Avaya MultiVantage® Express MV_CDR Call Analysis Utility Reference

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2 Summary

The Avaya MultiVantage Express MV_CDR Call Analysis utility provides an add-on Web service to collect and store data and provide a simple analysis of call detail information. The utility combines data collection from the Call Detail Record (CDR) output and the BCMS scheduled reports.

The utility is preinstalled and ready to use after installation of the MultiVantage Express server. MC_CDR automatically collects data from Avaya Communication Manager and imports the data to an SQL database overnight each night. A default set of configuration data permits basic operation of the system and allows the user to further customize as required.

MV_CDR is managed remotely by way of a Web browser. The user controls who can access the utility either as an administrator with full permissions or as a nonadministrative user who can browse data.

The Rates table within the database is the key to matching individual calls to the information that is retained for reporting. The table is used to match the digits that are dialed on a specific call and then generate a simplified Call Cost record. The record is based on part of the original CDR data with the addition of a call type tag and notional call cost that is based on the type and duration of the call.

Both the original CDR record and the derived Call Cost record are stored in the database. From the Call Cost record, additional summary records are derived to provide a peg count for predefined call types on a daily and a weekly basis. Data is automatically purged daily as needed from the database to control the use of disk space. CDR data is held for a minimum of 45 days, BCMS data for 90 days, Call Costs for 200 days, and summary data for 400 days.

Most reports are based on querying the Call Cost table in the database.

In addition, certain scheduled report data from the system can be captured and stored. This data includes basic station information and any BCMS data or trunk data that is output, such as agent, VDN, or split data.

The MV_CDR Call Analysis Utility provides the following set of core functions:

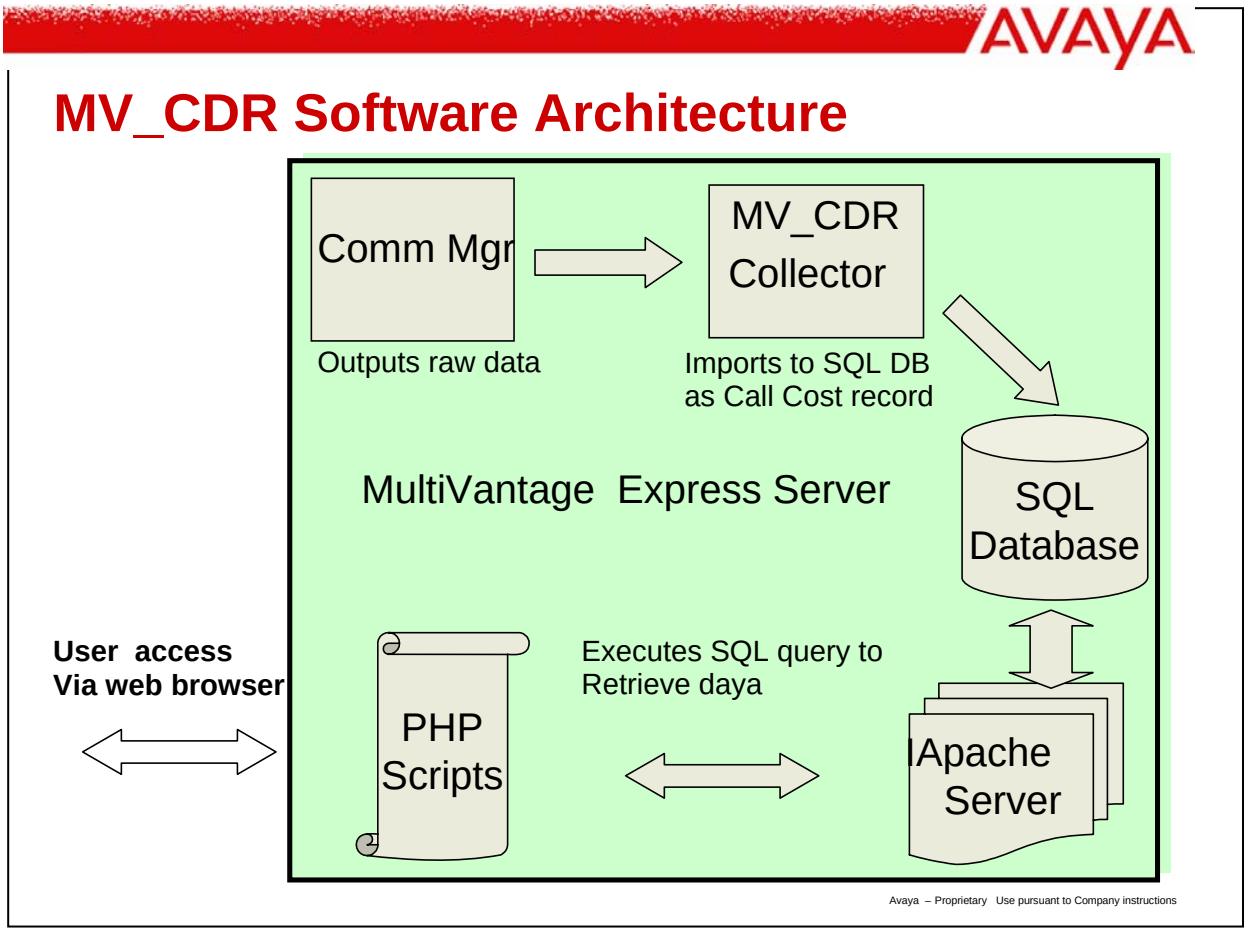
- Collection of CDR data, BCMS data, or both from the Communication Manager server using the RSP protocol
- Import of CDR data, BCMS data, or both into an SQL database
- Classification and summary of call types by way of matching the dialed digits in a Rates table
- Simple database management and data viewer by way of a Web browser
- Storage of data for a limited time period before automatic purging
- The option to relocate the MV_CDR toolkit on an external server and collect data from other Communication Manager systems

The user determines how to use the collected data. For example, the data can be downloaded and further analyzed in Excel or used to generate more complex reports in packages such as Crystal Reports.

Note: The MultiVantage Express MV_CDR Call Analysis utility is not intended to replace conventional call costing management software packages. MV_CDR is provided to facilitate a macro-level traffic analysis for those who do not require highly specialized costing allocation and is based on the MV_CDR toolkit.

3 Description of operation

The following figure shows the architecture of the MV_CDR Call Analysis utility.



A set of basic reports are provided by way of PHP scripts to summarize the call detail records that Communication Manager creates.

The key function of the MV_CDR SQL import service is to create the high-level “call cost” record for each CDR that the service receives. The service also stores the base CDR record in the SQL database. In conjunction with a simple call rate table, a high-level picture of the profile of the call traffic can be built over time such as, for example, call use by department.

4 MV_CDR operations

4.1 Logging in

Open your Web browser and enter the URL of the MultiVantage Express home page:

