.

3.3.3 Comparing to Other Report Tools

It is often useful to compare report data from ACD Reports to those from your carrier, or another tool, like the NEC *Navigator*. But before you do, there are important things to know about how various systems count calls and calculate metrics, like grade of service and abandon rate. Methodology varies among these systems for good reasons, and familiarity with the differences will help greatly when doing comparisons.

3.3.3.1 Comparing to Other Reporting Tools on the Switch

Many users have legacy reporting tools on their NEAX switch, and those applications differ in significant ways from how ACD Reports treats data. ACD Reports tracks calls across the IVR and ACD, whereas external systems typically lose track of the call after transfer to an IVR port.

Calculated metrics, such as Grade of Service are based on variable call pool sizes and configurable thresholds that may be configured differently in different reporting tools.

3.3.3.2 Comparing to Carrier Reports

Some users prefer to compare reporting data between ACD Reports and the reports provided by their carrier. Providers like MCI and AT&T offer detailed trunk usage reports, usually including ANI. You should find close correspondence between the trunk reports and ACD Reports, but don't panic if the comparison

shows a difference of a few calls here and there. Why might there be minor discrepancies? For one thing, calls that disconnect in a very short period, on the order of 3 seconds or less, are typically not registered by the ACD. It is important to note that major discrepancies indicate an issue that should be addressed.

3.4 Reporting FAQs

The following are frequently asked questions about reporting calculations, fields, and conventions.

1. Why Don't Grade of Service Stats Match Navigator?

Grade of Service, GOS, is calculated based on the percentage of calls answered within some number of seconds. That threshold is variable, and can be set individually for each split. By default, it is set to 120s. The threshold you select for each split should reflect your service goals.

2. Why Don't Total Calls Match Navigator?

It is important to be aware that Navigator sees any call returning from the IVR as a *new call*. ACD Reports tracks calls cradle-to-grave across the IVR and does not count calls coming from IVR as new.

3. Why Don't Total Calls Match Between the Split and DNIS Reports?

The DNIS is defined as the first pilot associated with a given call, so a given DNIS total is an indication of the exact number of calls on that DNIS. However, calls can be queued to multiple splits simultaneously.

4. Why Don't Total Calls Match Between the TFB Log Server and ACD Reports?

The log server actually maintains a PEG count for each instance of a call that is transferred to an IVR port on CTI Server. ACD Reports tracks the number of unique calls. So, because a given call can be routed to an IVR port multiple times, or even not at all, the totals do not make a useful comparison.

5. What is Meant By Call Disposition?

The disposition of a call is literally an indication of the last recorded event for the call. And in general, this indicates the state of the call when it was disconnected. For the most part, calls are either completed, or abandoned. A call is completed if it went to IVR and disconnected, or if it was answered by an agent then disconnected. A call is marked abandoned if it was in queue when disconnected. Disposition says nothing about what happened to the call prior to disconnect. Therefore, even callers who talk with an agent, might subsequently be transferred back to a queue, and if they hang up in queue, the ultimate disposition of the call will be *abandoned*.

6. Why is the Account, Name, or Misc Field blank?

These fields are tagged by CTI Server applications in a variety of ways. They stay with the call and can be used to provide screen pop no matter where the call is transferred within the ACD, or to identify the call among multiple applications. In some environments data is not collected at all, so these fields remain blank. In environment where data is collected from callers, it is possible for some or all of these fields to be blank if a caller declined to enter an account number, for instance, or if ANI is used to look up data but no ANI is available for the call.

7. Why is a drilldown link that is usually active, sometimes inactive?

Drilldown links are active only when data is available under the link. So, for instance, if total abandoned calls = '0' on the Daily Summary, then the abandoned calls report is empty, and the link to it is inactive and not clickable.

8. Why is there no PBX Call Detail on the Reports?

To get complete PBX call information, your system must have the optional SMDR integration. Without SMDR, those reports will not contain data.

