



Contact Analyzer Administration Guide

Version 1.8.1



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1 Overview

Contact centers create vast amounts of customer data – a potential wealth of intelligence and insights. The data collected by a contact center can be mined to optimize the performance of the contact center, while building customer loyalty and creating competitive advantage. To realize this goal, Avaya offers **Contact Analyzer** that provides flexible and customizable reports at a unique level of granularity. These reports provide an understanding of any individual transaction and complement the summary view of overall performance available in Avaya Call Management System (CMS).

Contact Analyzer uses detailed call data to deliver insights into many aspects of the contact center performance beyond what you can gain at the summary level. Contact Analyzer can help contact centers and business managers improve agent performance by providing quantifiable feedback. It increases customer satisfaction and loyalty by providing insights into common customer complaints, abandon trends, and other usage patterns. It facilitates improvements in business policies and routing processes, a win-win situation for companies and customers alike.

Contact Analyzer provides the following standard reports:

1. **Caller On-Hold:** Analyzes calls in which the caller is placed on hold. The following parameters are used to analyze the calls:
 - a. Hold time
 - b. Number of holds per call
 - c. Caller abandoned from hold
 - d. Agent disconnected first
 - e. Specified set of skills

2. **Queue Wait:** Provides detailed data for calls in which the caller waited in queue. The following parameters are used to derive the data from the calls:
 - a. Queue time
 - b. Caller abandoned
 - c. Specified set of skills

3. **Executive Complaints:** Analyzes calls that may interest contact center administrators to find details of customer complaints. The following parameters are used to analyze the calls:
 - a. Abandoned from hold
 - b. Agent disconnected first
 - c. Specified set of Automatic Number Identification (ANI). If the call is delivered via the Voice Portal, the Customer ID is populated

4. **Outbound Calling:** Analyzes specified agents outbound calling activity, such as calls made by agents to internal non-VDN destinations or calls made to destinations outside the contact center. The following parameter is used to analyze the calls:
 - a. Originating agents

5. **Short Duration:** Provides a list of calls that the contact center administrators considers too short. The following parameter is used to analyze the calls:

- a. Call transferred
- b. Agent disconnected first
- c. Specified set of skills

Contact Analyzer also provides some additional reports that enhance the customization capabilities. These reports can be used by analysts to obtain the precise information they need.

6. **Ad Hoc Report:** Provides the ability to create new reporting outputs on the detail data using any field of the call detail.
 - a. Provides a complete view of the caller experience within any of the Contact Analyzer standard reports from the initial contact to final resolution even when the call involves more than one switch.
 - b. Ad Hoc Report provides a custom report template along with the flexibility to search the detail data beyond the queries of the standard reports. For example, you can create a variation of the On-Hold standard report using only a single criterion, such as on-hold duration or abandon from hold.
7. **Call Profiling:**
 - a. VDN Call Profile: Aggregates detailed data based on duration intervals for abandoned or answered calls. This report also provides a graphical representation of results by VDN within a specific time or duration.
 - b. Skill Call Profile: Aggregates detailed data based on duration intervals for abandoned or answered calls. This report also provides a graphical representation of results by skill set within specific time and duration parameters.

The Contact Analyzer architecture includes the following components:

- Pentaho BI and Data Integration
- Pentaho Administration and User Console Frameworks
- Adobe Flex reports
- PostgreSQL database

All the components reside on a Linux server. The Pentaho components use Tomcat web services for the User console and Jetty for the Admin Console.

1.1 Administration

Contact Analyzer administration is built on the Pentaho Administration Console platform but does not utilize all the Pentaho administration features. Contact Analyzer administrators work with the **Users & Roles**, **Data Source**, **Service**, and **Scheduler** tabs.

The Administration Console provides the following functionality:

1. Users & Roles
 - Where administration of users and roles occurs
2. Data Sources
 - Not used for CA version 1

3. Service
 - Used to refresh content and solution repositories after upgrades
4. Scheduler
 - Used to schedule jobs to run at predetermined intervals.

1.2 Supported Browsers

Avaya has tested the Administration Console and User Console on the following browsers:

- Microsoft Internet Explorer versions 8 and later
- Mozilla Firefox 3.0 and later
- Google Chrome 12.0 and later

A key component is Adobe Flash Player 10.x or newer. Adobe Flash Player must be installed with the above browsers for the reports to function correctly. It is highly recommended that the latest version of Adobe Flash Player be maintained.

2 Getting Started

2.1 Connecting to the Administration Console

Note: Only users that have been set up as administrators can access the Administration Console. This is not the same as having the admin role assigned. Additional information on how to create administrator users is in appendix A.

To connect to the Administration Web Console:

1. Start your web browser.
2. Enter the following URL in the Address bar and press **Enter**.

http://<Server IP or Hostname>:8099/

Replace **<Server IP or Hostname>** with the actual IP or host name of the Contact Analyzer server.

The browser displays the log in window for the **Administration Console** web application.

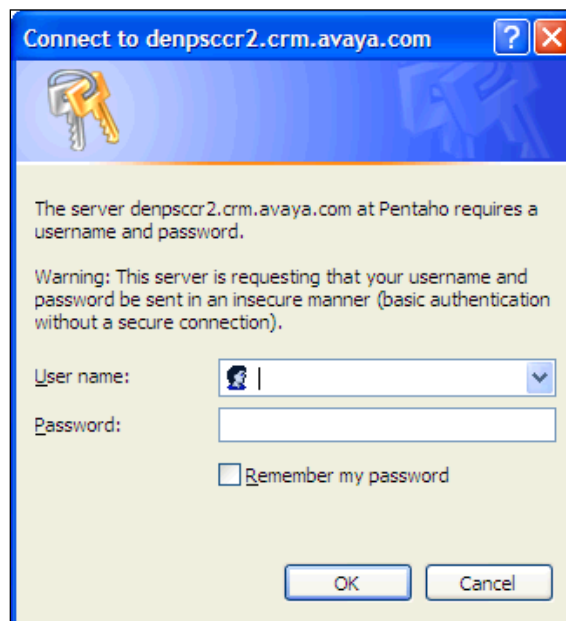


Figure 2-1: The log-in window

3. In the **User name:** and **Password:** fields, enter **admin** and **password** respectively. These are the default administration credentials. Other credentials can be created and assigned the administration privileges.
4. Click **Ok**.

If the user credentials are validated, the system displays the main administration page. Click the **Administration** button on the left to display Roles, Users and Menus

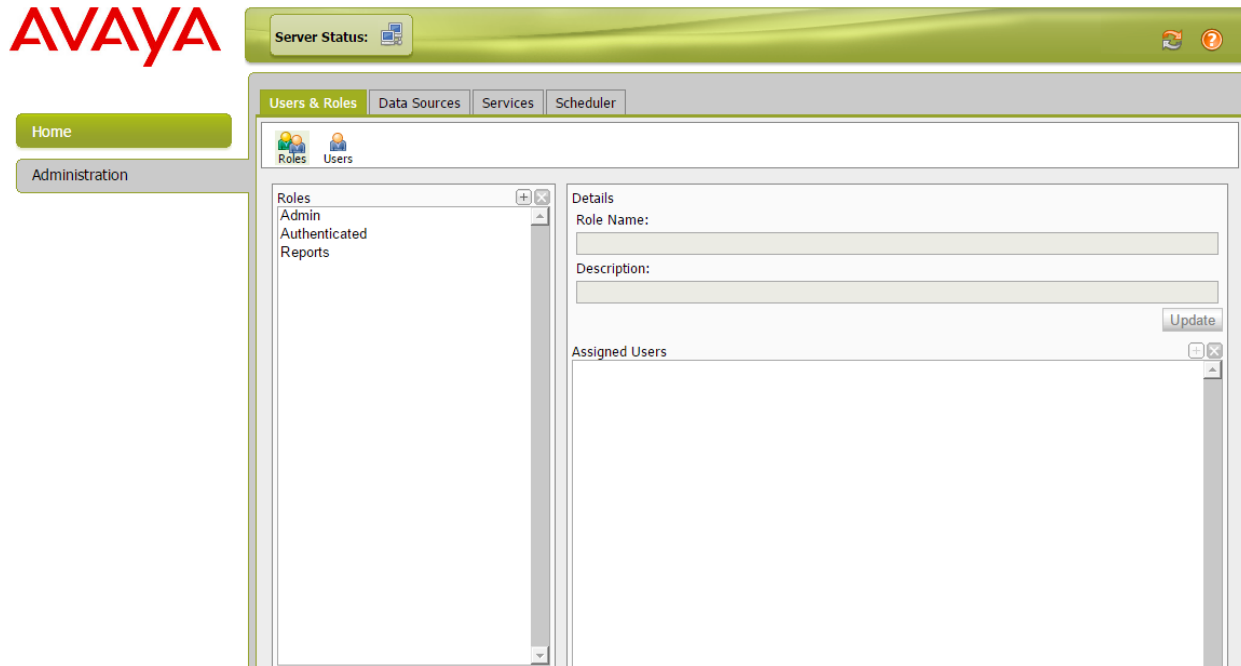


Figure 2-2: The main administration page

2.2 Roles Based Access Control

The Pentaho Administration platform provides user access by a simple Roles Based Access Control (RBAC) implementation. You can assign roles to users. You can also assign both users and roles a restricted set of permissions among the folders in the User Console or reporting interface. In version 1, users and roles have both read and write access on folders and reports and these access permissions are not further defined.

The following table lists the Roles and the permission levels.

| Permission level | Description |
|------------------|---|
| Administrator | A Contact Analyzer administrator can make changes to any entity in User Console. This is not something that is normally needed. |
| Authenticated | The default Role assigned when a user login is created. This gives access to the User Console and all reports. |

3 Administration Console

3.1 Navigation

On the Administration Console page, the administration menu is on the left of the page and the tabs on the top of the page. The administration menu and tabs provide access to the different features of the administration application.

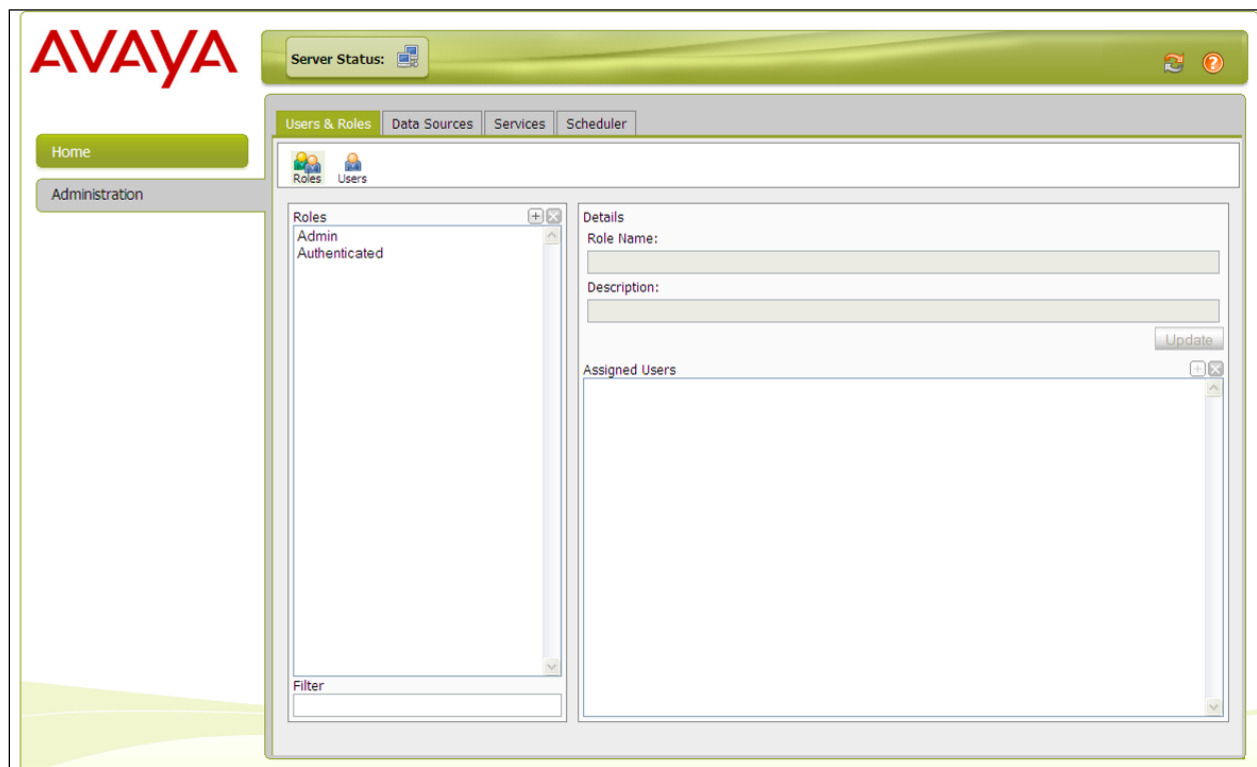


Figure 3-1: Administration menu

3.2 Defining New Roles

To create a Role:

1. Click the **Roles** tab on the **Users & Roles** page.
2. In the **Roles** field, click the plus sign (+).
The system displays the **Add Role** window.

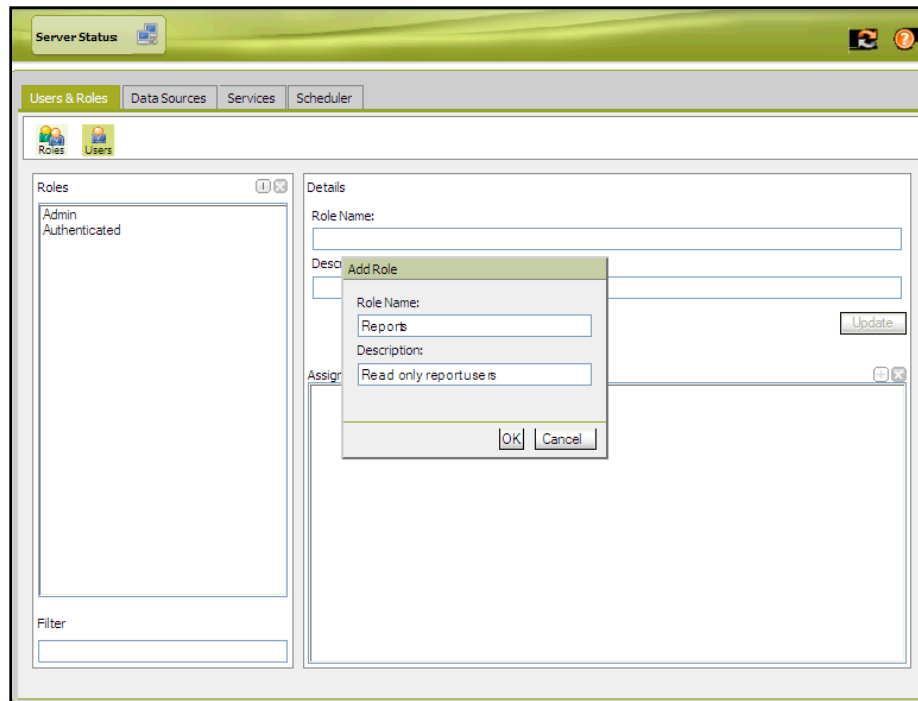


Figure 3-2: Add Role window

3. In the **Role Name:** and the **Description:** fields, enter the role name and the description about the role respectively.
4. Click **OK**.

