ASCEND
HEALTH INFORMATION TECHNOLOGY

ASCEND CV / Agfa
Pre-Production to Production & Test Migration Procedures

11/03/2021

Version 1

Table of Contents

Overall Approach

ASCEND CV is initially deployed in pre-production on the production VMs, running in a client site's VCenter environment.

The process described in this document involves shutting down and cloning the pre-production environment to the test servers, then bringing up and reconfiguring these test servers to run as the test environment, all which occurs prior to go-live. Testing with the site should then be done to confirm success.

The production environment is then brought back up and reconfigured to interface with other production interfaces and servers, and 'scrubbed' of test clinical data. The scrubbing process preserves clinical configurations (users, facilities, reporting modules). As part of Go-Live, basic validation tests are run to ensure that the production environment is working correctly.

Prerequisites and Assumptions

The following assumptions have been made:

1. All existing VMs are on production hardware
2. All existing hosted DBs are on the production cluster
3. Pre-production VMs can be shut down
4. Cloning from production cluster to test cluster is possible

The following information is needed:

1. Name and IP of the new Database Server (if changed):
2. Name of the new ASCEND CV test database: **AscendCV_Test**
3. Name of the new ASCEND Analytics test database: **AscendAnalytics_Test**
4. Name of the new ASCEND Datamart test database: **AscendDataMart_Test**
5. Name of the new ASCEND Stratus test database: **AscendStratus_Test**
6. Name of the new TMMS test database: **TTADB_Test**
7. Name and IP of the new ASCEND CV Core Server:
8. Name and IP of the new ASCEND CV Interface Server:
9. Name and IP of any new ASCEND CV Reporting Servers:

Pre Go-Live Migration Steps

The following outlines the steps required to migrate pre-production ASCEND CV to test.

Clone Pre-Production to Test and Reconfigure for Test Environment

Database (Hosted)

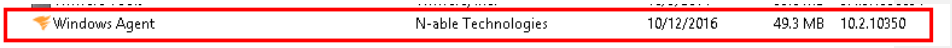
The following to be performed by Site IT:

1. The ASCEND CV database **AscendCV** is backed up.
2. The ASCEND CV database is restored to the test database server as **AscendCV_Test.**
3. The ASCEND Analytics database **AscendAnalytics** is backed up.
4. The ASCEND Analytics database is restored to the test database server as **AscendAnalytics_Test after installation of a clean ASCEND Analytics.**
5. The test databases should be set to **Simple** recovery model **or** the site IT should have a backup or truncate strategy for the transaction log.

Database (Stand-alone)

The following to be performed by Site IT:

1. Shut down the ASCEND Database Server
2. Clone the ASCEND Database Server to a new test Database Server
3. Modify the MAC/IP address on the new test Database Server
4. Start the new test Database Server
5. Modify the computer name of the new test Database Server
6. Uninstall N-Central Agent application if installed via Control Panel -> Uninstall a program and removing **ONLY** the following item from the list:



The following to be performed by ASCEND:

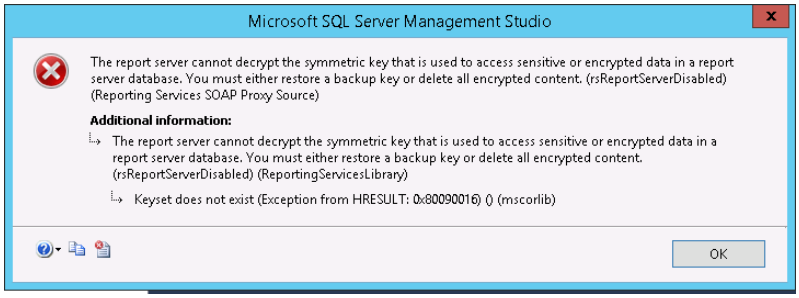
7. Install the N-Central Agent application on the new test Database Server
   Be sure to log into the test server instance when logging into MSSQL – it will default to the prod servername since it was cloned from it!
8. Rename **AscendCV** database to **AscendCV_Test.**
9. The AscendCV_Test database should be set to Simple recovery model
10. Rename the ASCEND Analytics database to **AscendAnalytics_Test**
11. The **AscendAnalytics_Test** database should be set to Simple recovery model
12. Because there are many objects in Stratus and Data Mart that reference data in AscendCV, we re-install those products. In Analytics, to preserve the data already loaded, we need to change some objects to point to the correct place in Ascend CV. Update ASCEND Analytics test database views to point to AscendCV_Test database by changing all instances of "**AscendCV**" to "**AscendCV_Test**." The following list details all the views that need to be updated. Right-click on each view and select Design, or right-click on the function and choose Modify:

    CAFunction_StudyPersonnel_IDs_Internal (Programmability/Functions/Table-valued Functions)
    GetOemReportUrl (Programmability/Functions/Scalar-valued Functions)
    CACustomerView_BillingAndPerformance
    CAView_AllStudies
    CAView_Facilities
    CAView_LastConfirmingPhysician
    CAView_Patients
    CAView_StudyEventDateTimes
    CAView_StudyPersonnel
    CAView_StudyPersonnel_IDs_Internal
    CAView_UnconfirmedStudies
    CAView_UnconfirmedStudiesXml

13. Install Stratus in the test environment – use the settings for the test server, use the real customer name, use TEST (or something unique for that environment if they have multiple test environments and you want to keep them distinct), and get an activation and cloud zip key for that customer/environment so that the data can go to the cloud if you want.
14. Install Data Mart in the test environment – use similar settings for the test server.

NOTE: You may get an error when you first try to access the AscendAnalytics_Test database. If you get the following error message, please see Appendix A for instructions on how to delete

the encryption key.