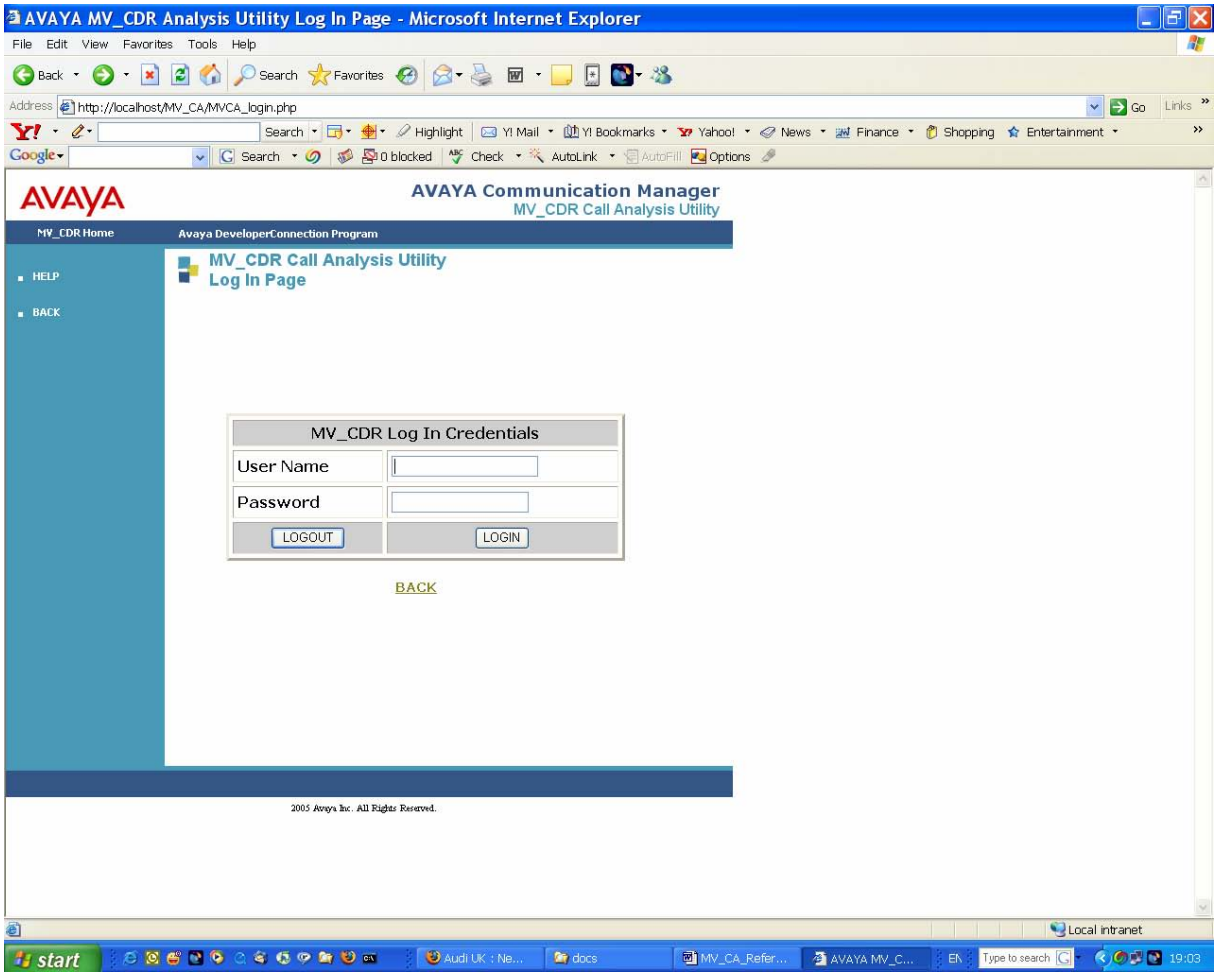
http://<Express IP address or DNS name>

Click **LOG IN** and accept the user license.

After you accept the license, the system prompts you to log in.

The default system login and password are both **mvuser**. There is also the guest login **mv-guest** with the same password.

You can use the system login to add and delete users by way of the administration pages. You can also use the system login create a new system login if required and then delete the default **mvuser** login.

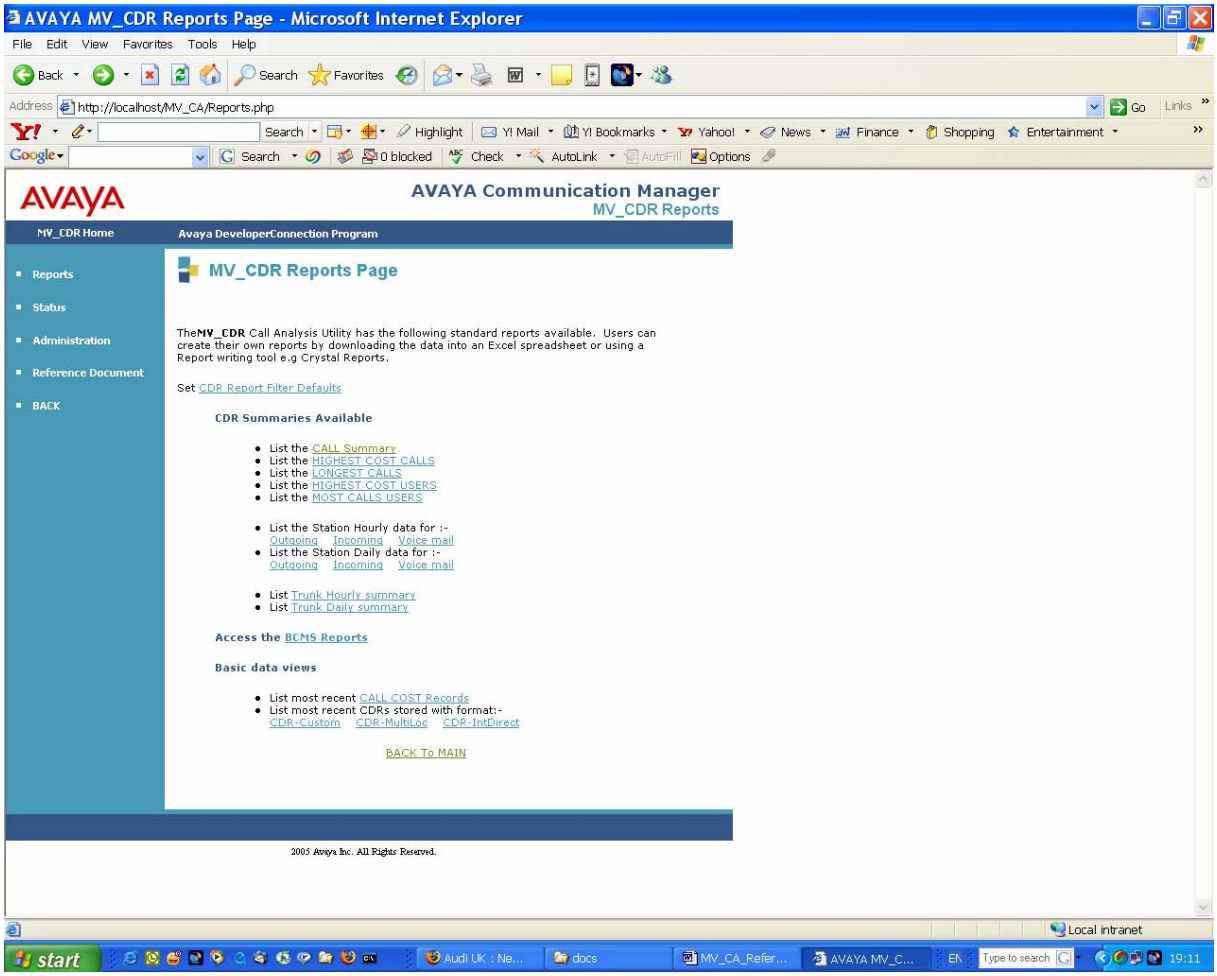


Once you log in, the main page gives you access to the reports pages, the status page, and the administration pages.

4.2 Reports

The Reports page provides a set of basic reports.

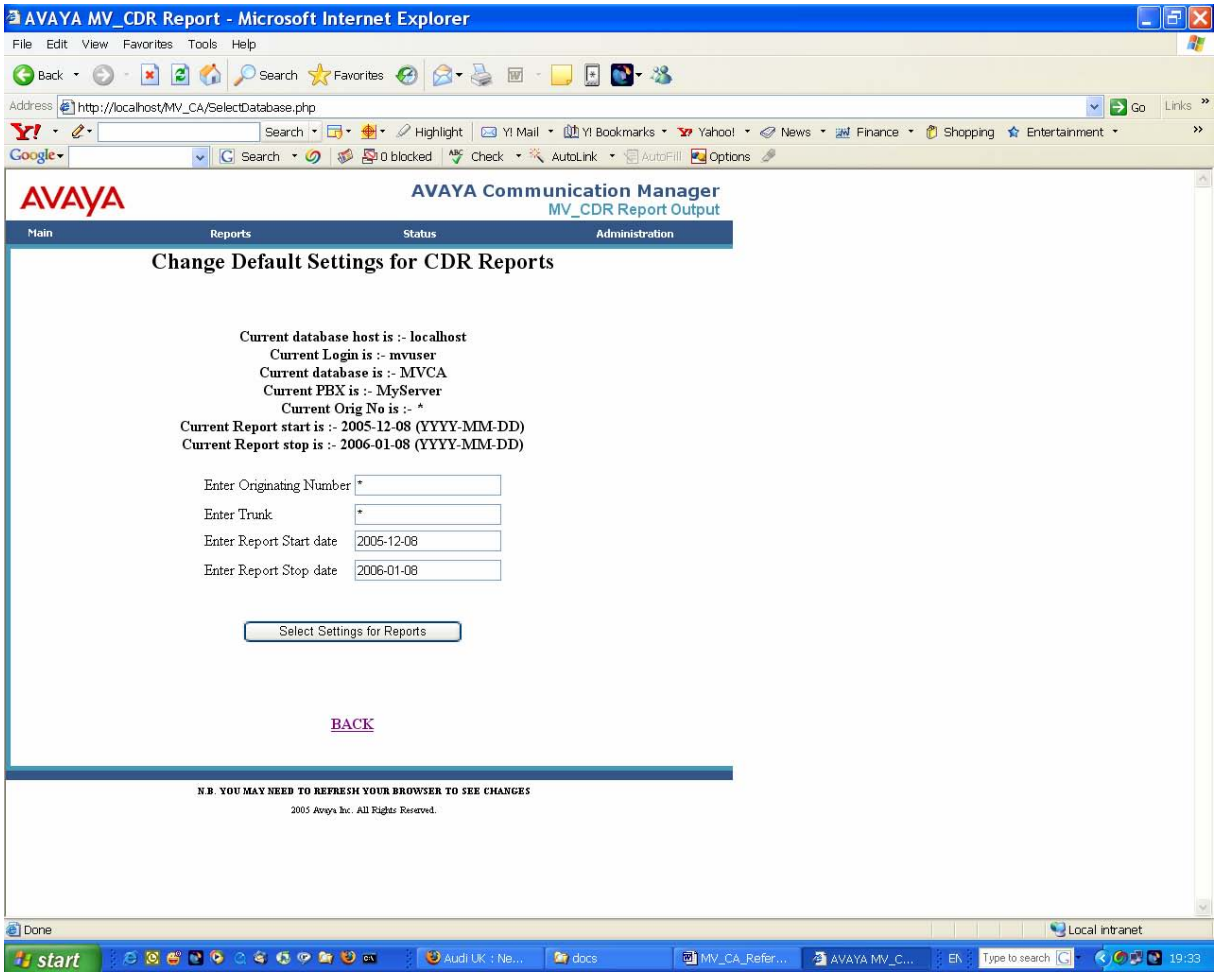
Note that a report is blank if no relevant call data has been generated.