The system displays the newly created Role.

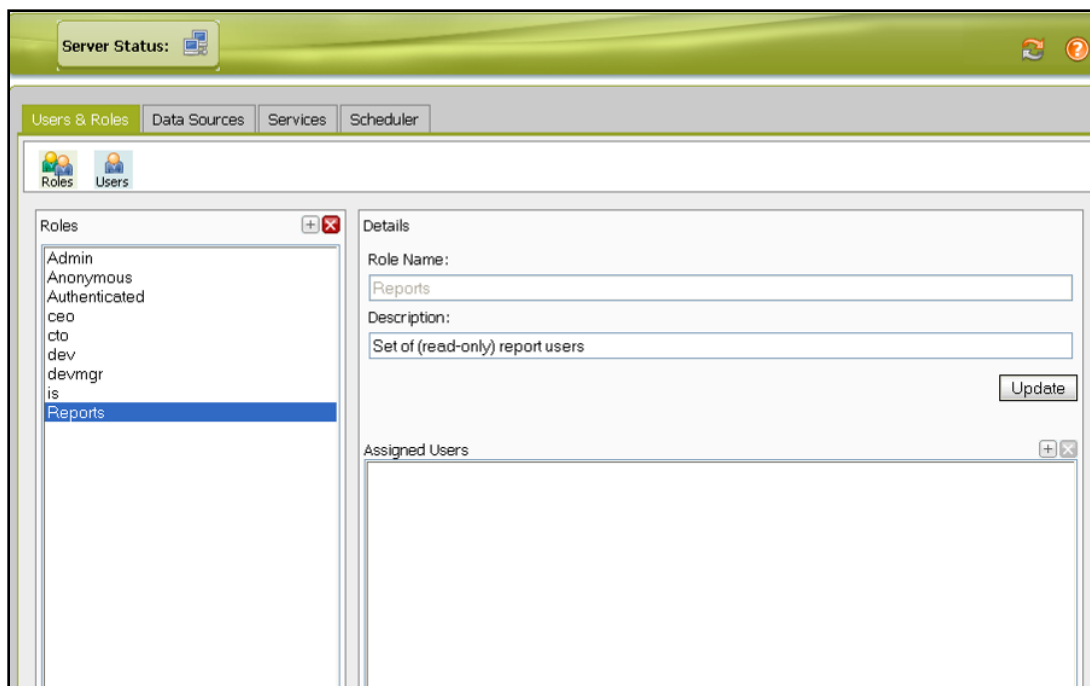


Figure 3-3: Reports Role

The **Users** page displays all user accounts created in the Contact Analyzer system. The system displays user accounts in a table format, arranged in the ascending alphabetic order, and listed by last name.

User accounts contain specific information about individual users. This information includes:

- User login name that is unique within the Contact Analyzer system.
- Password for the user
- Description of the user
- Assigned roles to the user

Note: All users must have a password. When a user account is created, the password is automatically set to the user name. Passwords are stored in an encrypted format.

3.3 Creating Users

To create a user, you need to provide a user name and a password. Roles can then be assigned to the user.

To create a user:

1. On the **Users & Roles** page, click the **Users** tab.

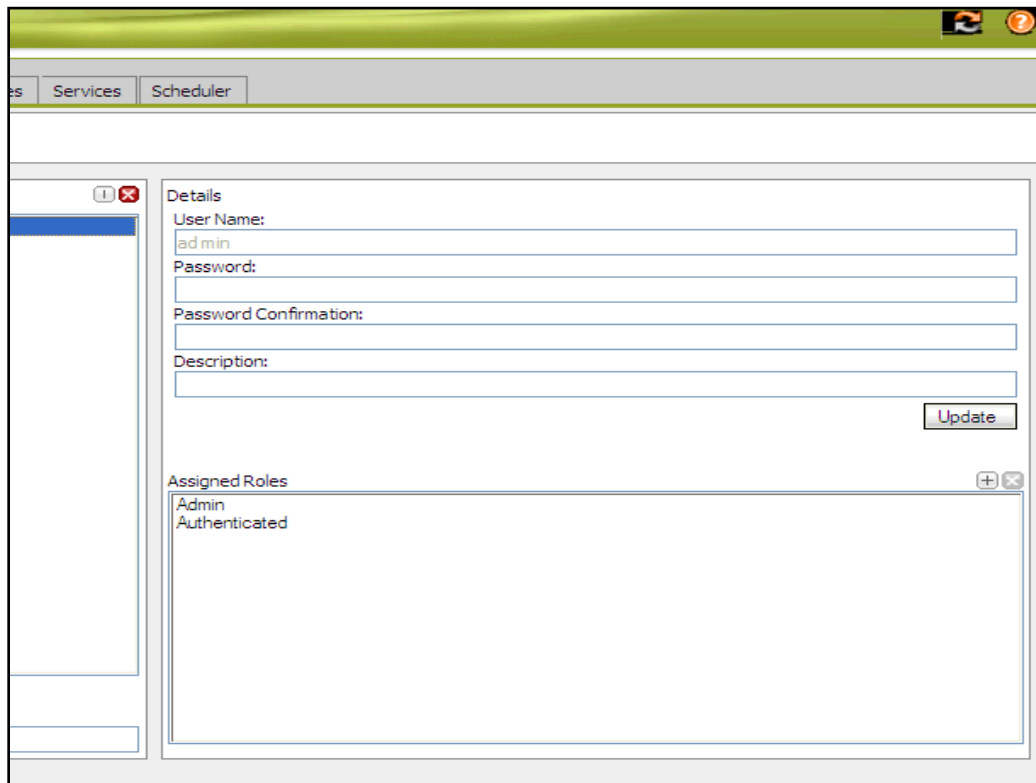


Figure 4-1: Users tab

2. In the **Users** field, click the plus sign (+).
The system displays the **Add User** window.

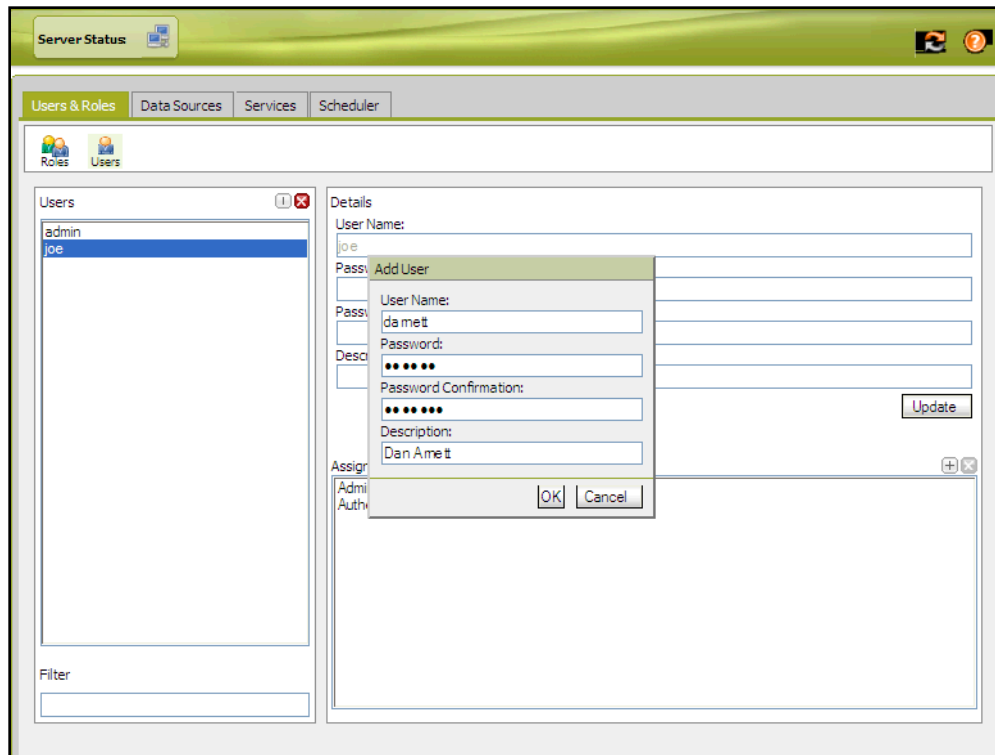


Figure 4-2: Add User window

3. In the **User Name:**, **Password:**, **Password Confirmation:**, and **Description:** fields, enter the user name, password, confirm password, and the description respectively.
4. Click **OK** and the system creates the user.

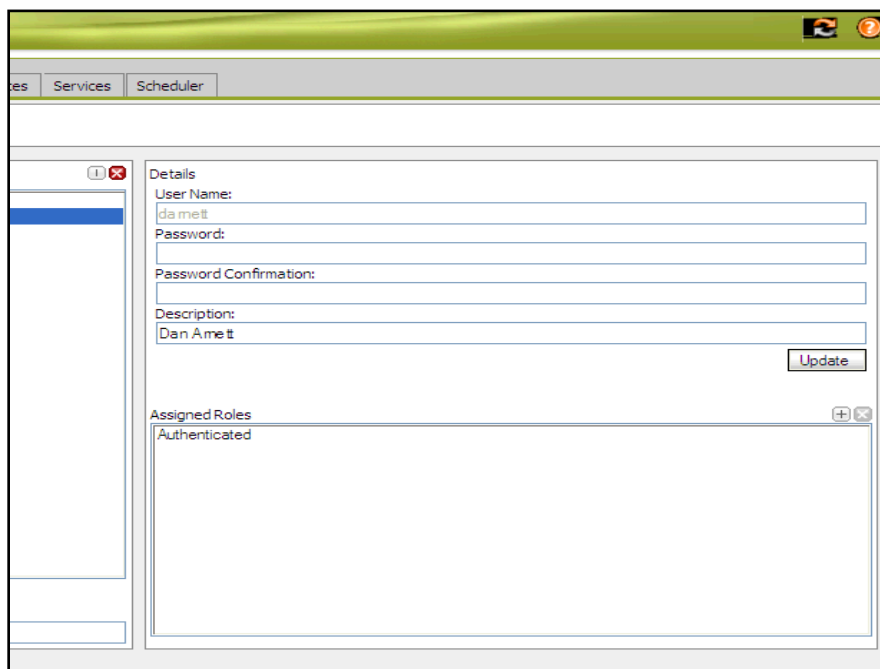


Figure 4-4: New User page

Note: Creating a user with a valid password associates the new user with the Authenticated Role. All users who log on to the Administration Console or User Console require this role. If the specified user name is not unique within the Contact Analyzer system, the system displays an error message.

3.4 Adding Roles to Users

Do not delete the Admin or Authenticated roles, these are default roles and will break the installation.

You can assign additional roles to a user. There are two methods of assigning additional roles:

- Adding Roles to a user
- Adding users to a Role

To assign a Role to a user:

1. On the **Users & Roles** page, click the **Users** tab.
2. In the **Users** field, click the user to whom you want to assign the role.
3. In the **Assigned Roles** field, click the plus sign (+).

The system displays the **Assign Roles** window.

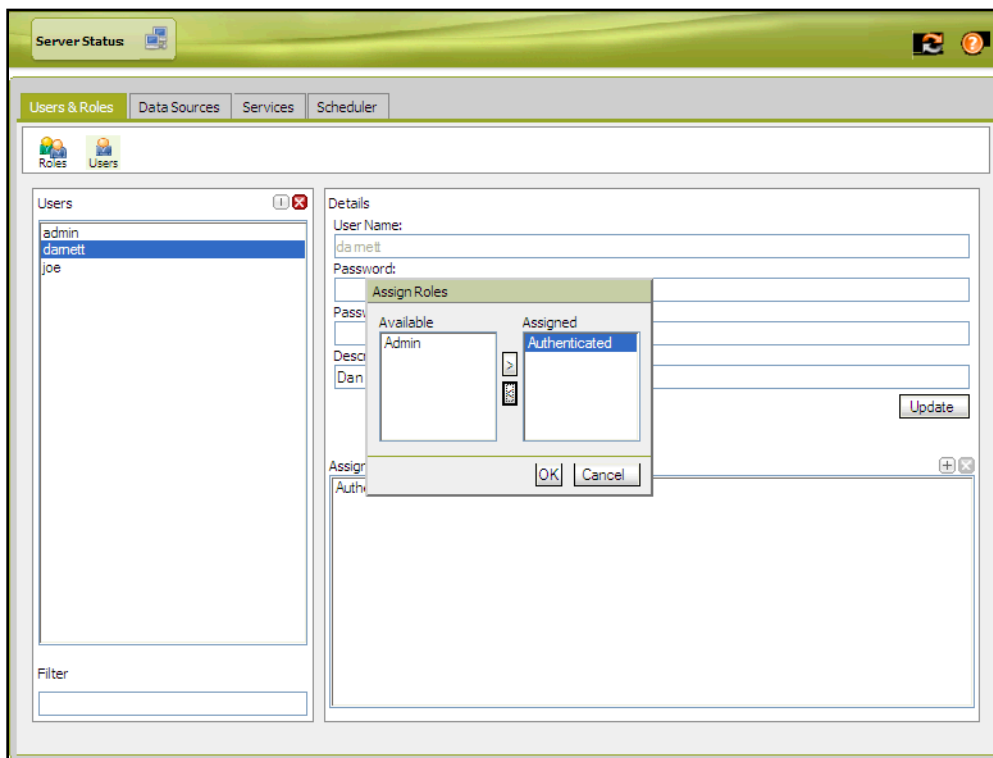


Figure 4-3: Assign Roles window

4. In the **Available** field click the appropriate Role and move it to the **Assigned** field.
5. Click **OK**.

The system adds a role for the user.