9. How Frequently is Data Updated in Reports?

Most data is inserted within seconds of the actual event. Summary data is always available only after the summary period is complete. For instance, total calls by hour fields are only accurate after the completion of the hour. Also, some data associated with calls, such as the callers account number, may not appear until the completion of the call.

If there is an interruption in service, where the Media Server (the platform ACD Reports runs on) is off line, automatic updates retrieve the missing data from CTI Server and back fill the database. This automatic update runs at 9AM, Noon, and 7PM, by default.

10. How can I tell if my system reconciled?

You can use the browser to access 'Server Activity Reports' from the menu. This report shows you the last 500 activities taken by the server to keep itself consistent.

11. What happens during a reconcile?

During a reconcile, the atimport.exe process connects to the CTI server and collects the audit trail files for the day that it is reconciling. It then does a bulk insert of the data, runs REBUILD_NIGHTLY and REBUILD_DAILY stored procedures on the server. At the end, the database is shrunk and the drilldowns pruned.

12. Will my system be slower during a reconcile?

The reconcile process is the lowest priority task on the server; however, if there is significant load on the mediaserver, the server might slow down during the bulk insert.

13. How does the system know that pilots, splits and/or agents have changed?

The probecti.exe process regularly (at every reconcile) checks the information that the CTI server has stored for all pilots, splits, agents, menus and IVR statistics. The CTI server collects and updates this information through Infolink and MIS.

14. How can I know that the raw data made it into the database?

When you run atimport.exe, any discrepancies between the number of records and the number of calls between the raw and sql data is reported both on the screen and in the server activity log.

3.5 Database Layout

3.5.1 Feeder Tables

The four feeder tables map directly to the CSV files stored on the CTI Server. Below are the SQL design representations of these tables

reporting_call_audit_trail				
Column Name	Data Type	Length	Allow Nulls	
calendar_date	datetime	8	✓	
acd_call_id	bigint	8	✓	
call_key	varchar	50	✓	
event_time	datetime	8	✓	
tran_code	varchar	24	✓	
disconnect_reason	varchar	24	✓	
pilot	bigint	8	✓	
ani	varchar	24	✓	
split_1	bigint	8	✓	
split_2	bigint	8	✓	
split_3	bigint	8	✓	
split_4	bigint	8	✓	
party_1_type	varchar	1	✓	
party_1_id	bigint	8	✓	
party_2_type	varchar	1	✓	
party_2_id	bigint	8	✓	
party_3_type	varchar	1	✓	
party_3_id	bigint	8	✓	
agent_id	bigint	8	✓	
agent_name	varchar	50	✓	
ivr_announcement	bigint	8	✓	
ivr_log_callid	bigint	8	✓	
sp_account	varchar	32	✓	
sp_name	varchar	52	✓	
sp_misc	varchar	52	✓	
call_type	varchar	24	✓	
call_sub_type	varchar	24	✓	
call_control_code	varchar	12	✓	
call_phone_number	varchar	24	✓	
parent_call_number	bigint	8	✓	
call_campaign_no	bigint	8	✓	
record_id	bigint	8		
acd_priority	bigint	8	✓	
acd_number	int	4	✓	
id_client	int	4	✓	
id_unit	int	4	✓	
id_subunit	int	4	✓	
acd_tenant	int	4	✓	

reporting_agent_audit_trail				
Column Name	Data Type	Length	Allow Nulls	
calendar_date	datetime	8	✓	
event_time	datetime	8	✓	
agent_id	bigint	8	✓	
agent_name	varchar	52	✓	
dn	bigint	8	✓	
agent_line	varchar	8	✓	
tran_code	varchar	128	✓	
agent_state	varchar	24	✓	
agent_break_code	bigint	8	✓	
agent_tally_code	bigint	8	✓	
acd_call_id	bigint	8	✓	
call_key	varchar	50	✓	
call_type	varchar	24	✓	
call_sub_type	varchar	24	✓	
call_control_code	varchar	12	✓	
phone_number	varchar	24	✓	
pilot_dnis	varchar	50	✓	
ani	varchar	24	✓	
answering_split	bigint	8	✓	
sp_account	varchar	32	✓	
sp_name	varchar	52	✓	
sp_misc	varchar	52	✓	
record_id	bigint	8		
split_preference	int	4	✓	
skill	int	4	✓	
acd_tenant	int	4	✓	
acd_number	int	4	✓	