To check that basic data exists from which the reports are generated, select the Call Cost Records or CDR records. You should be able to recognize some relevant data in the fields of the record.

In each of the reports, you can filter the data based on some preset criteria such as a range of dates. You do this by way of the **CDR Report Filter Defaults** link.

Once the data is filtered using the filter button, you can downloaded the data to a comma-separated-variable (CSV) file. You can then directly import the data into an Excel spreadsheet. See Excel help if needed.



4.3 MV_CDR Status

You can check the operational status of the MV_CDR utility by way of the status page.

This provides a link to a status page that is generated within each of the main MV_CDR software components.

The following figure shows the Collector status. This page usually shows the connection status to Communication Manager (the connected client) and whether a CDR RSP session is established, over which data will be sent.

The log shows data periodically arriving at the Collector in normal operation.

By default, the CDR data is imported overnight into the SQL database by way of the MV_CDR Import server. The following status page indicates the success of the operation.

Note: If the MV_CDR server is not running, check with your system administrator. The administrator can use the MultiVantage Express tool MV_Manager to restart the servers if needed.

4.4 Administration

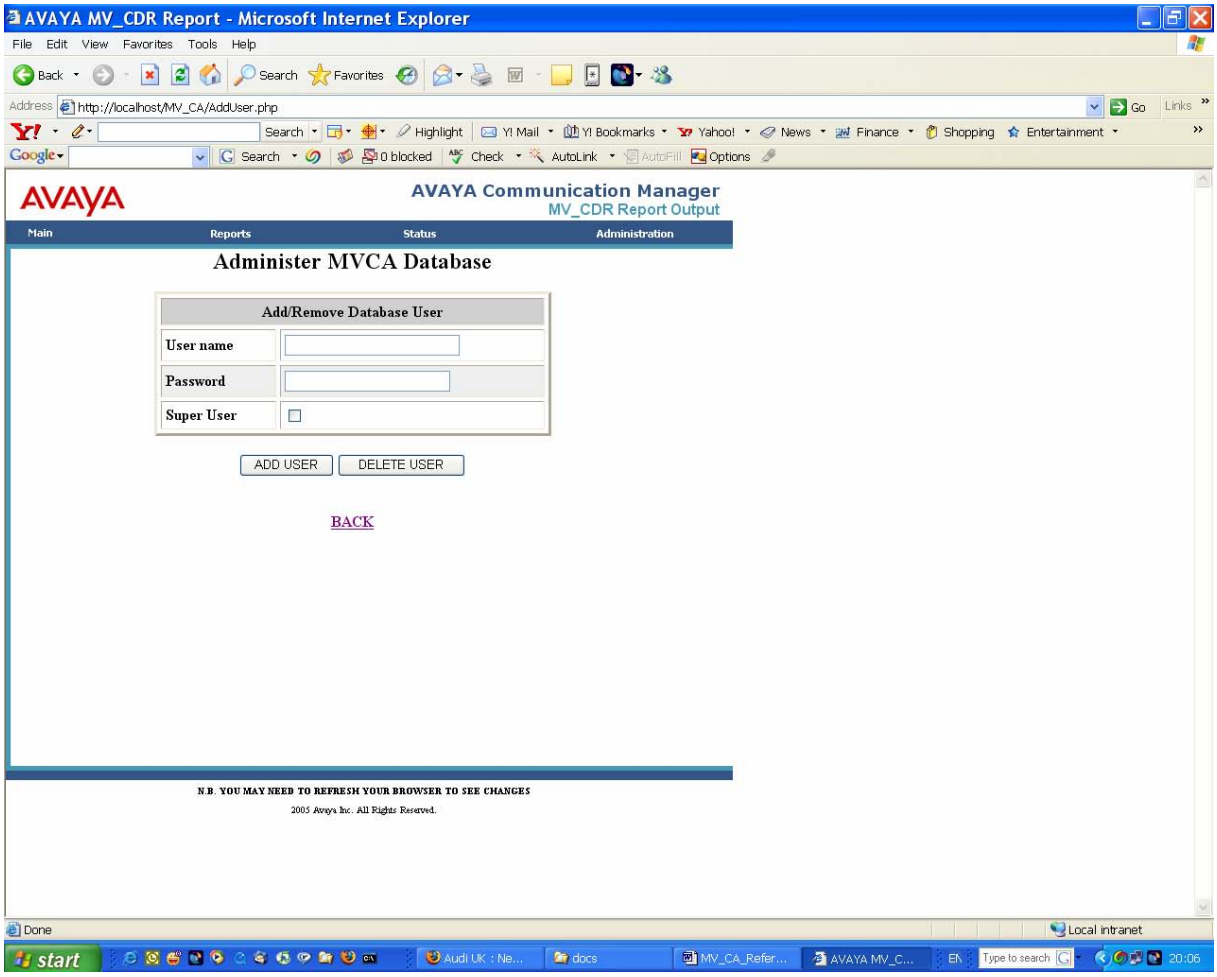
The MV_CDR Call Analysis utility requires minimal administration.

The main functions administrative functions are to:

- (Optional) Change the default user access.
- Set the PBXS and Rates tables. For more information, see Section 3.5.
- (Optional) Back up the database periodically.

Use the following screen to add or delete a database user. Note that a super user is allowed access to these adminstration functions and can create other users.

To delete a user, you need only to specify the user name.

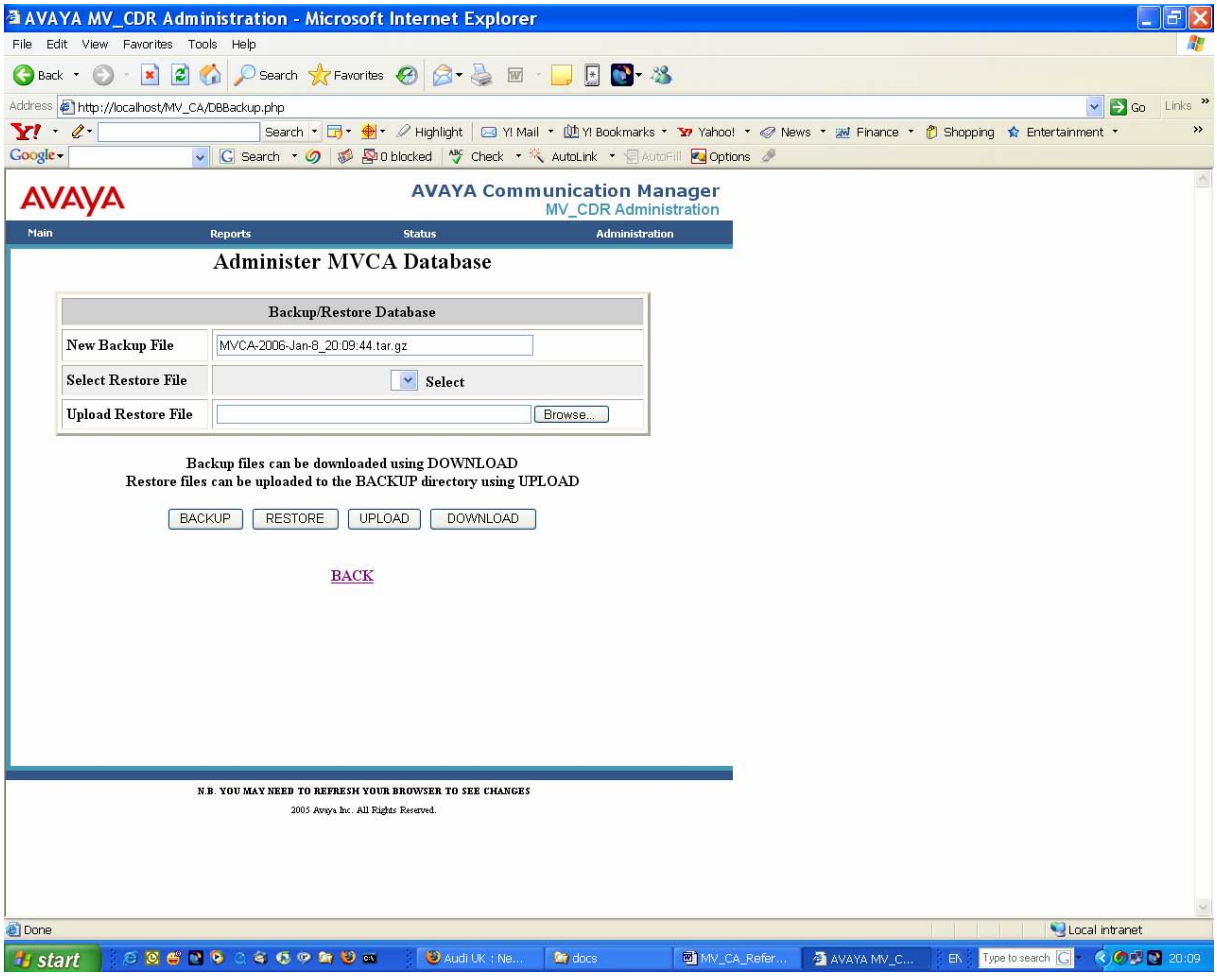


The following figure shows the administration backup/restore screen, which you use to back up or restore the database.