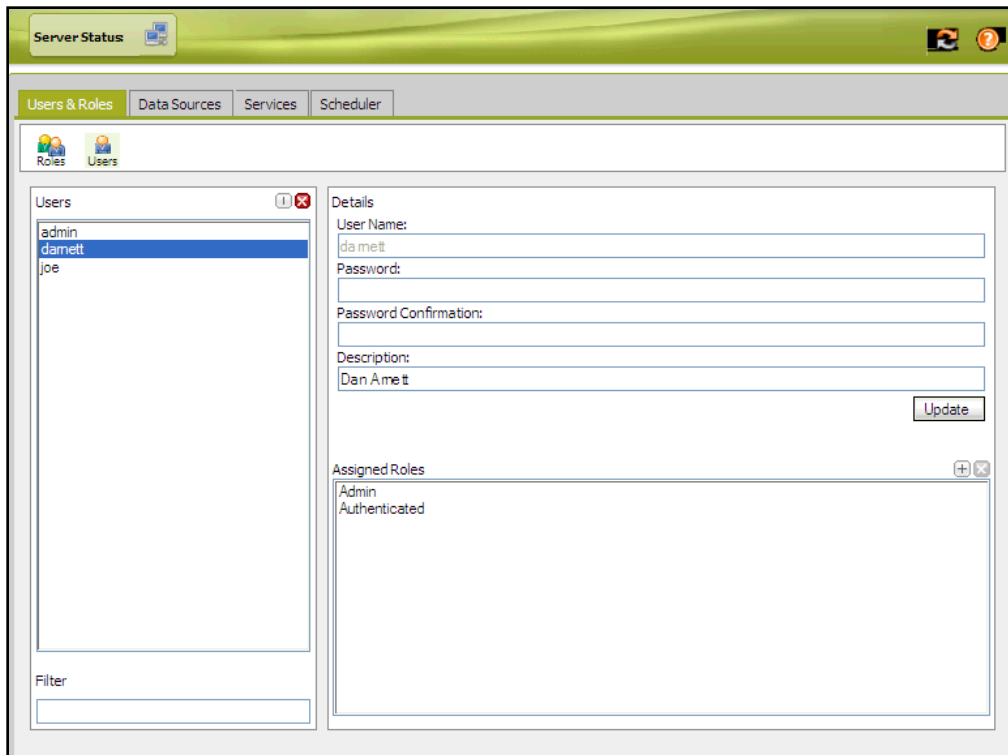


Figure 4-4: Assigned Roles

To assign a user to a Role:

1. On the **Users & Roles** page, click the **Roles** tab.
2. In the **Roles** field, click the Role that needs to be assigned to the user.
3. In the **Assigned Users** field, click the plus sign (+).

The system displays the **Assign Users** window.

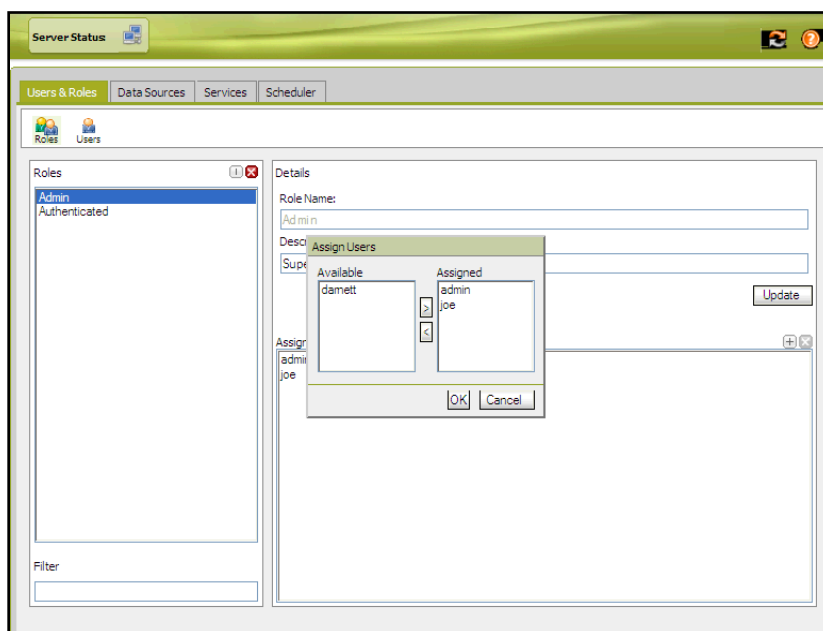


Figure 4-5: Assign Users window

4. In the **Available** field click the appropriate user and move it to the **Assigned** field.
5. Click **OK**.

The system adds a user to the role.

3.5 Editing Users and Changing Passwords

1. On the **Users & Roles** page, click the **Users** tab.
2. Enter or edit the **Description** as desired. The **Description** field is optional.
3. As necessary, enter a new **Password:** and **Password Confirmation:**. The **Password:** and **Password Confirmation:** must match. Passwords are not displayed for security purposes. Password can consist of any combination of letters (upper and lower case), numbers or special characters. Passwords must be a minimum of 6 characters. There is no maximum length.
4. Starting with Contact Analyzer 1.6.7, as desired, Contact Analyzer users may change their own passwords by clicking the **Change Password** link on the User Console login screen. See section 2.7 in the User Console User Guide for details.
5. Click **Update** to save changes.

3.6 Deleting Users

Do not delete the admin or joe users, these are default users and will break the installation. You can change the password for both of these accounts if security is a concern.

To delete a user account:

6. On the **Users & Roles** page, click the **Users** tab.

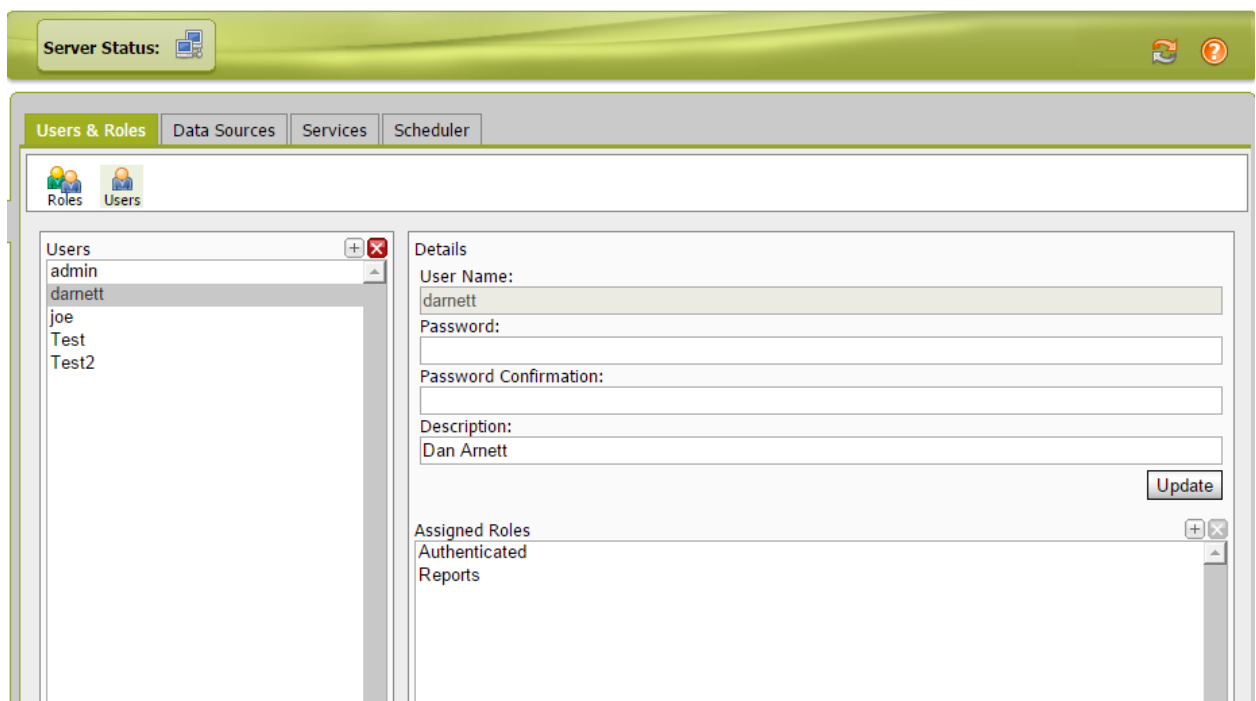


Figure 4-13: The Assign Roles page

7. In the **Users** field, click the user that needs to be deleted.

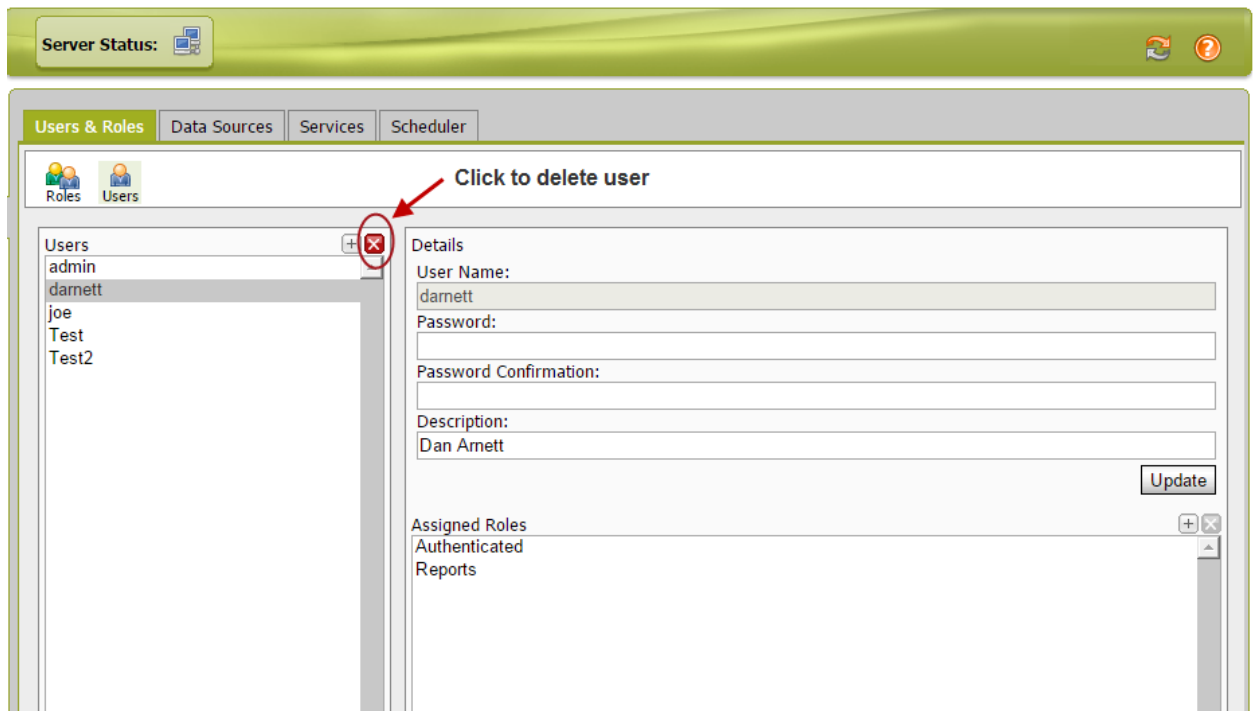


Figure 4-14: Deleting a User Account

8. Click the red cross sign (X).

The system displays the **Delete Users** confirmation window.