reporting_smdr_audit_trail				
Column Name	Data Type	Length	Allow Nulls	
record_id	varchar	50	✓	
call_type	int	4	✓	
trunk	int	4	✓	
resource_id	int	4	✓	
tenant	int	4	✓	
station_id	int	4	✓	
agent_id	int	4	✓	
registered_time	datetime	8	✓	
start_time	datetime	8	✓	
end_time	datetime	8	✓	
smdr_account	int	4	✓	
condition_code_1	int	4	✓	
condition_code_2	int	4	✓	
condition_code_3	int	4	✓	
route_1	int	4	✓	
route_2	int	4	✓	
phone_number	bigint	8	✓	
call_meter	int	4	✓	
auth_code	int	4	✓	
condition_code	int	4	✓	
advice_of_charge	int	4	✓	
pbx_differential	int	4	✓	
sp_account	varchar	50	✓	
sp_name	varchar	50	✓	
sp_misc	varchar	50	✓	
client_id	int	4	✓	
unit_id	int	4	✓	
subunit_id	int	4	✓	
acd_no	int	4	✓	

reporting_ivr_audit_trail				
Column Name	Data Type	Length	Allow Nulls	
insert_date	datetime	8	✓	
insert_time	datetime	8	✓	
function_code	bigint	8	✓	
ivr_port_number	bigint	8	✓	
ivr_log_callid	bigint	8	✓	
statistic_number	bigint	8	✓	
peg_count	bigint	8	✓	
duration	bigint	8	✓	
user_data	varchar	52	✓	
ani	varchar	24	✓	
dnis	bigint	8	✓	
record_id	bigint	8	✓	
calendar_date	datetime	8	✓	

3.5.2 Derived Tables

In addition to the feeder tables, there are several lookup tables, but the most commonly used derived tables are the `_call_log` and `_agent_duration_log` tables, which give you information about calls and agents using a single record for a call and single record for each agent state.

reporting_call_log				
Column Name	Data Type	Length	Allow Nulls	
call_key	varchar	50		
calendar_date	datetime	8		
call_type	varchar	20	✓	
trunk	int	4	✓	
ani	varchar	20	✓	
start_time	datetime	8	✓	
dnis	int	4	✓	
queue_time	datetime	8	✓	
answered	int	4	✓	
answered_time	datetime	8	✓	
answered_split	int	4	✓	
answered_dn	int	4	✓	
agent_line	varchar	10	✓	
agent_id	int	4	✓	
agent_name	varchar	52	✓	
grade	int	4	✓	
ivr_ann_9	bigint	8	✓	
last_ivr_ann	int	4	✓	
disposition_time	datetime	8	✓	
disposition	varchar	52	✓	
disposition_detail	varchar	52	✓	
disposition_split	int	4	✓	
account	varchar	52	✓	
name	varchar	52	✓	
misc	varchar	52	✓	
acd	int	4	✓	
tenant	int	4	✓	
client	int	4	✓	
unit	int	4	✓	
subunit	int	4	✓	
answer_speed	datetime	8	✓	
talk_time	datetime	8	✓	
call_duration	datetime	8	✓	

reporting_agent_duration_log				
Column Name	Data Type	Length	Allow Nulls	
calendar_date	datetime	8	✓	
start_time	datetime	8	✓	
duration	datetime	8	✓	
agent_id	int	4	✓	
agent_state	varchar	50	✓	
break_mode	int	4	✓	