The system automatically creates a suggested file name for the backup. You can change this name if you want to.

Once the backup is created, the backup is stored automatically in the MultiVantage Express database backups directory. You can download the backup from the server to your personal computer and choose where to archive the backup from there.

To restore data, select the appropriate backup file in the **Select** field. If the backup data is not on the server already, you can upload the data from your local computer.



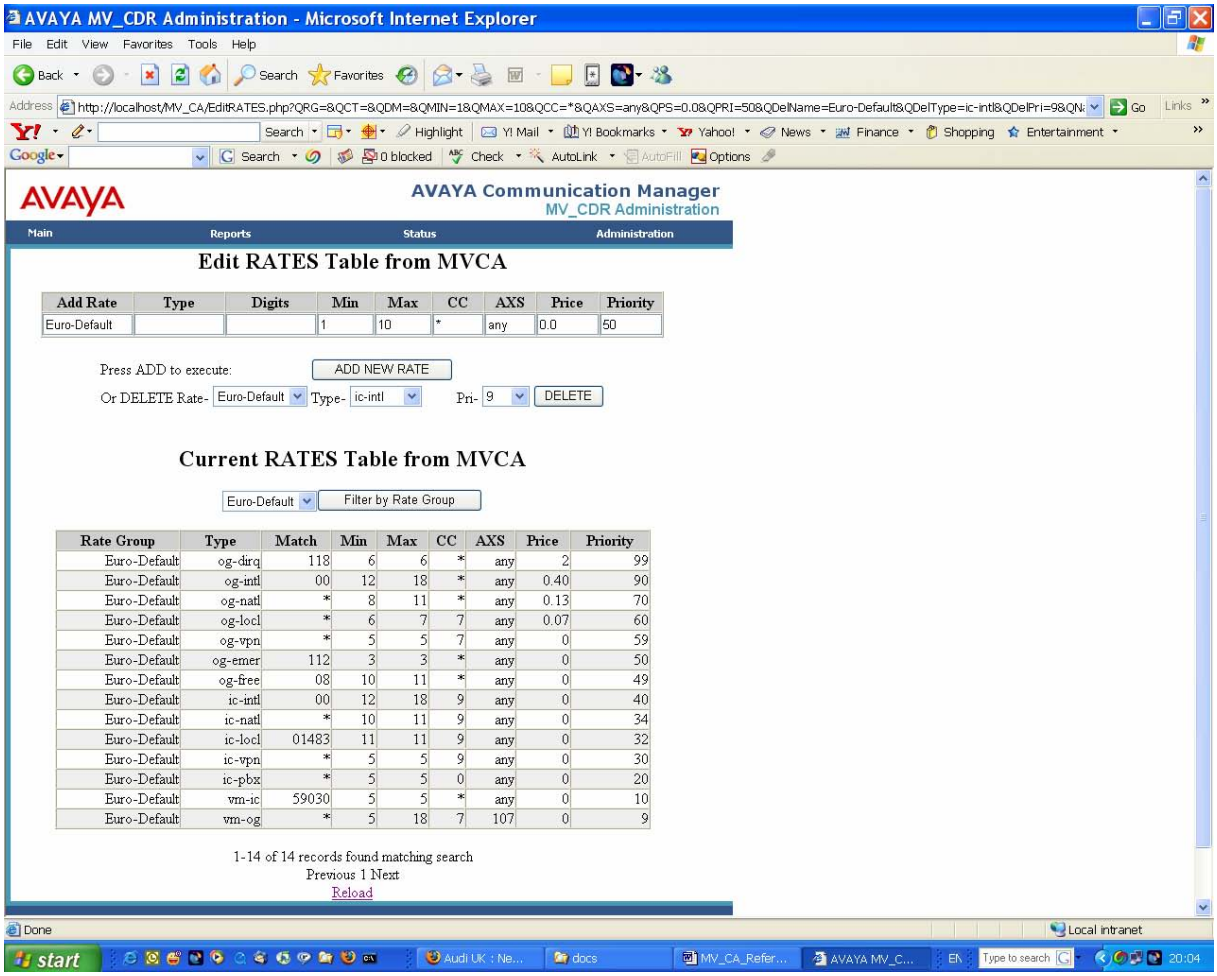
4.5 Simple usage analysis and costing

The MV_CDR Call Analysis utility provides a simple method to identify call types and can provide a “notional cost” allocation to calls.

The key function of the import server is to create a Call Cost record in a separate table (CALLCOSTS) for every CDR record that is captured when the CDR data is imported to the SQL database.

The basis for identifying the call type and the notional cost of the call is set in the Rates table, which the following figure shows. The Rates table is used in conjunction with the PBXS table to decide how to categorize each call. Each PBX to be reported is identified in this table to the MV_CDR application (which is normally only one for MultiVantage Express), and must have its own Rate Group defined. This identification is linked to the Communication Manager IP address or DNS name (if used).

Note: The concept of cost here is arbitrary and is simply defined to provide a high- level analysis of call types and the approximate relative expense. The call cost is derived by multiplying the time in seconds by the value in the Rates table for the relevant call type.



The Rates table can have as many entries as you want for as many different Rate Groups as can be practically defined.

The method of CDR call matching is a simple rule-based match from highest to lowest priority order in the Rates table (top to bottom as viewed). The first condition match is chosen and stops the matching process.

Matching can use a combination of the:

- Dialed digits or a wildcard asterisk (*) for “match all”
- Minimum and the maximum length of the dialed digits
- CDR condition code (CC) or an asterisk (*) for “all”
- Specific trunk access code or “any” to match all

If no match is found in the Rates table for a particular call, the call is marked as an “unknown” type.

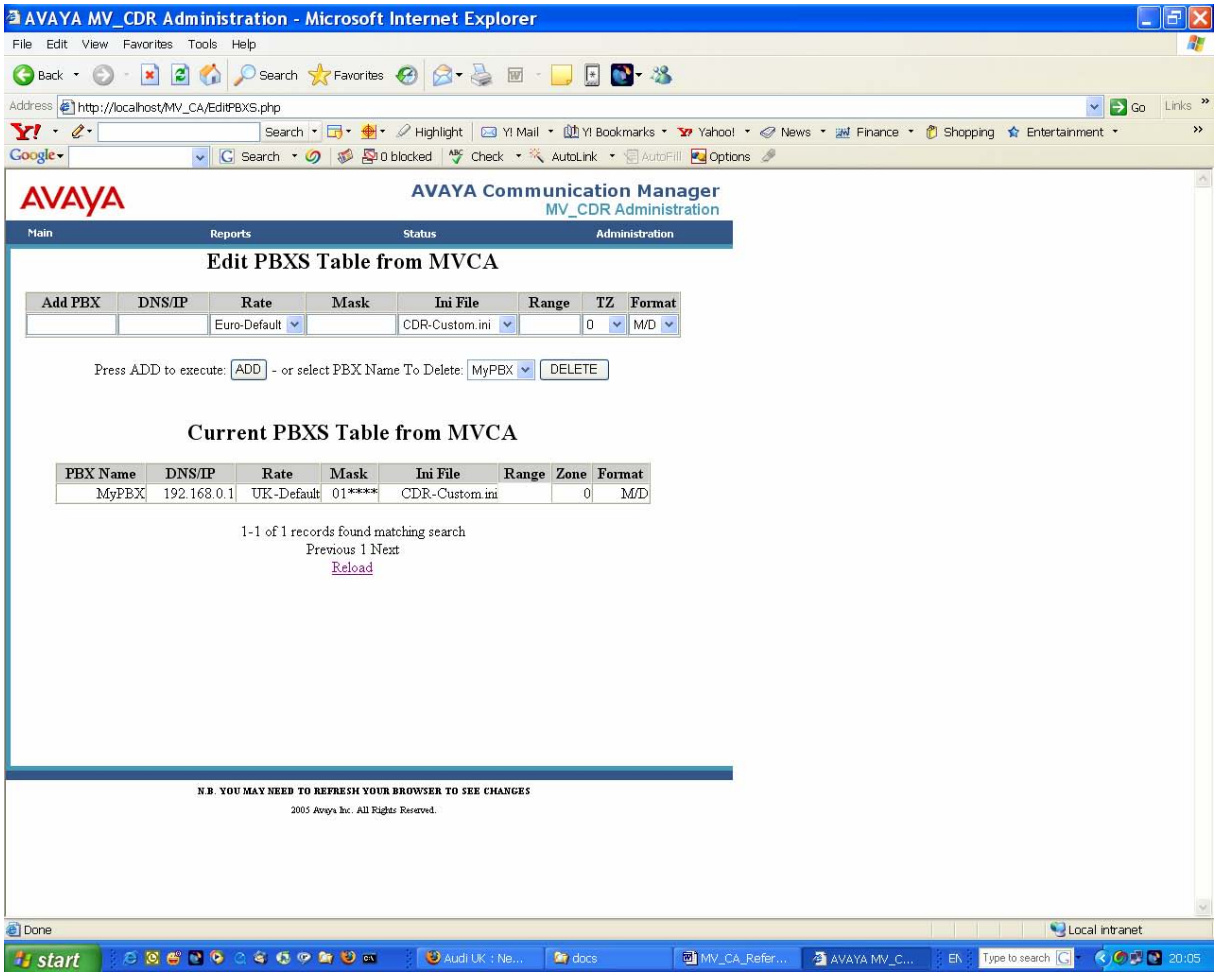
The usual process is that you build a Rates table over an initial period of a few weeks. To build a table, you monitor the Call Costs table and decide which of the “unknown” call types should be added to the Rates table so that the types are specifically tagged. To assist this operation, the administrator can delete existing records in the database and then select existing data to reimport.