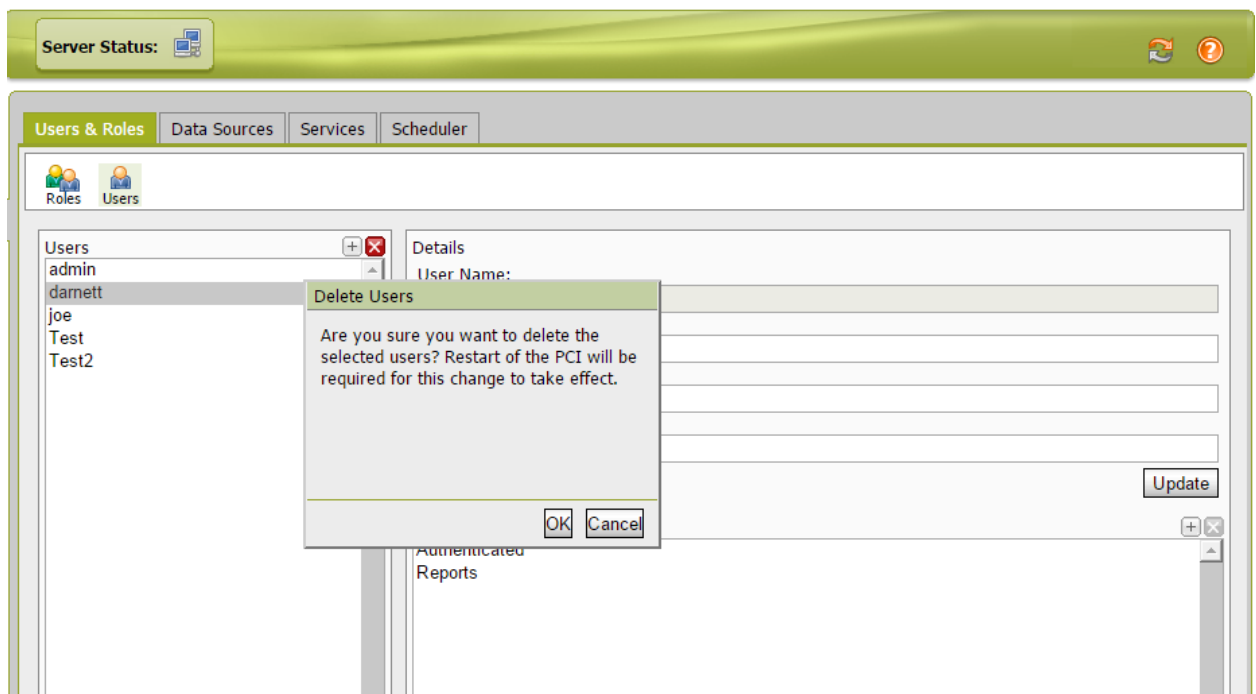


Figure 4-15: Delete Users window

9. Click **OK**.
The system deletes the user.

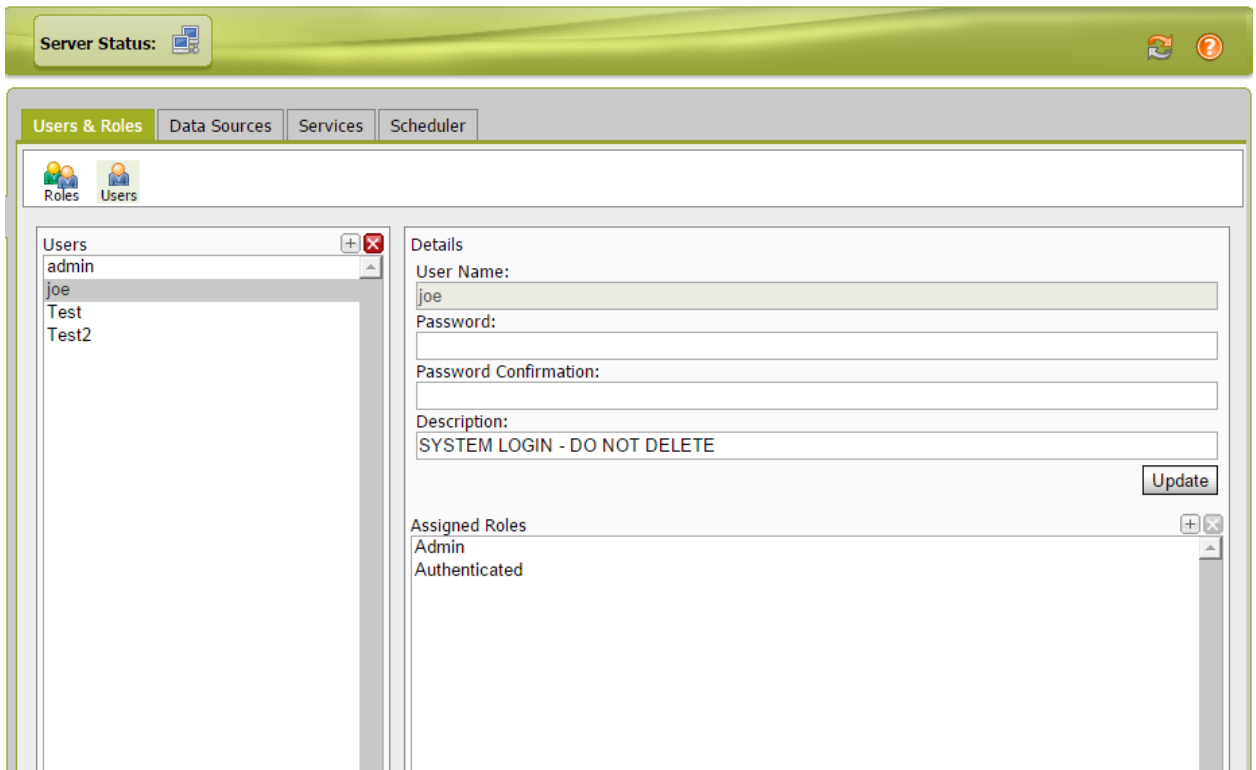


Figure 4-16: User is deleted

4 User Console

4.1 User and Role Assignments

To connect to the Contact Analyzer User Console:

1. Start your browser.
2. Enter the following URL in the Address bar and press **Enter**.
http://<Server IP or Hostname>:8080/pentaho/login
 Replace **<Server IP or Hostname>** with the actual IP or host name of the Contact Analyzer server.
 The browser displays the log in window for the **User Console** web application.

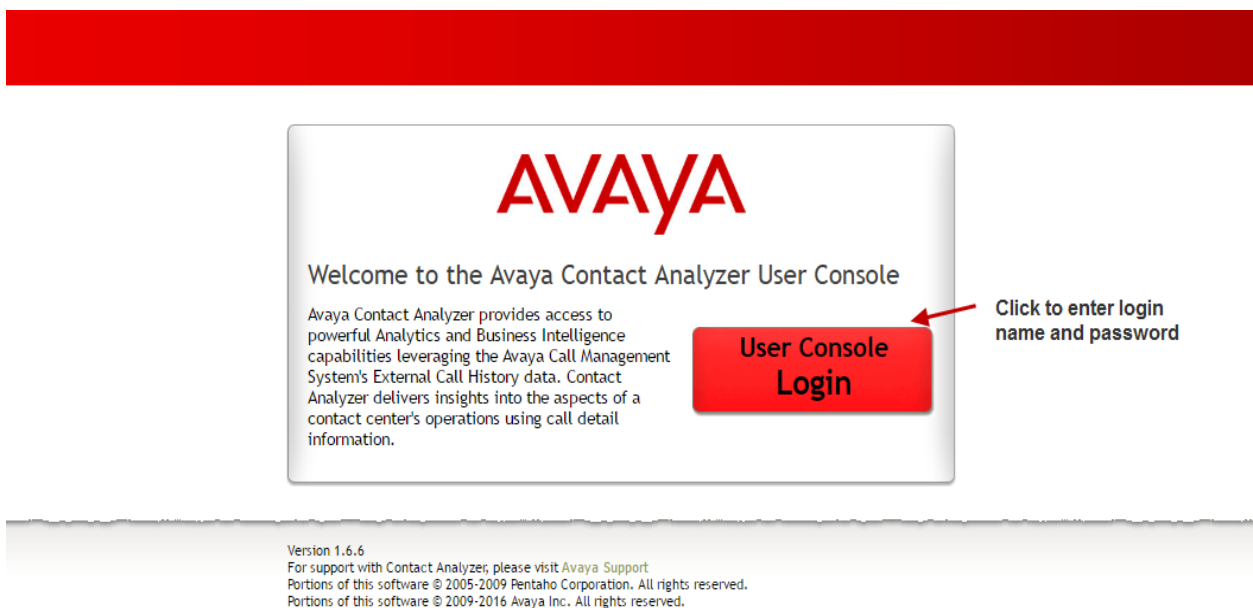


Figure 4-6: User Console Login window

3. Click on **User Console Login** and enter the **username** and **password**, and click **login**.

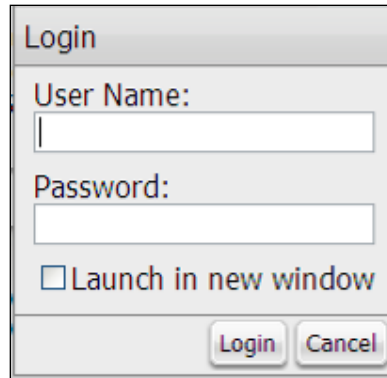


Figure 4-7: Login window

Once logged in, the browse page contains the report folders. Each folder represents a tree in which each node has Properties. This is where the User and the Role assignments tie to actual access privileges with sets of reports or individual reports.

To remove or assign users or roles to any of the folders:

1. Right-click the **folder**, and then click **Properties**.

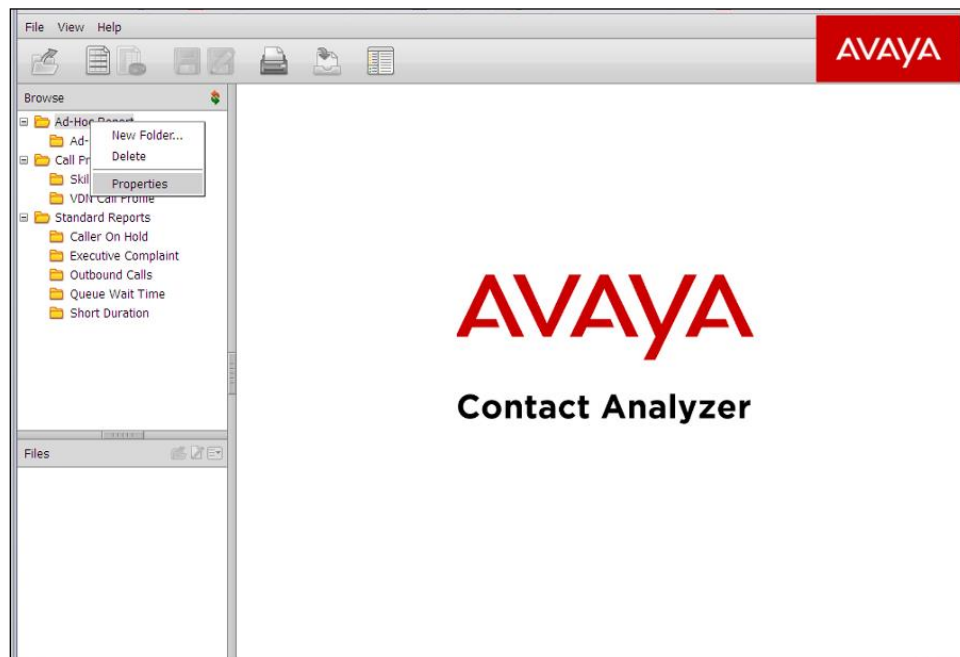


Figure 4-8: User Console window

2. In the **Properties** window, click the **Share** tab.

Users and Roles are associated with folders or individual reports on the Share page. Do not delete a folder or item from the left pane of the user console. Doing so will break the installation.

For example, the Ad Hoc report currently contains the Users and Roles shown in the image below. To remove the dev Role perform the following steps:

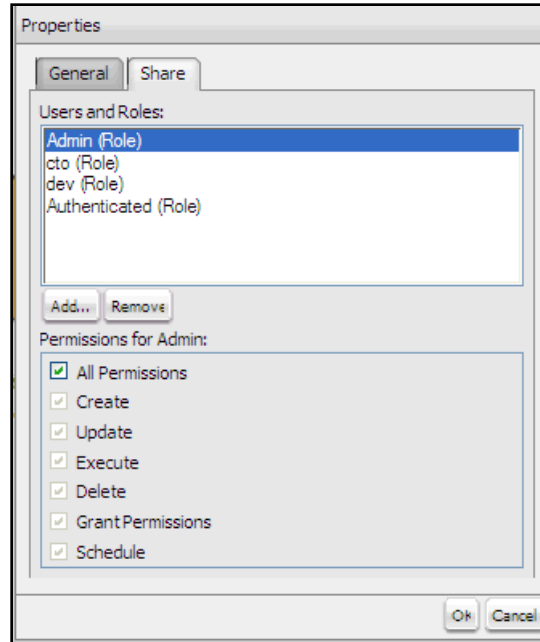


Figure 4-9: Properties window

1. Highlight the **role** that you want to remove.

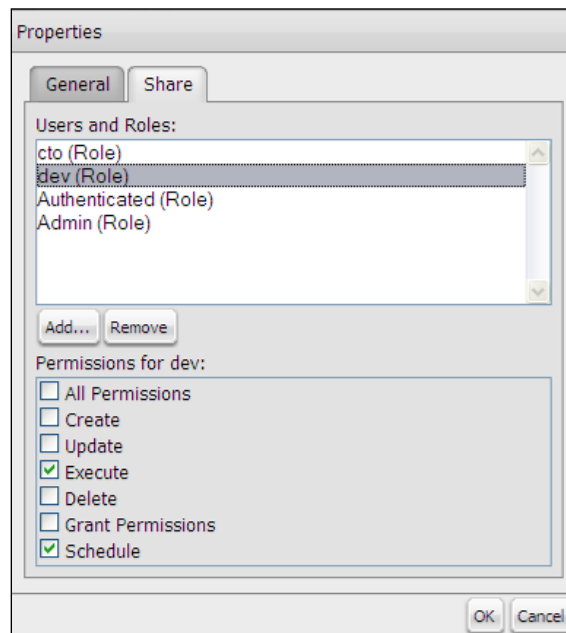


Figure 4-10: The Remove Roles page

2. Click **Remove**.

To assign roles, the process is similar. For example, to add the admin User role, perform the following steps:

1. In the **Properties** window, click the **Share** tab and click the **Add** button.

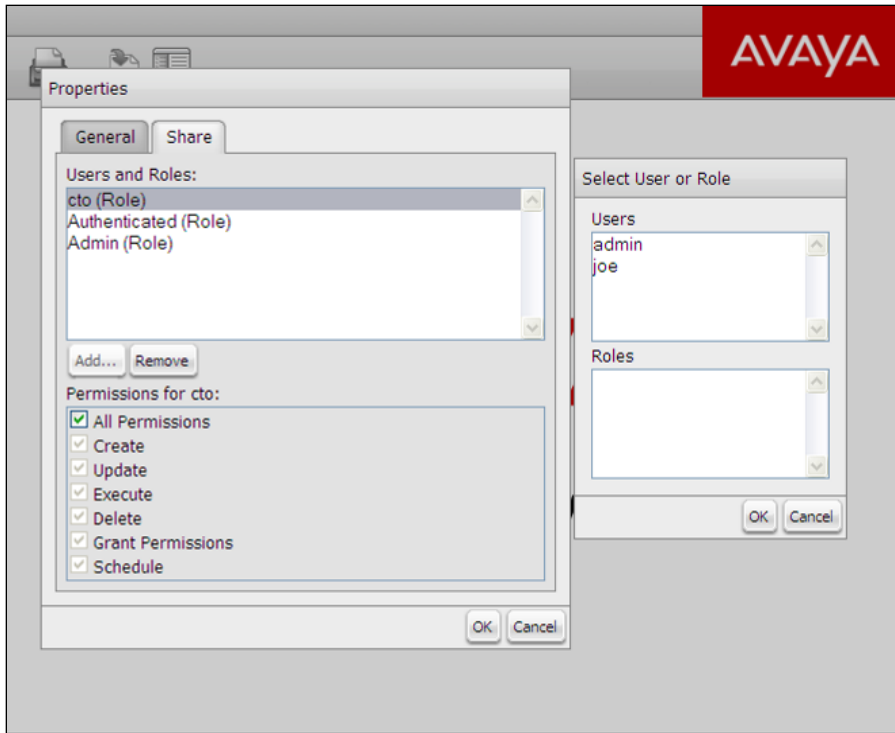


Figure 4-11: The Assign Roles page

2. Select **admin** and click the **Add** button. Under **Permissions for admin**: select **All Permissions**.

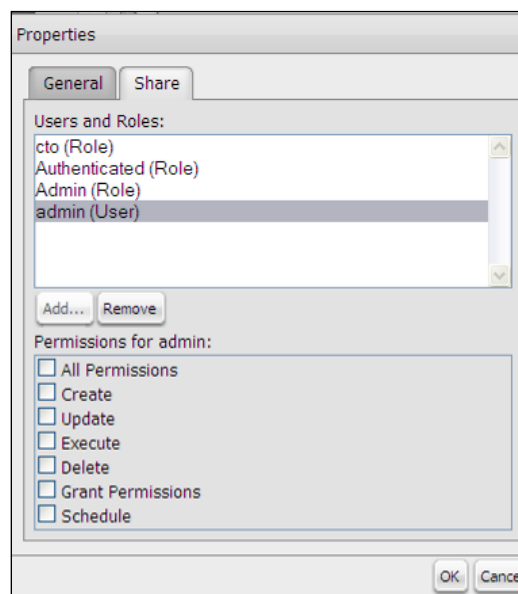


Figure 4-12: The Properties page

5 How to get Support

Avaya Professional Services packages are not covered under the CMS product maintenance contract. The process to get support varies based on whether you have purchased a custom application support agreement or not. Please follow one of the two processes below.

5.1 Application Support Agreement

Customers that have purchased an Application Support Agreement can follow this process to get Avaya remote support:

- Call the local Avaya Global Services Support Center the same way for requesting support under a current maintenance contract. In the US this number is 1-800-242-2121.
- Avaya will take the call and open a ticket, providing the case number to the customer.
- Avaya will work the case to determine the source of the issue.
- If the problem lies with the custom application, details will be forwarded to the Application Support Group (CSISUPP work group) for case Management. (Note: A Special Handling note is already added in the ticketing system, providing overall instructions about the Custom Application and describing how to route the case for Avaya associates).
- Once the issue is resolved, Avaya will close case with the customer.

5.2 No Application Support Agreement

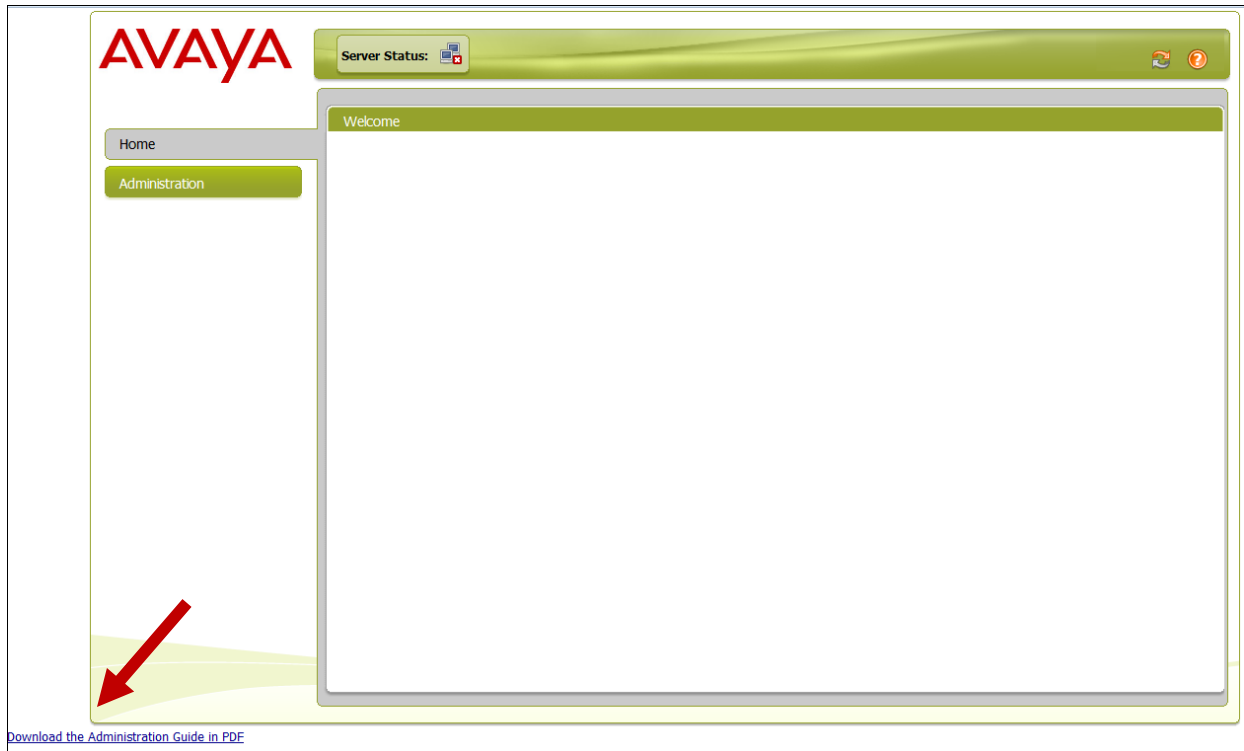
Customers that have not purchased a Support Agreement can follow this process to get Avaya remote support:

- Send an email to proservices@avaya.com.
- Note that charges will need to be authorized if the package's 60 day warranty period has expired.

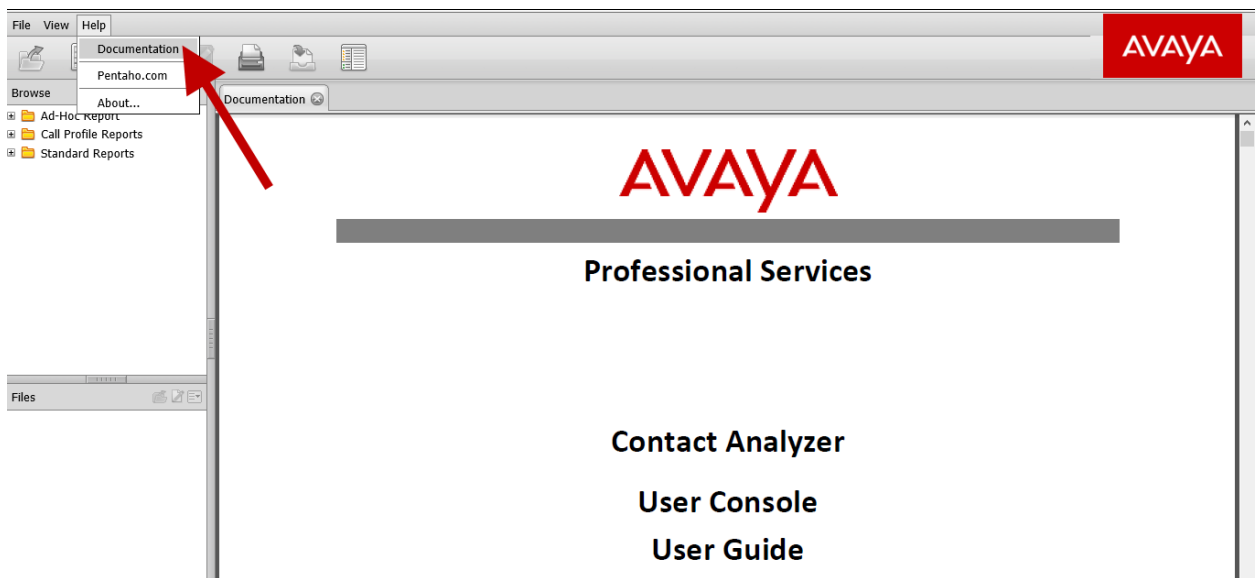
5.3 Online Documentation

Documentation for Contact Analyzer is available in multiple locations:

- Log into the Administration Console using a valid admin login and password. In the lower left-hand corner of the page will be a hyperlink to the PDF version of the Admin Guide.



- Log into the User Console using a valid user login and password. From the menu, choose Help -> Documentation. The User Guide will be displayed in the reports window.



- The Avaya support website (support.avaya.com) will also always have the latest documentation for Contact Analyzer. When this document was published, the latest guides could be found here:

<https://support.avaya.com/products/P0951/contact-analyzer/>

6 Security Considerations

6.1 Users and Roles

Contact analyzer requires specific users and roles to be present on the CA server at the Linux and Pentaho level. Deleting any of these will cause the software to stop functioning. The password for all of these users can be changed based on security requirements. Avaya support personnel may need the passwords to perform remote troubleshooting and configuration.

At the Linux level:

| User | Reason |
|----------|---|
| root | start and stop postgres and pentaho |
| postgres | owns the postgres database |
| avaya | owns the /opt/Avaya files and runs services |

At the Pentaho level:

| User | Reason |
|------|---------------------------------------|
| joe | scheduled jobs run as this admin user |

| Role | Reason |
|---------------|---|
| admin | scheduled jobs run as this admin role |
| authenticated | the default role that allows users to run reports |

Contact Analyzer User Console logins and passwords are kept in the users table in the hibernate database and can be accessed through Postgres. Passwords should be changed via the Administration Console. The passwords are stored in an encrypted format.

If a list of users is required for auditing reasons, these commands can be run from the Linux command line:

```
psql -U postgres -t hibernate
Password for user postgres: <default is postgres>

select * from users;
   kevin   | c2VjcmV0          | DO NOT DELETE | t
   joe     | cGFzc3dvcmQ=     | DO NOT DELETE | t

\q
```

The root, postgres and avaya Linux level user passwords can be changed by using the passwd command.

If the postgres password is changed in CA versions 1.2.1 and earlier, these files need to be edited with the new password:

```
$CA_HOME/ech/admin/etl.conf      DBPASSWORD, PGPASSWORD
```

CA Versions 1.2.2 and later do not need this file edited.

6.2 Linux

All network services on the Linux server can be disabled except for SSH on port 22. The User Console uses an embedded Tomcat web server on port 8080 and the Admin Console uses an embedded Jetty web server on port 8099. If SSL is enabled, the ports will be 8443 and 8143 respectively. Both of these are started and stopped using the `/etc/init.d/pentaho` script and are run as the `avaya` user.

The Contact Analyzer software is started automatically on boot up. The root user is the only one that has privileges to start and stop the software. Postgres database services run as the user `postgres` and Pentaho services run as the user `avaya`. All web services run as the `avaya` user using environment settings found in the `/etc/profile` script.

6.3 Network

Files are transferred from CMS to the CA server via Secure FTP (SFTP), unless the customer specifically requested a different transport method (like unsecure FTP).

As of CA version 1.2.1, HTTPS can be used to encrypt network traffic for both the Admin and User Consoles. Self-signed RSA public key certificates are provided by default. The customer has the option of installing a trusted certificate that is generated from a trusted certificate authority. Details on how to install trusted certificates are left up to the customer's in-house security team.

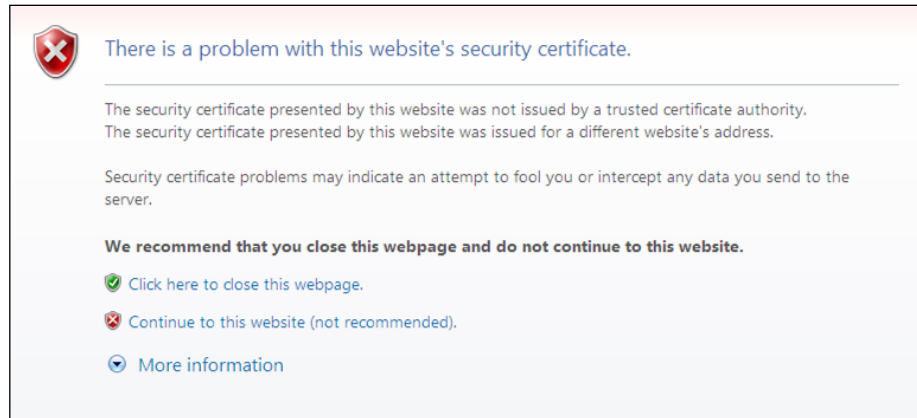
Avaya can provide assistance on implementing SSL for Contact Analyzer. Contact Avaya using the support number listed in section 5 above.

If SSL is implemented, the port numbers to connect to the Admin Console and User Console will change.

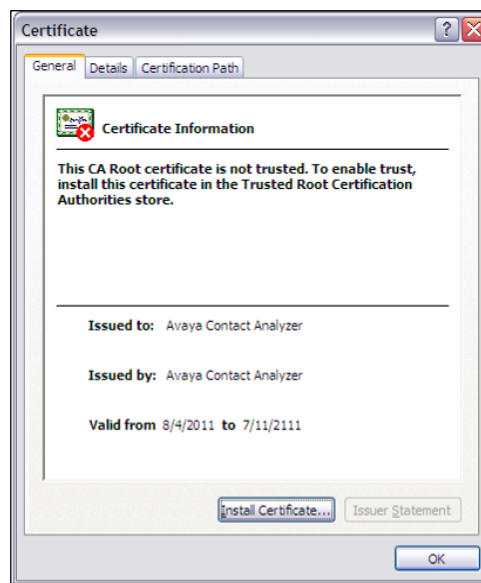
Admin Console - `https://<IP Address>:8143/`

User Console - `https://<IP Address>:8443/`

You may be presented a warning that the security certificate is not trusted. This is because the default certificate used for authentication is self-signed. You can continue and the session will use encryption.



You can also install the certificate into the browser's cache so that the warning message goes away on subsequent logins.



6.4 Firewall

These firewall ports need to be opened in the network for successful communication with the CA server:

Standard install:

| Port | Purpose |
|------|--------------------|
| 22 | SSH and SFTP |
| 8080 | HTTP User Console |
| 8099 | HTTP Admin Console |

HTTPS enabled install:

| Port | Purpose |
|-------------|---------------------|
| 22 | SSH and SFTP |
| 8443 | HTTPS User Console |
| 8143 | HTTPS Admin Console |

7 Data Considerations

7.1 Database Storage

Data is stored in the Postgres database in dimensional format. This is an efficient way to store data and minimizes the required data storage allocation. Each record takes slightly less than 1000 bytes of storage space in the database, including the fact and dimension tables.

Once a day the database purge process is scheduled to run which cleans out records older than the configured number of days.

CA uses a 64-bit Postgres database that allows for a maximum table size of 32TB. There is no feasible limit to the number of days of data that can be stored in the database as long as there is available hardware space.

To determine the table sizes, this command can be run from the Linux prompt or from within the PGAdmin tool:

```
psql -U postgres -d ahadatamart
Password: <postgres is the default password>

SELECT pg_tables.tablename, pg_tables.schemaname,
pg_size_pretty(pg_relation_size((pg_tables.schemaname::text
|| '.'::text) || pg_tables.tablename::text)) AS
pg_size_pretty FROM pg_tables ORDER BY
pg_relation_size((pg_tables.schemaname::text || '.'::text)
|| pg_tables.tablename::text) DESC;

-----+-----+-----
      tablename          | schemaname          | pg_size_pretty
-----+-----+-----
callsegmentfact         | public              | 40 GB
importhistory           | public              | 12 MB
timeofdaydim           | public              | 5760 kB
datedim                 | public              | 4576 kB
agentdim                | public              | 2704 kB
vdndim                  | public              | 1968 kB
pg_statistic            | pg_catalog          | 984 kB
etlhistory              | public              | 904 kB
vectordim               | public              | 632 kB
skilldim                | public              | 600 kB

\q
```

7.2 Network Traffic

Information is transferred from the CA server to the client PC using HTML and XML. These markup languages add tags and other formatting to ensure data is displayed correctly. The data is compressed

on the CA server before it is sent to the user console and it can typically be reduced in size by around 70%.