The type of call is defined by matching to the entry in the Rate Group and is then assigned a nominal “cost” per second in arbitrary units. This calculated notional cost of the call is the rate for that call multiplied by the duration.

To define which calls are designated to be “costed,” use the MV_Manager Web administration tool from MultiVantage Express to set the range of CDR Condition Code records (see the MV_CDR.ini definition). By default, only trunk calls are costed. That is, only calls with one of the condition codes `7,8,9,A,B,C,`or `K` are costed For more information, see the Communication Manager administration documents.

The following figure shows the PBXs table for reference. You do not usually need to edit this table for MultiVantage Express. But if you do, note the following information about the table fields:

- The **PBX Name** can be any name that you want.
- The **DNS/IP** must match the IP address of the Communication Manager server.
- **Rate** must point to the Rate Group that you are using.
- **Ini File** must always be CDR-Custom.ini for MultiVantage Express.
- The **Network Digit Mask** is optionally provided to pad the CDR extension number into a network-specific address for possible use in other queries. It takes the last *X* digits of the extension, where *X* is the number of asterisks (*) at the end of the mask. It then appends the digits to the number that is listed. So, if the mask is **303 538** ****, the last 4 extension number digits dialed from extension **7035432** are added to form the identified **303 538 5432**.
- The fields **ExtRange** and **timeZoneOffset** are not used in this version.



Appendix

MultiVanatage Express call analysis utility reference information

A1.1 Communication Manager CDR output

The Communication Manager output was preset when MultiVantage Express was installed. Use the following information to set the output correctly if necessary.

The Avaya Communication Manager server needs only a few configuration items administered. Specifically, you must administer the CDR output format and where to send the data.

You must configure only the Communication CDR and the IP-Services screens. The following samples are samples of these screens.

Use the “change system-parameters cdr “ form.

```
                Voice System name: Guard - CDR SYSTEM PARAMETERS

 Node Number (Local PBX ID): 3                       CDR Date Format: day/month
      Primary Output Format: custom    Primary Output Endpoint: CDR1
    Secondary Output Format:
           Use ISDN Layouts? n
       Use Enhanced Formats? n      Condition Code 'T' For Redirected Calls? n
Modified Circuit ID Display? n                  Remove # From Called Number? n
                  Record Outgoing Calls Only? n            Intra-switch CDR? n
  Suppress CDR for Ineffective Call Attempts? n     Outg Trk Call Splitting? y
      Disconnect Information in Place of FRL? n       Outg Attd Call Record? y
                                                   Interworking Feat-flag? n
 Force Entry of Acct Code for Calls Marked on Toll Analysis Form? n
                                  Calls to Hunt Group - Record: member-ext
Record Called Vector Directory Number Instead of Group or Member? n
         Record Called Agent Login ID Instead of Group or Member? y
     Inc Trk Call Splitting? y                  Inc Attd Call Record? n
  Record Non-Call-Assoc TSC? n           Call Record Handling Option: warning
      Record Call-Assoc TSC? n   Digits to Record for Outgoing Calls: outpulsed
   Privacy - Digits to Hide: 0               CDR Account Code Length: 15



                      Voice System name: Guard - IP SERVICES
 Service     Enabled     Local        Local       Remote      Remote
  Type                    Node         Port        Node        Port
CDR1                 C-LAN1           0       elgar           5066


                               SESSION LAYER TIMERS
  Service     Reliable  Packet Resp   Session Connect  SPDU  Connectivity
   Type       Protocol     Timer       Message Cntr    Cntr     Timer

 CDR1            y         5                3          3         10
```

Ensure that the CDR port is “Released” to enable the data to be output.

For field details on all CDR formats, see the Communication Manager Reference manual.

The default Communication Manager software CDR format used is **Custom**. This format is a defined format that is chosen for this application. Use this format to get started if in doubt. No further administration is then needed. However, more detail is available from the other formats, which are often used by Avaya.

You should also ensure the date format (month and day) is correct for your system. Use either of the following formats:

- **M/D** (the default)
- **D/M**

Note: Ensure that the PBX output format and the format that is defined in the PBX table match. To do so, check the Web status page or log file and ensure that no errors are generated during the file import.

For the MV_CDR system to import data correctly to the SQL database, the “IniFile” setting in the PBXS SQL table must correctly match the setting on the Communication Manager server. If you use an incorrect setting, raw CDR collection does not stop, but SQL database import errors occur.

This is set by an entry in the PBXS table for the MultiVantage Express server, which is named MyServer by default. In other words, the “Ini file” setting must be:

- **CDR-Custom.ini**

More information is available from the CDRs if a “custom” CDR output format is defined. To use one of these formats, set the CDR fields on Communication Manager to follow the format shown below in the **change system-parameters cdr – page 2** form.

CDR-Custom Format (CDR-Custom.ini setting for the PBX)

1=date
2=time
3=sec-dur
4=cond-code
5=code-dial
6=code-used
7=dialled-num
8=clg-num/in-tac
9=acct-code
10=ppm
11=in-crt-id
12=out-crt-id
13=isdn-cc
14=feat-flag
15=frl
16=clg-pty-cat
17=attd-console
18=auth-code
19=return
20=line-feed

A1.2 Linux directory structure

If the installation is completed correctly, the following directory structure for MV_CDR application is created.

Directory	Application and function
/opt/ecs/mvuser/MV_CDR/bin	**MV_CDRD**: collects raw data in text files **MV_CDR_Import**: periodically imports data into the MySQL database **MV_CDR.ini** : text file that contains configuration options **Avaya_License.txt:** contains the license terms
/opt/ecs/mvuser/MV_CDR/data	Storage for CDR text files. Archives are stored by month in gzip files in subdirectories.
/opt/ecs/mvuser/MV_CDR/log	Log files; limited by size.
/var/www/MV_CDR	Location of PHP scripts for the Apache web server.
/opt/ecs/mvuser/MV_CDR/templates	Location of backup templates for error recovery.

A1.3 MV_CDR.ini configuration file

A default set of options to run MV_CDR are supplied as standard. Little must be configured on the Linux sever for initial operation.

Where changes from standard are required, the changes are held in a single configuration file **/opt/ecs/mvuser/MV_CDR/MV_CDR.ini**.

The file is self-documented but follows the following format. Note that some entries might be superseded.