The exact amount of data that is transferred from the CA server to the user's PC is difficult to determine. Some of the more dynamic items are the length of the entity names that end up in the result set and the amount of compression that is applied to the data set.

Each record ends up being somewhere between 1KB and 2KB. There is also roughly a 10% overhead that HTML adds.

A rough estimate can be determined using the following formula:

Calculation:

$$((\# \text{ of records} * 1500 \text{ bytes per record}) * 1.1) * .30$$

Example:

$$((5000 \text{ records} * 1500 \text{ bytes}) * 1.1) * .30 = 2,475,000 \text{ bytes or about 2.5MB}$$

Data is then uncompressed on the client PC in order to be displayed. Data is kept in the client PC browser's in-memory cache. Querying large data sets can result in the end-user's PC running out of virtual memory. For large queries, it is recommended that ODBC or another direct database access method be used.

8 Appendix A: Troubleshooting

This section provides information that is useful for troubleshooting on the Contact Analyzer server. These are self-help instructions targeted at personnel with at least fundamental Linux command line skills. If you are not skilled or experienced enough with Linux to work at a command line level it is recommended that you contact Avaya Professional Services for assistance. Administration and maintenance work performed by Avaya Professional Services is NOT covered by Avaya Global Services CMS Maintenance Agreements. All work done by Avaya Professional Services is billable unless you have an Avaya Professional Services Custom Application Support Agreement.

8.1 Logging in to the Contact Analyzer server

```
ssh root@<IP address or host name>
```

Enter the root password. The root password is controlled by the customer.

8.2 Command line variables for Contact Analyzer server

The following environment variables are useful to navigate the Contact Analyzer server from the command line:

```
CA_HOME           (default /opt/Avaya/CA)
ECH_ETL_HOME     (default /opt/Avaya/CA/ech)
POSTGRES_HOME    (default /opt/PostgreSQL/8.4) (CA version 1.5.1 and earlier)
POSTGRES_HOME    (default /opt/PostgreSQL/9.5) (CA version 1.6.4 and later)
```

8.3 Logs for troubleshooting

Postgres:

```
$POSTGRES_HOME/data/pg_log/startup.log
$POSTGRES_HOME/data/pg_log/postgresql*
```

Pentaho:

```
$CA_HOME/biserver-ce/tomcat/bin/pentaho.log
```

Tomcat:

```
$CA_HOME/biserver-ce/tomcat/logs/catalina.out
$CA_HOME/biserver-ce/tomcat/temp/Kettle-pentaho*
```

ECH ETL:

```
$ECH_ETL_HOME/log/import_log
$ECH_ETL_HOME/log/ech_etl.log
```

8.4 Start Contact Analyzer

Before starting Contact Analyzer, ensure there are not too many ECH files to process on the next ETL.


```
cd $ECH_ETL_HOME/ech_data/<cms>
wc -l chr*
```

If the word count command above shows more than 100,000 records to process, you will need to trickle the chr files in slowly as to not overload ETL processing. Otherwise you can skip the next commands and just start CA.

```
mv chr* tmp_archive/
cd $ECH_ETL_HOME/bin
nohup ./trickle_ech.sh > trickle.out 2>&1 &
```

This command will move an ECH file every three minutes into the ETL directory, where it will be automatically processed the next time the ETL runs.

To start the Contact Analyzer, use the following commands as the root user:

```
service postgresql-8.4 start (CA version 1.5.1 and earlier)
service postgresql-9.5 start (CA version 1.6.4 and later)
service Pentaho start
```

8.5 Stop Contact Analyzer

To stop Contact Analyzer, perform the following steps as the root user:

1. Check the pentaho.log file:

```
cd $CA_HOME/biserver-ce/tomcat/bin
grep "e DM" pentaho.log
```

The last line should include “[result=[true]]”. If not, ETL is still running so wait until that line has been written.

2. From the server command line, stop all the Contact Analyzer related processes.

```
service pentaho stop
service postgresql-8.4 stop (CA version 1.5.1 and earlier)
service postgresql-9.5 stop (CA version 1.6.4 and later)
```

Now, Contact Analyzer (Pentaho and Postgres) should be completely shut down.

8.6 Restart Contact Analyzer

Ensure ETL is not running using the commands above. To restart Contact Analyzer, use the following commands as the root user:

```
service pentaho restart
```

It is unusual to have to restart postgres, but if you do, use the following commands as the root user:

```

service pentaho stop
service postgresql-8.4 restart (CA version 1.5.1 and earlier)
service postgresql-9.5 restart (CA version 1.6.4 and later)
service pentaho start

```

If the above commands do not work, you can always reboot the CA server at the linux level. This should not be necessary in most cases and should be very unusual:

```
reboot
```

8.7 Additional Logs

This log contains report query handling within the tomcat Web service:

```
$CA_HOME/bi*/tomcat/logs/apc/apc.log
```

This log contains both ETL and report query handling:

```
$CA_HOME/bi*/tomcat/bin/pentaho.log
```

You can adjust logging levels, however, this should be done by Avaya support:

```
$CA_HOME/bi*/tomcat/webapps/pentaho/WEB-INF/classes/log4j.xml
```

This log contains the results of importing ECH and synonym (.dat) files into the Contact Analyzer staging area:

```
$ECH_ETL_HOME/logs/import.log
```

This log contains the results of the ETL used to add Contact ID to the ECH data.

```
$ECH_ETL_HOME/logs/ech_etl.log
```

Database tables providing useful information regarding the ECH import and ETL:

| | | |
|---------------|---|--|
| etlhistory | - | listing of each ETL job and the number of records imported |
| importhistory | - | listing of each ECH file imported |

8.8 Removing Filters

Filters are used in the user console for reporting. Filters can be deleted by end users directly from the UI. If filters need to be investigated or deleted in bulk, follow the procedures outlined below. The report filters are xml files located in several directories under:

```
$CA_HOME/bi*/tomcat/webapps/pentaho
```

To find the Ad Hoc filters, look here:

```
$CA_HOME/bi*/tomcat/webapps/pentaho/apcadhoc/savedquery
```

To find the standard reports filters, look here:

```
$CA_HOME/bi*/tomcat/webapps/pentaho/contact*/savedquery
```

and then see one of the following sub-directories:

calleronhold, executivecomplaint, outboundcalls, queuwaittime, or shortduration

When you find the xml filter file, you can delete it using “rm <filter name>.xml”

8.9 Modifying Data Retention

The number of days of data retention is set by Avaya personnel and should not be modified without first consulting an Avaya Professional Services Contact Analyzer Engineer about database sizing. Keep in mind that this will have a direct impact on disk space and may cause data loss if the value is set too high.

Edit this file to adjust the number of days to save data:

```
$CA_HOME/bi*/pentaho*/avaya-utils/utilities/variables.xml
```

Look for the **retention_days** tag and set as needed.

8.10 Querying the Database

The Postgres SQL tool can be used to query the database from the command line on the CA server:

```
psql -U postgres ahadatamart
```

Provide the password that has been administered when installing the database (default is postgres).

Now you are at the PSQL prompt, ready to run queries. Every query needs to be terminated by a semicolon.

To leave the application type: \q

Sample queries:

List of etl jobs that have run in descending order:

```
select * from etlhistory order by etlstarttime desc;
```

List of imported ECH files in descending order:

```
select * from importhistory order by importtime desc;
```

8.11 Changing Logout Auto-Timeout

Users are automatically logged out from Pentaho User Console after a certain inactivity duration (default: 30 minutes).

To change this value edit the file:

```
$CA_HOME/biserver-ce/tomcat/webapps/pentaho/WEB-INF/web.xml
```

Search for tag <session-timeout> and change the value as desired.

Restart Contact Analyzer.

8.12 Administering Admin Console Users

Admin Console users are administered at the Linux level. Admin users and roles that are created via the Admin Console only effect the user console. To create a new admin user account for login only to the Admin Console:

Change to this directory:

```
cd $CA_HOME/administration-console
```

Create an OBF encrypted password for the new user (the below command should be all on one line):

```
java -cp lib/jetty-6.1.26.jar:lib/jetty-util-6.1.26.jar
org.mortbay.jetty.security.Password <newuser> <password>
```

Example:

```
/usr/java/default/bin/java -cp lib/jetty-6.1.26.jar:lib/jetty-
util-6.1.26.jar org.mortbay.jetty.security.Password new_admin
PaSSw0rD1
```

```
PaSSw0rD1
OBF:1eou11ss11j3185b1nb21abq1abc1neo185b11mn11r61en4
MD5:10b7c60209f3c0184a53e64ca8a32715
CRYPT:nekYiP0q4aftg
```

The OBF password is the one that is needed. Add a new line similar to the existing one in:

```
$CA_HOME/administration-console/resource/config/login.properties
```

Example:

```
new_admin: OBF:1eou11ss11j3185b1nb21abq1abc1neo185b11mn11r61en4
,server-administrator,content-administrator,admin
```

This new admin user will only have access to the Admin Console, not the User Console.

If the password for the original admin user needs to be changed, repeat the above steps for the admin user and replace the existing OBF encrypted admin password in the login.properties file.

As the password has been entered in clear text from the command line, clean-up the bash history:

```
rm -f ~/.bash_history
history -c
```

Ensure ETL is not running and restart Contact Analyzer using the commands listed earlier. A restart is needed to force the Admin console to read the new configuration file.

8.13 Backing Up Contact Analyzer

Backups and Restores are the responsibility of the customer. If you have purchased a Custom Application Support agreement, Avaya will assist where possible, but ultimately the responsibility for backups and restoration lies with the customer.

The easiest way to perform a backup of the CA server is to use third party software that allows for a complete snapshot and restore of the CA server (NetBackup, Bacula, ARCserve, Legato, Amanda, Tivoli, etc.) If that level of backup is not available, the following steps below can be used for rudimentary backup and restoration.

This procedure will create a manual backup of all database content that is related to Contact Analyzer and the Contact Analyzer files.

Important: Before starting the backup of the database, make sure that there is no active ETL job running. Wait for the ETL to be completed (see the section Stop/Restart Contact Analyzer). If a backup is running when there is an active ETL job, the content of the backup file(s) may be inconsistent! However, an ETL job starting after the backup command has been issued is not considered to cause problems.

It is recommended that you suspend Pentaho which will stop the ETL and not allow users to be logged in:

```
service pentaho stop
```

Log in as the root user and locate a file system that has space for the backups. You can look at the size of /opt to get an idea of the storage requirements:

```
df -h
du -ks /opt
```

Assuming that / has the space to store these files, change to that directory:

```
cd /
```

The following backups use the split command to create files 1GB in size that are easier to work with. If smaller file sizes are not needed, you can remove the split commands below.

Run a backup of the call database, this will be the largest file:

```
pg_dump -U postgres ahadatamart | gzip | split -b 1024m -
<backup_directory>/ahadatamartdump
```

Run a backup of other important databases:

```
pg_dump -U postgres quartz | gzip | split -b 1024m -
<backup_directory>/quartzdump
```

```
pg_dump -U postgres hibernate | gzip | split -b 1024m -
<backup_directory>/hibernatedump
```

Create a backup of the Contact Analyzer directory and important files:

```
tar -cvzf <backup_directory>/CA.tgz
/opt/Avaya/CA
/opt/PostgreSQL/8.4/data/pg_hba.conf (CA version 1.5.1 and earlier)
/opt/PostgreSQL/9.5/data/pg_hba.conf (CA version 1.6.4 and later)
/opt/PostgreSQL/8.4/data/postgresql.conf (CA version 1.5.1 and earlier)
/opt/PostgreSQL/9.5/data/postgresql.conf (CA version 1.6.4 and later)

/etc/profile
```

Create a backup of the Contact Analyzer install software:

```
tar -cvzf <backup_directory>/software.tgz /opt/Avaya/software
```

Be sure to copy these files to external storage for safe keeping:

- ahadatamartdump*
- hibernatedump*
- quartzdump*
- CA.tgz
- software.tgz

8.14 Restoring Contact Analyzer

This procedure will restore Contact Analyzer from the following backup files:

- ahadatamartdump*
- hibernatedump*
- quartzdump*
- CA.tgz
- software.tgz

These procedures assume that the Linux operating system has been reinstalled. If CA has to be reinstalled from scratch some of the commands below will obviously not work until the software has been installed.

As soon as the hardware and Linux operating system are fully functional, execute the following steps to prepare the server for a restore. Ensure that you have the postgres password available (postgres by default).

1. Stop Pentaho (this command will fail if CA is not installed yet):

```
service pentaho stop
```

2. Remove the Contact Analyzer software package (if needed):

```
rpm -qa|grep CA  
rpm -ev CA<version> (as given by the command above)  
rm -rf /opt/Avaya/CA
```

3. Remove the PostgreSQL database (if needed):

```
cd /opt/PostgreSQL/8.4 (CA version 1.5.1 and earlier)  
cd /opt/PostgreSQL/9.5 (CA version 1.6.4 and later)  
cd /opt/PostgreSQL/10 (CA version 1.7.7 and later)  
cd /opt/PostgreSQL/14 (CA version 1.7.9 and later)  
  
./uninstall-postgresql  
rm -rf /opt/PostgreSQL
```

4. Restore the installation software from backup:

```
tar -xvzf software.tgz -C /
```

5. Reinstall Java (accept all the defaults):

```
cd /opt/Avaya/software  
./jre*.bin
```

6. Reinstall the database (accept the defaults, Stack Builder does not need to be installed):

```
cd /opt/Avaya/software  
./postgresql*.bin
```

7. Reinstall Contact Analyzer:

```
cd /opt/Avaya/software  
  
rpm -ivh CA*.rpm
```

8. Restore CA files from backup:

```
tar -xvzf CA.tgz -C /  
  
./etc/profile
```

9. Ensure the database is running:

```

service postgresql-8.4 restart (CA version 1.5.1 and earlier)
service postgresql-9.5 restart (CA version 1.6.4 and later)
service postgresql-10 restart (CA version 1.7.7 and later)
service postgresql-14 restart (CA version 1.7.9 and later)

```

10. Initialize the database and create tables:

```

export PGUSER=postgres
export PGPASSWORD=postgres
cd $CA_HOME/biserver-ce/data/postgresql
psql < create_pentaho_repository_postgresql.sql
psql < create_ahadatamart_postgresql.sql
psql < create_indexes.sql
cd $ECH_ETL_HOME/bin
psql < create_tmp_synonyms.sql

```

11. Restart database to pick up the changes:

```

service postgresql-8.4 restart (CA version 1.5.1 and earlier)
service postgresql-9.5 restart (CA version 1.6.4 and later)
service postgresql-10 restart (CA version 1.7.7 and later)
service postgresql-14 restart (CA version 1.7.9 and later)

```

12. Login to PSQL to drop and recreate certain databases:

```

export PGPASSWORD=postgres
psql -U postgres
drop database ahadatamart;
CREATE DATABASE ahadatamart WITH OWNER = aha_admin
ENCODING = 'UTF8' TABLESPACE = pg_default;
GRANT ALL PRIVILEGES ON DATABASE ahadatamart to aha_admin;
drop database quartz;
CREATE DATABASE quartz WITH OWNER = pentaho_user ENCODING =
'UTF8' TABLESPACE = pg_default;
GRANT ALL PRIVILEGES ON DATABASE quartz to pentaho_user;
drop database if exists hibernate;
CREATE DATABASE hibernate WITH OWNER = hibuser ENCODING =
'UTF8' TABLESPACE = pg_default;
GRANT ALL PRIVILEGES ON DATABASE hibernate to hibuser;
GRANT ALL PRIVILEGES ON DATABASE hibernate to pentaho_user;
\q

```


Note: In case dropping of database gets refused because users are currently accessing it, leave PSQL, restart Postgres again and execute the above procedure immediately after Postgres is back online.