MV_CDR.ini

```
----------
#
#
[Settings]
#================================================================================
# Set which outputs to create
CreateCDRs=1
CreateCosts=1
CreateLogs=0
CreateIPDRs=0
CreateXML=0
CreateXDR=0
StoreIPDRs=0
```

```
#
# Set detailed log for addtional debugging info
DetailedLog=0
#
# Date Format
DateFormat=M/D
#
# Address of local MV_CDR server -only used if DNS fails
ServerDNS=localhost
#
#============================================================================

[Files]
#============================================================================
#
# Sets the location of the MV_CDR_Import data directory to catch raw CDRS
OutputDir=/opt/ecs/mvuser/MV_CDR/data
#
# N.B. These 2 directories must have permissions to allow the bulk file import to succeed
# Defines the location of the MVCDRS database tables
SQLDir=/opt/ecs/mvuser/MV_CDR/data
# Defines the location of the MVCDRS Backup database tables
BackUpSQLDir=/opt/ecs/mvuser/MV_CDR/data
#
# Sets the location of the MV_CDR log file
LogFile=/opt/ecs/mvuser/MV_CDR/log/MV_CDR.log
# Sets the location of the MV_CDR_Import log file
SQLLogFile=/opt/ecs/mvuser/MV_CDR/log/MV_CDR_Import.log
# Sets the location of the MV_CDR_IPDRD log file
IPDRLogFile=/opt/ecs/mvuser/MV_CDR/log/MV_CDR_IPDRD.log
# Sets the location of the MV_CDR_Export log file
ExportLogFile=/opt/ecs/mvuser/MV_CDR/log/MV_CDR_Export.log
#
# Sets the location of the MV_CDR_IPDRD data directory to create IPDRDocs
IPDRDir=/opt/ecs/mvuser/MV_CDR/IPDRDocs
#
# Defines the default CDR import data definition- usually found in PBXs table
DBDefsIni=CDR-CustomIPDR.ini
#
#============================================================================

[SQL]
#============================================================================
#
# defines which SQL database to use either MySQL or PostgreSQL
SQLd=MySQL
# defines which Backup SQL database to use either MySQL or PostgreSQL or blank for none
BackUpSQLd=
#
# Host name for SQL database
Host=localhost
BackUpHost=localhost
#
# Database name, login name and password
DBName=MVCDRS
UName=root
UPassword=
#
# Backup Database name, login name and password
BackUpDBName=MVCDRSBACKUP
BackUpUName=root
BackUpUPassword=
#
#
#
#============================================================================

[MV_CDR]
#============================================================================
#
# Maximum number of clients connected at any one time
MaxClients=64
# Use of Reliable Session Protocol; 1=Yes, 0=No
UseRSP=1
# IP Port for incoming IP CDR requests
```

```
ServerPort=5060
#
# Internal timer default 10000 = 10 secs
Timer=10000
#
# Raw collection rollover time setting;
# 0 = internal timer; 1=minute; 2=hourly; 3=daily; 4= weekly; 5= by size & 30 days
Rollover=2
# Max filesize before a rollover - in conjunction with time setting
FileSize=10000000
#
# Port of MV_CDR HTTP status server
HTTPPort=6070
# Enable=1/Disable=0 MV_CDR HTTP status server
EnableHTTP=1
#
# Used with MV_CDR_Export; Collect data to send to RS232 data directory
# MV_CDR exports any ".smdr" file found;  1=Yes, 0=No
UseRS232=0
#
# Number of hours before an Inactive Non-RSP session is disconnected
Inactive=12
#
#=====================================================================

[IMPORT]
#=====================================================================
#
# Enable=1/Disable=0 use of SQL INSERT mode ( default uses local bulk file load)
SQLInsert=0
#
# Port of MV_CR_Import HTTP status server
SQLHTTPPort=6071
# Enable=1/Disable=0 MV_CDR_Import HTTP status server
SQLEnableHTTP=1
#
# CDR Condition codes used to include in costed calls
CostedCodes=[7,8,9,A,B,C,J,K,T]
# CDR Condition codes of incoming calls
ICConCodes=[9,G,H,J,K,T]
#
# Hour to attempt MV_CDR_import 0 to 23; 24=every hour
DBImpHour=24
# Min to attempt MV_CDR_import 0 to 59; 60=every min
DBImpMin=05
#
#
#
#=====================================================

[IPDRS]
#=====================================================
#
VoIPXSD=AvayaVoIP3.1-A.0.2.xsd
#
# Hour to create IPDRS 0 to 23; 24=every hour
IPDRHour=24
# Min to create IPDRS 0 to 59; 60=every min
IPDRMin=10
#
# IPDR control file rollover time setting;
# 0=minute; 1=hourly; 2=daily; 3= weekly; 4=by size only
IPDRRollover=2
#
# Port of MV_CDR_IPDR HTTP status server
IPDRHTTPPort=6073
# Enable=1/Disable=0 MV_CDR_IPDR HTTP status server
IPDRHTTP=1
#
#
#
#=====================================================

[EXPORT]
#=====================================================
```

```
#
RS232DefsIni=CDR-IntDirect.ini
#
# RS232 Port parameters
ComPort=1
Baud=19200
HWFlow=0
SWFlow=1
#
# Send data as received and stores in RS232 directory
RawFormat=1
# Process into NEC AimWorx format
NECFormat=0
# Create Tarred  GZIP's archive of CDR files
Archive=0
#
# Port of MV_CDR_Import HTTP status server
ExportHTTPPort=6072
# Enable=1/Disable=0 MV_CDR_Export HTTP status server
ExportHTTP=1
```

A1.4 Apache configuration

The only system file that is touched during installation is the Apache HTTP daemon configuration file.

A new file **/etc/http/conf/http.conf** is created to set the defaults for the PHP scripts. The old file is left in the same directory with the name **http.conf.mvcdr**.

If you make other configuration changes for the Apache server, rename the MV_CDR conf file to something else and rename the original conf file back to **http.conf**. Then use an editor to copy the <Directory> settings for the MV_CDR php directory from the MV_CDR-supplied conf file to your original default configuration file.

The entries should look like the following entries:

```
Alias '/MV_CA/' "/var/www/MV_CA/"
<Directory
        Options Indexes FollowSymLinks
        AllowOverride None
        Order allow,deny
        Allow from all
</Directory>
```

B1.1 Database server

An SQL script to create the database tables is available in the PostgreSQL subdirectory of the installation. This script assumes that you first use the "**createdb**" PostgreSQL command utility to create the MVCA database.

See the following example (running as root in a command shell).