13. Restore the database dumps from backups:

```
cd <backup_directory>
cat ahadatamartdump* | gunzip | psql -U postgres ahadatamart
```

(This can be time consuming depending on the size of backup.)

```
cat quartzdump* | gunzip | psql -U postgres quartz
cat hibernatedump* | gunzip | psql -U postgres hibernate
```

14. Ensure Pentaho is configured for auto-start:

```
chkconfig --level 2345 pentaho on
```

15. Reboot to bring CA back into service:

```
reboot
```

After Contact Analyzer is back online, login to the Administration Console and User Console to verify they are working as expected. Allow for the next ETL process to complete and check if data has been imported successfully.

As there is probably a gap of some hours or even some days between the point in time the backup has been created and the point in time the first new ECH file has arrived, there may be some data missing in your database.

To verify if this is the case login to PSQL again to check the list of ECH files that have been imported to Contact Analyzer since creation time of your backup:

```
psql -U postgres ahadatamart
select * from importhistory order by importtime desc;
```

Check the list for inconsistencies in the sequence of imported files. Make note of files that are missing according to their names.

Exit PSQL:

```
\q
```

To fill the gap of missing ECH files, go to CMS and get missing files from archive. Follow notes in recovery.txt in /export/home/pserv/ech/ on CMS. Consider putting the files in the /opt/Avaya/CA/ech/ech_data/<your_cms>/tmp_archive directory and starting trickle_ech.sh as described in section "Start Contact Analyzer" to avoid too many ECH files being imported at once.

Over time Contact Analyzer will process these files. As soon as the directory archive is empty again, your call data will be complete.

8.15 If data stops collecting

The first thing to check is that the ETL job is scheduled correctly in the Admin Console. Ensure it is running and the status is NORMAL. Also check for a currently running ETL process, this could happen if there are many records to process:

```
grep "e DM" $CA_HOME/biserver-ce/tomcat/bin/Pentaho.log
```

The last line should include "[result=true]". If not, ETL is still running so wait until that line has been written.

If the CA server has stopped loading new data, you can restart CA and it will clear any etlhistory records with a NULL etlcomplete time. Follow the instructions above for restarting contact analyzer. A reboot of the server should also reset everything back to normal and allow the scheduled jobs to continue.

Records should process the next time the ETL runs from the scheduler.

8.16 Resend chr files from CMS

ECH "chr" files are buffered on the CMS server for a minimum of 30 days. In order to resend missing chr files from the CMS server, log into the terminal emulator as the cms user and run the main menu addition named "ECH Handler>"

```
--- ECH Handler Menu ---

1) Show Version
2) List Data Feeds
3) View Maintenance Log
4) Display License Info
5) ASCII Data File Recovery
0) Exit
=====
Choice==>
```

Choose item number 5 for the ASCII Data File Recovery menu and follow the prompts.

Once all of the files are recovered, the normal import process will automatically import them on the next run that is usually scheduled every 30 minutes.

8.17 PGAdmin

For a graphical PostgreSQL management tool, the customer can download pgadmin and configure it to connect to the CA postgres database. PGAdmin is a permissive use application and is not supported by Avaya.

www.pgadmin.org

Connection settings (the rest can be left with the defaults):

```

Name:           Contact Analyzer
Host:           The DNS name or IP address
Port:           5432
Maintenance DB: postgres
Username:       postgres
Password:       postgres
    
```

The customer will need have firewalls configured to allow port 5432 from the PC to the CA server.

8.18 ODBC Access

Virtually any other standard Postgres or database tool can be used to connect to the database. For example, the customer could use ODBC to connect. Use of customer installed tools is permissive and is not supported by Avaya.

www.postgresql.org

Common ODBC connection settings (the rest can be left with the defaults):

```

Data Source:    <CA server name>
Description:    Contact Analyzer
Database:       ahadatamart
SSL Mobile:     disable
Server:         <CA IP address>
Port:           5432
User Name:      postgres
Password:       postgres
    
```

The customer will need have firewalls configured to allow port 5432 from the PC to the CA server.

Two users have been added to the database to help facilitate non-administrator data access:

| Username | Password | Access |
|----------|-----------|-----------|
| ca_admin | hell0123! | Full |
| ca_user | hell0123! | Read-only |

It is recommended that the postgres, ca_admin, and ca_user passwords be changed from their defaults using Postgres tools.

8.19 ECH View for Relational Data Access

When querying the tables, keep in mind that the data model is in a dimensional format (not relational).

To help with converting the data back to relational format, a series of views have been created. These can be seen by using the PGADMIN tool explained earlier in this document.

For performance reasons, queries should use indexed columns. The indexes can also be seen using the PGADMIN tool.

This is an example of a query using the ECH_VIEW:

```
select *
from ech_view
where segstop >= DATE('06/06/2019 00:00:00')
```

Notice we are using segstop instead of segstart since it is an indexed item.

9 APENDIX B: Contact Analyzer Version History

| VERSION | RELEASE DATE AND DESCRIPTION OF CHANGES |
|--------------|--|
| 1.8.1 | 01/26/2023 <ul style="list-style-type: none"> • Updated versions of underlying software, this provides bug fixes, performance increases, and security improvements: Java -> 11.0.18 (OpenJDK) Postgres -> 14.6 Tomcat -> 9.0.71 • Fixed a bug in detecting multiple ETL processes running at the same time. • Modified load_ech.sh to look for files not owned by the avaya user. |
| 1.8.0 | 10/31/2022 <ul style="list-style-type: none"> • Updated versions of underlying software, this provides bug fixes, performance increases, and security improvements: Java -> 11.0.17 (OpenJDK) JDBC -> 42.5 Postgres -> 14.5 Tomcat -> 9.0.68 • Added EASG support files for RHEL 8. • Script to remove log4j vulnerabilities (see Installation instructions). This can be run on older releases also. |
| 1.7.9 | 08/12/2022 <ul style="list-style-type: none"> • Updated versions of underlying software, this provides bug fixes, performance increases, and security improvements: Java -> 8.0.342 (OpenJDK) Postgres -> 14.4 JDBC -> 42.4.2 • Rebuilt on 08/24/2022 Tested with RHEL 8.6 • Rebuilt on 08/29/2022 Added the ability to export reports to CSV • Rebuilt on 10/27/2022 Fixed a bug with pentaho startup script when using sudo. Modified field lengths for ecd_str and logid. See Upgrade_CA. |
| 1.7.8 | 05/07/2021 <ul style="list-style-type: none"> • Fixed a bug with older versions of the JDBC JAR files. Removed all but the latest Version 42.2.20 driver. This only happens on certain combinations of RHEL and Postgres. • Rebuilt on 06/11/2021 Fixed a JDBC error in the ech classpath. • Rebuilt on 11/18/2021 |

| VERSION | RELEASE DATE AND DESCRIPTION OF CHANGES |
|---------------------|--|
| | <p>Tested with RHEL 8.4</p> <ul style="list-style-type: none"> Rebuilt on 05/06/2022 <p>Tested with CentOS 8 Stream and Java 1.8.0.332</p> <ul style="list-style-type: none"> Rebuilt on 05/06/2022 <p>Updated to Postgres 10.20</p> |
| <p>1.7.7</p> | <p>02/23/2021</p> <ul style="list-style-type: none"> Upgraded Postgres to 10 (See differences in Instructions). Either one works - you can upgrade an existing 9.x or install 10 new. Tested with CentOS8Stream. Updated versions of underlying software, this provides bug fixes, performance increases, and security improvements: Java -> 8.0.282 (OpenJDK) Postgres -> 10.16 Tomcat -> 7.0.108 |
| <p>1.7.6</p> | <p>03/13/2020</p> <ul style="list-style-type: none"> Updated versions of underlying software, this provides bug fixes, performance increases, and security improvements: Java -> 8.0.242 (OpenJDK) Postgres -> 9.5.21 Tomcat -> 7.0.100 This release fixes the GhostCat Tomcat vulnerability found here: https://nvd.nist.gov/vuln/detail/CVE-2020-1938 Rebuilt on 03/30/2020. Updated the server.xml.ssl file for GhostCat. Rebuilt on 10/20/2020. Added an additional check to load_ech.sh for a running c2g process. This file can be copied to patch existing 1.7.6 CA customers. This version is compatible with RHEL8. |
| <p>1.7.5</p> | <p>02/12/2020</p> <ul style="list-style-type: none"> Updated versions of underlying software, this provides bug fixes, performance increases, and security improvements: - Java -> 8.0.241 (OpenJDK) - Postgres -> 9.5.20 - Tomcat -> 7.0.99 Force TLS 1.2 when security is enabled in the Tomcat server.xml file. Modified the Tomcat server.xml file to fix a minor security vulnerability. This file can be copied to patch earlier CA customers. |
| <p>1.7.4</p> | <p>08/27/2019</p> <ul style="list-style-type: none"> Updated versions of underlying software, this provides bug fixes, performance increases, and security improvements: - Java -> 8.0.222 (OpenJDK) |

| VERSION | RELEASE DATE AND DESCRIPTION OF CHANGES |
|--------------|--|
| | <ul style="list-style-type: none"> - Postgres -> 9.5.19 - Tomcat -> 7.0.94 • Updates to the URI encoding in the Flex SWF reports to fix issues with Chrome and other browsers. |
| 1.7.3 | <p>03/21/2019</p> <ul style="list-style-type: none"> • Added EASG authentication installation files and instructions. • Updated versions of underlying software, this provides bug fixes, performance increases, and security improvements: <ul style="list-style-type: none"> - Java -> 8.0.201 (OpenJDK) - Postgres -> 9.5.16 • Rebuilt on 04/02/2019 due to a bug. load_ech.sh now checks that it was run as the avaya user only. You can update just this file to patch existing customers. • Rebuilt on 05/01/2019. load_ech.sh now filters backslashes in the chr files. You can update just this file to patch existing customers. |
| 1.7.2 | <p>12/06/2018</p> <ul style="list-style-type: none"> • Fixed issues with the time selection prompts in reports (last hour, etc.). • Modified reports to query segmentstoptime directly from the callsegmentfact table instead of datedim dimensions. • Updated the embedded Admin and User guide. |
| 1.7.1 | <p>11/20/2018</p> <ul style="list-style-type: none"> • Updated versions of underlying software, this provides bug fixes, performance increases, and security improvements: <ul style="list-style-type: none"> - Java -> 8.0.191 (OpenJDK) - Postgres -> 9.5.15 • Recompiled copy protection as 64-bit. • Rebuilt RPM as 64-bit. |
| 1.7.0 | <p>09/28/2018</p> <ul style="list-style-type: none"> • Updated versions of underlying software, this provides bug fixes, performance increases, and security improvements: <ul style="list-style-type: none"> - Java -> 8.0.181 (OpenJDK) - Postgres -> 9.5.14 • This version supports CMS 18.1 ECH format • Updates for R18_1: • Added these additional ECD items in the ECH feed: <ul style="list-style-type: none"> - ecd_num -> integer - ecd_control -> smallint - ecd_info -> smallint - ecd_str -> char(17) • Added new ech_view_18_1 to match the format in the official ECH documents. |

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| | <ul style="list-style-type: none"> Left the original ech_view the way it was (matches R18 documents). Added new support scripts to help facilitate easier maintenance. |
| 1.6.11 | 06/06/2018 <ul style="list-style-type: none"> Updated versions of underlying software, this provides bug fixes, performance increases, and security improvements: <ul style="list-style-type: none"> - Java -> 8.0.171 (OpenJDK) - Postgres -> 9.5.13 Fixed an issue where clicking on the CONTACTID in the reports would not show all the segments associated with a call. |
| 1.6.10 | 02/07/2018 <ul style="list-style-type: none"> Updated versions of underlying software, this provides bug fixes, performance increases, and security improvements: <ul style="list-style-type: none"> - Java -> 8.0.161 (OpenJDK) - Postgres -> 9.5.10 - Tomcat -> 7.0.82 Updated load_ech.sh to only load 100,000 records at a time per CMS. This eliminates the need for the trickle script. (Thanks Ricardo!) Removed trickle.sh script as it is no longer needed. Old chr files are now compressed (gzip) to save space. Added ca_admin and ca_user Postgres users (passwords: hell0123!). Customers can use these for remote database access. Rebuilt on 02/22/2018 due to a bug with gzip in load_ech.sh. Rebuilt on 04/02/2018 due to a bug with file sizes in load_ech.sh. (you can just copy load_ech.sh if needed to existing installs) |
| 1.6.9 | 05/10/2017 <ul style="list-style-type: none"> Fixed a bug in load_ech.sh where all the 'b' characters were removed from the ech data. Updated the ech_view view. Rebuilt on 5/19/2017 due to a copy protection issue with the ca binary. Rebuilt on 5/22/2017 due to a Java 8 incompatibility with AgressiveHeap. This version was tested with Java 8.0.131. Rebuilt on 6/05/2017 due to SSL/TLS changes for Tomcat 7. |
| 1.6.8 | 4/6/2017 <ul style="list-style-type: none"> *** Performance Oriented Release *** Updated versions of underlying software, this provides bug fixes, performance increases, and security improvements: <ul style="list-style-type: none"> - Postgres -> 9.5.6 Increased the commit value in the transformations, resulting in faster loading of chr files and the corresponding data. Improved c2g_etl time by setting all temporary storage tables to unlogged. (tables: ech, tmp_ech, tmp_*) Testing confirmed that the time to load ECH data was reduced by > 50%. |