su postgres <return>
createdb MVCA <return>

MVCA.sql

```
CREATE TABLE "PBXS" (
  PBXId varchar(25) NOT NULL,
  DNSName varchar(50) NOT NULL,
  RateGroup varchar(25) NOT NULL default 'Country-Default',
  NWMask varchar(20) NOT NULL,
  IniFile varchar(25) NOT NULL default 'CDR-Custom.ini',
  ExtRange varchar(25) NOT NULL,
  timeZoneOffset int4 NOT NULL default 0,
  DateFormat char(3) NOT NULL default 'M/D',
  CONSTRAINT PBXS_pk PRIMARY KEY  (PBXId)
) ;


CREATE TABLE "RATES" (
  RateGroup varchar(25) NOT NULL default 'Country-Default',
  CallType varchar(10) NOT NULL default 'othr',
  DigitMatch varchar(18) NOT NULL,
  MinLen int4 NOT NULL default '0',
  MaxLen int4 NOT NULL default '0',
  ConCode char(1) NOT NULL default '*',
  AxsCode varchar(4) NOT NULL default 'any',
  PriceSec float4 NOT NULL default '0',
  Priority int4 NOT NULL default '0',
  CONSTRAINT RATES_pk PRIMARY KEY  (RateGroup,CallType,DigitMatch)
) ;



CREATE TABLE "IPDRS" (
  hostName varchar(50) NOT NULL,
  subscriberId varchar(50) NOT NULL,
  ipAddress varchar(15) NOT NULL,
  startTime timestamp NOT NULL default '2005-01-01 00:00:00',
  endTime timestamp NOT NULL default '2005-01-01 00:00:00',
  timeZoneOffset int4 NOT NULL default 0,
  callCompletionCode varchar(5) NOT NULL,
  originalDestinationId varchar(32) NOT NULL,
  uniqueCallId varchar(40) NOT NULL,
  callProgressState int4 NOT NULL default 0,
  disconnectReason varchar(15) NOT NULL,
  callDuration int4 NOT NULL default 0,
  CONSTRAINT IPDRS_pk PRIMARY KEY  (hostName,subscriberId,startTime,originalDestinationId)
);

CREATE TABLE "IPDRDocs" (
  Server varchar(50) NOT NULL,
  Filename varchar(100) NOT NULL,
  creationTime timestamp NOT NULL default '2005-01-01 00:00:00',
  DocUUID varchar(40) NOT NULL,
```

```
  ControlFile varchar(100) NOT NULL,
  ControlNo int8 NOT NULL default 0,
  Archived timestamp default NULL,
  CONSTRAINT IPDRDocs_pk PRIMARY KEY  (DocUUID)
) ;

CREATE TABLE "CDRSINTD" (
  UCID varchar(10) NOT NULL default '****',
  PBXId varchar(25) default NULL,
  CDRDate date NOT NULL default '2005-01-01',
  CDRTime time NOT NULL default '00:00:00',
  Duration int4 default NULL,
  ConCode char(1) default NULL,
  AxsDial char(3) default NULL,
  AxsUsed char(3) default NULL,
  DialNo varchar(23) default NULL,
  OrigNo varchar(10) default NULL,
  AccCode varchar(15) default NULL,
  PPM varchar(5) default NULL,
  ICID char(3) default NULL,
  OGID char(3) default NULL,
  CONSTRAINT CDRSINTD_pk PRIMARY KEY  (UCID)
) ;

CREATE TABLE "CDRSMLOC" (
  SeqNum int4 NOT NULL default '0',
  UCID varchar(20) NOT NULL default '****',
  PBXId varchar(25) NOT NULL ,
  CDRDate date NOT NULL default '2005-01-01',
  CDRTime time NOT NULL default '00:00:00',
  Duration int4 default NULL,
  ConCode char(1) default NULL,
  AxsDial varchar(4) default NULL,
  AxsUsed varchar(4) default NULL,
  DialNo varchar(23) default NULL,
  OrigNo varchar(15) default NULL,
  LocFrom char(3) default NULL,
  ICID char(3) default NULL,
  OGID char(3) default NULL,
  FF char(1) default NULL,
  ClgPtyCat char(2) default NULL,
  Attd char(2) default NULL,
  ISDNCC varchar(12) default NULL,
  EndDate date NOT NULL default '2005-01-01',
  EndTime time NOT NULL default '00:00:00',
  BW char(2) default NULL,
  CONSTRAINT CDRSMLOC_pk PRIMARY KEY  (UCID)
) ;


CREATE TABLE "CDRSIPO" (
  UCID varchar(20) NOT NULL default '****',
  PBXId varchar(25) NOT NULL,
  CDRDate date NOT NULL default '2005-01-01',
  CDRTime time NOT NULL default '00:00:00',
  Sec_Dur int4 default NULL,
  Sec_Ring int4 default NULL,
  OrigNo varchar(25) default NULL,
  ConCode char(1) default NULL,
  CalledNo varchar(25) default NULL,
  DialNo varchar(23) default NULL,
  AccCode varchar(25) default NULL,
  Is_Internal char(1) default NULL,
  CallID varchar(10) default NULL,
  Continuation char(1) default NULL,
  Party1Device varchar(10) default NULL,
  Party1Name varchar(25) default NULL,
  Party2Device varchar(10) default NULL,
  Party2Name varchar(25) default NULL,
  Sec_Hold int4 default NULL,
  Sec_Park int4 default NULL,
  CONSTRAINT  CDRSIPO_pk PRIMARY KEY  (UCID)
);
```

```
CREATE TABLE "CDRSCSTM" (
  UCID varchar(20) NOT NULL default '****',
  PBXId varchar(25) NOT NULL,
  CDRDate date NOT NULL default '2005-01-01',
  CDRTime time NOT NULL default '00:00:00',
  Duration int4 default NULL,
  ConCode char(1) default NULL,
  AxsDial varchar(4) default NULL,
  AxsUsed varchar(4) default NULL,
  DialNo varchar(23) default NULL,
  OrigNo varchar(15) default NULL,
  AccCode varchar(15) default NULL,
  PPM varchar(5) default NULL,
  ICID char(3) default NULL,
  OGID char(3) default NULL,
  ISDNCC varchar(12) default NULL,
  FF char(1) default NULL,
  FRL char(1) default NULL,
  ClgPtyCat char(2) default NULL,
  Attd char(2) default NULL,
  AuthCode varchar(13) default NULL,
  EndDate date NOT NULL default '2005-01-01',
  EndTime time NOT NULL default '00:00:00',
  CONSTRAINT CDRSCSTM_pk PRIMARY KEY  (UCID)
) ;

CREATE TABLE "CALLCOSTS" (
  PBXId varchar(25) NOT NULL,
  OrigNo varchar(20) NOT NULL,
  CallDate date NOT NULL,
  CallTime time NOT NULL,
  DialNo varchar(23) NOT NULL,
  CallType varchar(15) NOT NULL,
  Duration int4 NOT NULL,
  Cost float4 NOT NULL,
  NW_DDI varchar(25) default NULL,
  UCID varchar(20) NOT NULL,
  CONSTRAINT CALLCOSTS_pk PRIMARY KEY  (UCID)
);

CREATE INDEX OrigNo__cc_ix ON "CALLCOSTS"(PBXID,OrigNo);

CREATE TABLE "CALLLOGS" (
  UCID varchar(20) NOT NULL,
  OrigNo varchar(15) NOT NULL,
  CDRDate date NOT NULL,
  CDRTime time NOT NULL,
  ConCode char(1) default NULL,
  DialNo varchar(23) NOT NULL,
  Duration int4 NOT NULL,
  CONSTRAINT CALLLOGS_pk PRIMARY KEY  (UCID)
);

CREATE INDEX OrigNo_cl_ix ON "CALLLOGS"(OrigNo);


CREATE TABLE "STN" (
  PBXId varchar(25) NOT NULL,
  Ext varchar(10) NOT NULL,
  Name varchar(25) NOT NULL,
  Phone varchar(25) NULL,
  Department varchar(25) NULL,
  Location varchar(25) NULL,
  Organization varchar(25) NULL,
  CostCentre varchar(15) NULL,
  NW_DDI varchar(25) NULL,
  CONSTRAINT STN_pk PRIMARY KEY  (PBXId,Ext)
) ;


CREATE TABLE "TRUNKDAY" (
  PBXId varchar(25) NOT NULL,
  Trunk varchar(10) NOT NULL,
  TrunkName varchar(30) NOT NULL,
  ReportDate timestamp NOT NULL default '2005-01-01 00:00:00',
```

```
  NoTrunks int4 default NULL,
  DataHour timestamp NOT NULL default '2005-01-01 00:00:00',
  IC_Calls int4 default NULL,
  Aband_Calls int4 default NULL,
  IC_Time varchar(10) default NULL,
  IC_CCS float4 default NULL,
  OG_Calls int4 default NULL,
  OG_Comp int4 default NULL,
  OG_Time varchar(10) default NULL,
  OG_CCS float4 default NULL,
  All_Busy int4 default NULL,
  Time_Maint int4 default NULL,
  Star char(1) default NULL,
   CONSTRAINT TRUNKDAY_pk PRIMARY KEY  (PBXId,Trunk,TrunkName,DataHour)
);

CREATE INDEX TrunkDay_ix ON "TRUNKDAY"(PBXId,Trunk);


CREATE TABLE "TRUNKWEEK" (
  PBXId varchar(30) NOT NULL,
  Trunk varchar(10) NOT NULL,
  TrunkName varchar(30) NOT NULL,
  ReportDate timestamp NOT NULL default '2005-01-01 00:00:00',
  NoTrunks int4 default NULL,
  DataDay date NOT NULL default '2005-01-01',
  IC_Calls int4 default NULL,
  Aband_Calls int4 default NULL,
  IC_Time varchar(10) default NULL,
  IC_CCS float4 default NULL,
  OG_Calls int4 default NULL,
  OG_Comp int4 default NULL,
  OG_Time varchar(10) default NULL,
  OG_CCS float4 default NULL,
  All_Busy int4 default NULL,
  Time_Maint int4 default NULL,
  Star char(1) default NULL,
  CONSTRAINT TRUNKWEEK_pk PRIMARY KEY  (PBXId,Trunk,TrunkName,DataDay)
);

CREATE INDEX TrunkWeek_ix ON "TRUNKWEEK"(PBXId,Trunk);

CREATE TABLE "STATIONDAY" (
  PBXId varchar(25) NOT NULL,
  OrigNo varchar(20) NOT NULL,
  DataHour timestamp NOT NULL,
  IC_CovFwd int4 NOT NULL,
  IC_ExtAns int4 NOT NULL,
  IC_VPN int4 NOT NULL,
  IC_IntAns int4 NOT NULL,
  IC_TotCalls int4 NOT NULL,
  IC_TotAns int4 NOT NULL,
  IC_TotTalk float4 NOT NULL,
  OG_Int float4 NOT NULL,
  OG_VPN int4 NOT NULL,
  OG_Local int4 NOT NULL,
  OG_Natl int4 NOT NULL,
  OG_Intl int4 NOT NULL,
  OG_TotCalls int4 NOT NULL,
  OG_TotTalk float4 NOT NULL,
  VM_TotCalls int4 NOT NULL,
  VM_TotTalk float4 NOT NULL,
  VM_Check int4 NOT NULL,
  VM_CheckTalk float4 NOT NULL,
  CONSTRAINT STATIONDAY_pk PRIMARY KEY  (PBXId, OrigNo, DataHour)
);

CREATE INDEX StationDay_ix ON "STATIONDAY"(PBXId,OrigNo);

CREATE TABLE "STATIONWEEK" (
  PBXId varchar(25) NOT NULL,
  OrigNo varchar(20) NOT NULL,
  DataDay timestamp NOT NULL,
  IC_CovFwd int4 NOT NULL,
  IC_ExtAns int4 NOT NULL,
```

```
  IC_VPN int4 NOT NULL,
  IC_IntAns int4 NOT NULL,
  IC_TotCalls int4 NOT NULL,
  IC_TotAns int4 NOT NULL,
  IC_TotTalk float4 NOT NULL,
  OG_Int float4 NOT NULL,
  OG_VPN int4 NOT NULL,
  OG_Local int4 NOT NULL,
  OG_Natl int4 NOT NULL,
  OG_Intl int4 NOT NULL,
  OG_TotCalls int4 NOT NULL,
  OG_TotTalk float4 NOT NULL,
  VM_TotCalls int4 NOT NULL,
  VM_TotTalk float4 NOT NULL,
  VM_Check int4 NOT NULL,
  VM_CheckTalk float4 NOT NULL,
  CONSTRAINT STATIONWEEK_pk PRIMARY KEY  (PBXId, OrigNo, DataDay)
);


INSERT into "PBXS" values
('MyPBX', '192.168.0.1', 'UK-Default', '01****', 'CDR-Custom.ini', '', 0 , 'M/D');

insert  into "RATES" values ('UK-Default', 'og-prem', '09', 10, 11, '*', 'any', 2.5, 100);
insert  into "RATES" values ('UK-Default', 'og-dirq', '118', 6, 6, '*', 'any', 2.0, 99);
insert  into "RATES" values ('UK-Default', 'og-intl', '00', 12, 18, '*', 'any', 0.4, 90);
insert  into "RATES" values ('UK-Default', 'og-mobl', '*', 10, 11, '7', 'any', 0.333, 80);
insert  into "RATES" values ('UK-Default', 'og-natl', '0', 10, 11, '*', 'any', 0.132, 70);
insert  into "RATES" values ('UK-Default', 'og-locl', '*', 6, 6, '7', 'any', 0.065, 60);
insert  into "RATES" values ('UK-Default', 'og-vpn', '*', 5, 5, '7', 'any', 0.0, 59);
insert  into "RATES" values ('UK-Default', 'og-emer', '112', 3, 3, '*', 'any', 0.0, 50);
insert  into "RATES" values ('UK-Default', 'og-free', '08', 10, 11, '*', 'any', 0.0, 49);
insert  into "RATES" values ('UK-Default', 'ic-intl', '00', 12, 18, '9', 'any', 0.0, 40);
insert  into "RATES" values ('UK-Default', 'ic-mobl', '07', 10, 11, '9', 'any', 0.0, 38);
insert  into "RATES" values ('UK-Default', 'ic-natl', '01', 10, 11, '9', 'any', 0.0, 34);
insert  into "RATES" values ('UK-Default', 'ic-locl', '01483', 11, 11, '9', 'any', 0.0, 32);
insert  into "RATES" values ('UK-Default', 'ic-vpn', '*', 5, 5, '9', 'any', 0.0, 30);
insert  into "RATES" values ('UK-Default', 'ic-pbx', '*', 5, 5, '0', 'any', 0.0, 20);
insert  into "RATES" values ('UK-Default', 'vm-ic', '59030', 5, 5, '*', 'any', 0.0, 10);
insert  into "RATES" values ('UK-Default', 'vm-og', '*', 5, 18, '7', '107', 0.0, 9);

insert  into "RATES" values ('US-Default', 'og-dirq', '411', 6, 6, '*', 'any', 2.0, 99);
insert  into "RATES" values ('US-Default', 'og-intl', '011', 12, 18, '*', 'any', 0.4, 90);
insert  into "RATES" values ('US-Default', 'og-natl', '*', 10, 11, '*', 'any', 0.132, 70);
insert  into "RATES" values ('US-Default', 'og-locl', '*', 7, 7, '7', 'any', 0.065, 60);
insert  into "RATES" values ('US-Default', 'og-vpn', '*', 5, 5, '7', 'any', 0.0, 59);
insert  into "RATES" values ('US-Default', 'og-emer', '911', 3, 3, '*', 'any', 0.0, 50);
insert  into "RATES" values ('US-Default', 'og-free', '18', 11, 11, '*', 'any', 0.0, 49);
insert  into "RATES" values ('US-Default', 'ic-intl', '00', 12, 18, '9', 'any', 0.0, 40);
insert  into "RATES" values ('US-Default', 'ic-natl', '*', 10, 11, '9', 'any', 0.0, 34);
insert  into "RATES" values ('US-Default', 'ic-locl', '*', 7, 7, '9', 'any', 0.0, 32);
insert  into "RATES" values ('US-Default', 'ic-vpn', '*', 5, 5, '9', 'any', 0.0, 30);
insert  into "RATES" values ('US-Default', 'ic-pbx', '*', 5, 5, '0', 'any', 0.0, 20);
insert  into "RATES" values ('US-Default', 'vm-ic', '7775', 5, 5, '*', 'any', 0.0, 10);
insert  into "RATES" values ('US-Default', 'vm-og', '*', 5, 18, '7', '107', 0.0, 9);

insert  into "RATES" values ('Euro-Default', 'og-dirq', '118', 6, 6, '*', 'any', 2.0, 99);
insert  into "RATES" values ('Euro-Default', 'og-intl', '00', 12, 18, '*', 'any', 0.4, 90);
insert  into "RATES" values ('Euro-Default', 'og-natl', '*', 8, 11, '*', 'any', 0.132, 70);
insert  into "RATES" values ('Euro-Default', 'og-locl', '*', 6, 7, '7', 'any', 0.065, 60);
insert  into "RATES" values ('Euro-Default', 'og-vpn', '*', 5, 5, '7', 'any', 0.0, 59);
insert  into "RATES" values ('Euro-Default', 'og-emer', '112', 3, 3, '*', 'any', 0.0, 50);
insert  into "RATES" values ('Euro-Default', 'og-free', '08', 10, 11, '*', 'any', 0.0, 49);
insert  into "RATES" values ('Euro-Default', 'ic-intl', '00', 12, 18, '9', 'any', 0.0, 40);
insert  into "RATES" values ('Euro-Default', 'ic-natl', '*', 10, 11, '9', 'any', 0.0, 34);
insert  into "RATES" values ('Euro-Default', 'ic-locl', '01483', 11, 11, '9', 'any', 0.0, 32);
insert  into "RATES" values ('Euro-Default', 'ic-vpn', '*', 5, 5, '9', 'any', 0.0, 30);
insert  into "RATES" values ('Euro-Default', 'ic-pbx', '*', 5, 5, '0', 'any', 0.0, 20);
insert  into "RATES" values ('Euro-Default', 'vm-ic', '59030', 5, 5, '*', 'any', 0.0, 10);
insert  into "RATES" values ('Euro-Default', 'vm-og', '*', 5, 18, '7', '107', 0.0, 9);
```