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| 1.6.7 | <p>2/28/2017</p> <ul style="list-style-type: none"> • NOTE: Tomcat starts slower in this release, give it 3 minutes to completely start up after doing a "pentaho start" • *** This version is compatible with Java 8 *** • *** This version is compatible with Tomcat 7 *** • Added the ability for users to change their passwords from a web page. • Enforce a minimum password length of 6 characters (adjustable). • Removed default Tomcat websites (like admin, examples, docs, etc.) • Updated versions of underlying software, this provides bug fixes, performance increases, and security improvements: <ul style="list-style-type: none"> - Java -> 8.0.121 (OpenJDK) - Postgres -> 9.5.5 - Tomcat -> 7.0.75 • Re-enabled compression of data transport in Tomcat. • Adjusted garbage collection in JVM to the default of every 60 seconds. This should help with Java heap OutOfMemoryError issues. • Added the ability to get garbage collection statistics in start-pentaho.sh • Removed the really old embedded JRE. • Adjusted startup scripts to be compatible with Java 8. |
| 1.6.6 | <p>4/22/2016</p> <ul style="list-style-type: none"> • *** This version is compatible with Linux 7 *** • updated versions of underlying software, this provides bug fixes, performance increases, and security improvements: <ul style="list-style-type: none"> - Java -> 7.0.101 (OpenJDK) - Postgres -> 9.5.2 |
| 1.6.5 | <p>3/18/2016</p> <ul style="list-style-type: none"> • Fixed a bug in upgrades that did not handle null dimensions correctly. • Increased the size of the import history ech file from char(12) to char(50) |
| 1.6.4 | <p>3/02/2016</p> <ul style="list-style-type: none"> • eliminated unnecessary lookups for unknown keys - improving ETL speed • updated versions of underlying software, this provides bug fixes, performance increases, and security improvements: <ul style="list-style-type: none"> - Java -> 7.0.95 (OpenJDK) - Tomcat -> 6.0.45 - Postgres -> 9.5.1 • Updates for R18: <ul style="list-style-type: none"> - orig_attrib_id from integer to char(20) - ans_attrib_id from integer to char(20) - obs_attrib_id from integer to char(20) - added tenant_num as an integer • Increased synonym field sizes in the database • Modified JAVA_HOME to be /etc/alternatives/jre |

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| | <ul style="list-style-type: none"> Upgraded Postgres from 8.4 to 9.5. This is not required for upgrades, but is highly recommended. Included a new dimension for tenant partitioning in the ad-hoc report and the corresponding synonyms information from the CMS .dat file |
| 1.6.0 – 1.6.3 | Development Builds (not released publicly) <ul style="list-style-type: none"> Optimizing ETL and upgrading Postgres |
| 1.5.1 | 12/22/2014 <ul style="list-style-type: none"> *** Added support for CentOS and OpenJDK *** updates to the load_ech.sh script so that two processes cannot run at the same time. updated versions of underlying software, this provides bug fixes, performance increases, and security improvements: <ul style="list-style-type: none"> - Java -> 7.0.79 (OpenJDK) fixed a bug in the SQL code where the LIMIT statement was not functioning correctly. Added ORDER BY segmentstopdatekey and segmentstoptimekey to the embedded SQL query. removed callsegmentfact indexes: <ul style="list-style-type: none"> - idx_segmentstopdate (segmentstopdatekey) - idx_segmentstoptime (segmentstoptimekey) added callsegmentfact index: <ul style="list-style-type: none"> - idx_callsegmentstopdatetime (segmentstopdatekey,segmentstoptimekey) This index seems to perform better in real-world testing |
| 1.5.0 | 7/15/2014 <ul style="list-style-type: none"> added a new view "ech_view" to convert the dimensional data back into a relational format. This can be used for direct reporting or exporting the ECH data to other databases. change the way duplicate chr files are identified. The old way used the file name and first 50 characters. The new way only uses the first 50 characters. This allows for the chr files to be sent using the unique naming process in ECH handler (the file is named with the timestamp of when it is transferred) updated versions of underlying software, this provides bug fixes, performance increases, and security improvements: <ul style="list-style-type: none"> - Java -> 7.0.65 - Postgres -> 8.4.21 load_ech.sh now strips out any null characters from files before loading load_ech.sh no longer clears out tmp_archive files older than 30 days added a button to the Admin Console to close the browser window. This does not work for some browsers or security settings. the GetSetSemaphore transformation used to reset after two hours. It has now been changed to reset after 12 hours of runtime. added segmentstarttime and segmentstoptime columns to all the reports and made them the default for date/time sorting |

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| | <ul style="list-style-type: none"> two new indexes in callsegmentfact: segmentstarttime and segmentstoptime this is for queries that take advantage of the ech_view |
| 1.4.2 | 12/16/2013 <ul style="list-style-type: none"> updated versions of underlying software, this provides bug fixes, performance increases, and security improvements: <ul style="list-style-type: none"> - Java -> 7.0.45 - Postgres -> 8.4.19 fixed a minor bug in the load filters list where the last element was not displayed correctly when scrolling. set the umask to 022 in load_ech.sh modified the standard reports to rearrange the data items for readability and added a few missing items. updated the HTTPS certificates to be 2048 bit RSA with SHA256 signatures |
| 1.4.1 | 9/19/2013 <ul style="list-style-type: none"> updated versions of underlying software, this provides bug fixes, performance increases, and security improvements: <ul style="list-style-type: none"> - Java -> 7.0.40 updated load_ech.sh to attempt to determine a bad file and place them into the bad_files directory instead of stopping processing. Files in the bad_files directory will be removed after 30 days. |
| 1.4.0 | 5/23/2013 <ul style="list-style-type: none"> updated versions of underlying software, this provides bug fixes, performance increases, and security improvements: <ul style="list-style-type: none"> - Tomcat -> 6.0.37 - Postgres -> 8.4.17 - Java -> 7.0.21 added support for new CMS R17 ECH data items: <ul style="list-style-type: none"> - orig_attrib_id - Originating Agent Attribute - ans_attrib_id - Answering Agent Attribute - obs_attrib_id - Observing Agent Attribute additional log truncating in the start_pentaho.sh file load_ech.sh modified to skip zero length files and to convert characters to UTF-8 before loading the .dat files |
| 1.3.8 | 12/20/2012 <ul style="list-style-type: none"> updated versions of underlying software, this provides bug fixes, performance and security improvements: <ul style="list-style-type: none"> - Tomcat -> 6.0.36 - Postgres -> 8.4.15 - Java -> 6.0.38 fixed a bug where the default webpage would not redirect correctly disabled weak ciphers in Tomcat when using SSL |

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| 1.3.7 | 11/30/2012 <ul style="list-style-type: none"> • updated versions of underlying software, this provides many bug fixes, performance and security improvements: <ul style="list-style-type: none"> - Tomcat -> 5.5.36 - Java -> 6.0.37 • fixed a bug in c2getl where the JDBC connection was not closed • updated the admin manual that is embedded |
| 1.3.6 | 10/01/2012 <ul style="list-style-type: none"> • updated versions of underlying software, this provides many bug fixes, performance and security improvements: <ul style="list-style-type: none"> - Postgres -> 8.4.14 - Java -> 6.0.35 • modified the sort order of the columns to have Contact ID and UCID right after the start and end times in the reports. • modified start_pentaho.sh to remove temporary files on startup: <ul style="list-style-type: none"> - \$CA_HOME/biserver-ce/tomcat/temp/*.log - \$CA_HOME/biserver-ce/tomcat/temp_pentaho/ehcache* • modified start_pentaho.sh to remove log files older than 30 days: <ul style="list-style-type: none"> - \$CA_HOME/biserver-ce/tomcat/logs/*.log - \$CA_HOME/biserver-ce/tomcat/bin/pentaho.log* |
| 1.3.5 | 8/31/2012 <ul style="list-style-type: none"> • updated Java to 6.0.34 • updated Postgres to 8.4.13 • numerous bug fixes • updated load_ech.sh to skip only one bad_row at a time instead of the entire file. Also fixed some other bugs. • added the ability to delete a filter from the "load filter" window • modified the "load filter" window to a fixed size and allow for scrolling • updated the user and admin guide that are embedded in the web menus |
| 1.3.4 | 8/01/2012 <ul style="list-style-type: none"> • updated Java to 6.0.33 • modified the saved filters to sort by name (lexical not alphabetical) • removed a really old embedded version of JRE that was included in the rpm |
| 1.3.3 | 6/21/2012 <ul style="list-style-type: none"> • updated postgres to 8.4.12 • updated Java to 6.0.32 • modified load_ech.sh to sleep for 10 seconds to wait for transfers to finish. Also, files where the version cannot be determined are now skipped • fixed a bug in echLookup where the JDBC connection was not closed correctly before exiting, causing this error message in the Postgres logs: <ul style="list-style-type: none"> - unexpected EOF on client connection |

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| 1.3.2 | 4/13/2012 <ul style="list-style-type: none"> • modified the SQL to sort results by startdate, then starttime • updated the support scripts in \$CA_HOME/support • added the user guide to the menu: help->documentation in the user console • added a link to the admin guide to the bottom of the admin console |
| 1.3.1 | 3/06/2012 <ul style="list-style-type: none"> • updated postgres to 8.4.11 • updated java to 6.0.31 • added tools to help services with troubleshooting • added "Total Records:" to the bottom of each report, replacing the date • modified load_ech.sh so that it determines the ECH format automatically. There is no need for the version.env files anymore • modified the acd search in the Input Filter screen to include the cms name • modified the sort order in the Input Filter screen to be more sane |
| 1.3.0 | 1/25/2012 <ul style="list-style-type: none"> • updated versions of underlying software, this provides many bug fixes, performance and security improvements: <ul style="list-style-type: none"> - Tomcat -> 5.5.35 - Jetty -> 6.1.26 - Postgres -> 8.4.10 - Java -> 6.0.30 - JDBC -> 9.1.901 • added support for 16.3 CMS and the additional ICR fields: <ul style="list-style-type: none"> - icresent - yes or no, defaults to no - icrpullreason - a new dimensional data item only the AdHoc report was modified to contain these new items • cleaned up unused Kettle transformations • updated transformations to delete tmp table contents before starting • updated load_ech.sh: <ul style="list-style-type: none"> - more robust, more error handling - truncate tables instead of "delete from" - this is faster • fixed a bug where no data was returned when the same value existed across multiple ACD's. Changed the SQL search string to use "IN" instead of "=" • disabled the Quartz job 'PentahoSystemVersionCheck'. This will take that job out of the admin console list • fixed a bug in adhoc where the items appear too far to the right and the vertical scroll bar would be off the screen • various other bug fixes and minor updates |
| 1.2.2 | 10/13/2011 <ul style="list-style-type: none"> • updated start-pentaho.sh to allocate half of physical RAM to JVM space for 64-bit and 2GB for 32-bit |

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| | <ul style="list-style-type: none"> adjusted JVM heap minimum size, increased MaxPermSize, added AgressiveHeap and UseParallelGC for 64-bit recompiled with target and source set to 1.6 in order to take advantage of improvements in JAVA 6 updated etl.conf to allow customer to change the postgres password without it affecting ETL. ETL now uses aha_admin user instead of postgres user increased Jetty JVM settings: <ul style="list-style-type: none"> - added -server option - increased MaxPermSize to 256M additional logging for ETL |
| <p>1.2.1</p> | <p>08/23/2011 - 8/29/2011</p> <ul style="list-style-type: none"> modified the start page wording and included the version number HTTPS is now available in addition to HTTP (see Security file) minor bug fixes in the reports and web interface increased the default Java VM max size to 2GB from 1GB added "-server" and "-d64" JVM flags for performance improvement modified Flex reports to remove "Source:" and "View Precedence" items reorganized the folders in the User Console to be more clear the three main folders are now "Ad-Hoc" "Call Profile" and "Standard" enabled gzip compression for the user console. This allows for the faster transfer of large amounts of report data from the server to the client added the number of rows returned from a query to the pentaho.log added the xml byte size of the query to the pentaho.log updated Adobe Flex to version 3.6.0 added a limit to the "Maximum results to display" of 6 digits (999999) fixed a bug where "Non-ACD Calls" in the dispdim table was causing errors in the underlying SQL code. Changed it to "Non ACD Calls" |
| <p>1.2.0</p> | <p>7/19/2011</p> <ul style="list-style-type: none"> modified java code to support UTF-8 characters in the dimension names modified dimension names to have space, cms name, underscore, and acd appended. For example, "Billing" would become "Billing r3abcde_1" This allows for the same name to be used across multiple acd's fixed a bug in load_ech.sh that would cause null etlhistory records removed printPDF button from the reports since it is not working tested with Google Chrome version 12 modified the "look and feel" to be Avaya like instead of Pentaho removed buttons from toolbar that did not do anything |
| <p>1.1.0</p> | <p>6/30.2011</p> <ul style="list-style-type: none"> added many indexes to increase ETL and reporting performance modified the user console to say Avaya instead of Pentaho added more output columns in the standard reports |

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| | <ul style="list-style-type: none"> • fixed many minor bugs • fixed bug where ad-hoc report would not run when selecting all columns • fixed XUL error when starting user console • fixed semaphore colision that caused ETL to stop processing new ECH records • added a check on startup so that null etlhistory entries are fixed |
| 1.0.9 | 3/22/2011 <ul style="list-style-type: none"> • updated to include /etc/init.d/pentaho startup script • new start-pentaho.sh and stop-pentaho.sh scripts • new table update script for upgrades from a previous release • updates so duplicate files are not re-processed • updated load_ech.sh and import_ech scripts |
| 1.0.8 | 3/8/2011 <ul style="list-style-type: none"> • many minor bug fixes |
| 0.0.7 | 1/3/2011 <ul style="list-style-type: none"> • some bug fixes for reports |
| 0.0.3-0.0.6 | 11/29/2010 <ul style="list-style-type: none"> • lots of minor bug fixes • allow CA to be installed in a different directory on Linux server |
| 0.0.2 | 7/27/2010 <ul style="list-style-type: none"> • Initial Version |