C1 Troubleshooting

Most problems with the MV_CDR are configuration related. However, in MultiVantage Express, working defaults are provided at the time of installation.

For a comprehensive set of log files, see the **/opt/ecs/mvuser/MV_CDR/log** directory, where each server has its own log file. Output from these logs is available from the Administration link of the status pages.

If more detailed logging is required, set the detail log flag to 1 in the MV_CDR.ini file. Note that this setting increases the output significantly.

For serious problems such as a server crash, it might be easier to reinstall the database by way of the Administration page.

If problems occur, use the following check list:

1. Are the MV_CDR daemons/services running? To determine if the MV_CDR server daemons are running, check the built-in status page.

2. Check the import log to determine if the PostgreSQL database service is running. A failure to connect is one good indication. Try to connect to the database with another client, such as. pgAdmin or the MV_CDR_SQLDBMgr admin tool if available. Ensure that the database is configured to accept TCP/IP connections, and that you have appropriate access for your user name and password. Ensure that the PBXs table is correctly configured for the server with its IP address and points to set of entries in the Rates table.

3. If you cannot access the Web pages, determine if Apache/PHP are still correctly configured. To check the Apache Web server, open a browser and type **http://<SERVER_IP_ADDRESS>**. You should receive the MultiVantage Express home page in response. To test PHP, open the browser and type **http://<SERVER_IPADDRESS>/MV_CA/phpinfo.php**. A screen with information about PHP should appear to show that both Apache and PHP are running and that the PostgreSQL database drivers are installed.

4. If the system is not collecting data, ensure that the sending Communication Manager switch and the collecting MV_CDR servers have the correct *and the same* IP and port addresses set in their configuration files. Use the MV_CDR Web status page or use the Avaya Site Administration tool to determine if the CDR link is up. Ping the MV_CDR server to determine if the server is actually reachable from the Communication Manager switch.

5. Ensure that the Linux file system has the correct permissions. These permissions are installed correctly by default, but might have been changed.

6. Ensure that the Linux server has the correct networking setup and that any firewall functions do not prevent connection to the MV_CDR server.

7. No data from the SQL reports? Determine if the SQL database tables actually contain data. A simple test is to look at the log file for successful imports. Or use pgAdmin or the MV_CDR_SQLDBMgr tool to check the contents of the table.