15. There are several tables in AscendCV which have triggers to update Ascend Analytics and Ascend Data Mart. These need to be updated in SSMS.

Commented [JS1]: How are these updated and what do they need to be updated to?

Table Name	Trigger Name
Admission	Admission_DataMartNotify
AuditLog	AuditLog_DataMartNotify
Case	Case_DataMartNotify
Patient	Patient_DataMartNotify
PatientIdentifier	PatientIdentifier_DataMartNotify
Provider	Provider_DataMartNotify
Study	Study_DataMartNotify
StudyInstance	StudyInstance_DataMartNotify
StudyParticipantRole	OEMTrigger_CAPersisted_StudyPersonnel_IDs
StudyParticipantRole	StudyParticipantRole_DataMartNotify

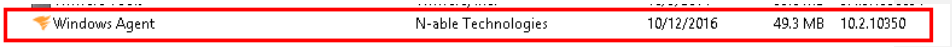
16. Update SSRS database setting (via Reporting Services Configuration Manager) to point to the test database server and the ReportServer database – using Service Account and NT Service\ReportServer under the Current Report Server Database Credential section
17. Log into the test database report server URL (the clone will default to the pre-prod server's URL) and click on the Details View to unhide Data Sources and update the CA_DS connection string to point to the test database server and the AscendAnalytics_Test database.
18. Test Connection and Apply changes.
19. Hide Data Sources via Right-click -> Manage

Reporting Server

Commented [JS2]: Need instructions for the Core server

The following to be performed by Site IT:

1. Shut down the ASCEND Reporting Server
2. Clone the ASCEND reporting server to a new test Reporting Server
3. Modify the MAC/IP address on the new test Reporting Server
4. Start the new test ASCEND Reporting Server
5. Modify the computer name of the new test Reporting Server
6. Uninstall N-Central Agent application if installed via Control Panel -> Uninstall a program and removing **ONLY** the following item from the list:



The following to be performed by ASCEND on the new test Reporting Server:

7. Install the N-Central Agent application on the new test Reporting Server
8. Stop the service **ASCEND CV Lock Service**
9. Stop the service **World Wide Web Publishing Service**
10. Change the database connections to the test Database Server and the **AscendCV_Test** database
    a. Change the bolded values in C:\inetpub\wwwroot\AscendHiT.AscendCV\Web.config and C:\inetpub\wwwroot\AscendHiT.AscendCV.ImportListener\Web.config
    <connectionStrings>
    <add name="AscendCV_Entities" connectionString="Data Source=**testDBServer;** Initial Catalog=**AscendCV_Test**; User Id=**user**; password=**password;** MultiSubnetFailover=False; MultipleActiveResultSets=True; Min Pool Size=1; Max Pool Size=100; Connection Timeout=15; Pooling=true; app=AscendWebsite" providerName="System.Data.SqlClient" />
    </connectionStrings>
    b. Update the test interface server name under:
    <applicationSettings>
    <AscendHiT.AscendCV.ImportListener.Properties.Settings>
    <setting name="DicomSRInDirectory" serializeAs="String">
    <value>**testinterfaceserver**\DICOMSRIn</value>
    </setting>
    <setting name="DicomSCInDirectory" serializeAs="String">
    <value>**testinterfaceserver**\DICOMSCIn\</value>
    </setting>
    c. Change the bolded values in C:\Program Files\ASCEND HIT\AscendHiT.AscendCV.ReportWizardService\bin\AscendHit.AscendCV.ReportWizardService.exe.config

<connectionStrings>
<add name="AscendCV_Entities" connectionString="Data Source=**testDBServer**; Initial Catalog=**AscendCV_Test**; User Id=**user**; password=**password**; MultiSubnetFailover=False; MultipleActiveResultSets=True; Min Pool Size=1; Max Pool Size=100; Connection Timeout=15; Pooling=true;app=ReportWizardService" providerName="System.Data.SqlClient" />
</connectionStrings>

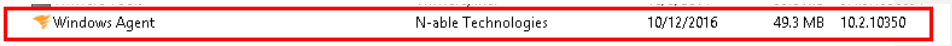
d. Change the bolded values in C:\Program Files\ASCEND HIT\AscendHiT.LockProvider.Server\bin\AscendHiT.LockProvider.Server.exe.config
<connectionStrings>
<add name="AscendCV_Entities" connectionString="Data Source=**testDBServer**; Initial Catalog=**AscendCV_Test**; User Id=**user**; password=**password**; MultiSubnetFailover=False; MultipleActiveResultSets=True; Min Pool Size=1; Max Pool Size=100; Connection Timeout=15; Pooling=true;app=ReportWizardService" providerName="System.Data.SqlClient" />
</connectionStrings>
e. Remove the production server instance from IIS and connect to the test server.
f. Remove the server certificate pointing to the production reporting server from Server Certificates and request (or install if already available) a new cert for test.
g. Restart IIS

11. Restart the test Reporting Server
12. Ensure reporting services are up and running and log into the ACV URL
13. Update the ASCEND Analytics connection string and URL in the Administrator Settings tab to point to the test ASCEND Analytics DB
14. Update the ASCEND Data Mart connection string in the Administrator Settings tab to point to the test ASCEND Data Mart DB
15. Update the Catalyst URL, ID, and secret to point to a test Catalyst in the Administrator Settings tab to point to the test Catalyst server
16. Update the Stratus settings

Interface Server

The following to be performed by Site IT:

1. Shut down the ASCEND Interface Server
2. Clone the ASCEND interface server to a new test Interface Server
3. Modify the MAC/IP address on the new test Interface Server
4. Start the new test ASCEND Interface Server
5. Modify the computer name of the new Interface Server
6. Uninstall N-Central Agent application if installed via Control Panel -> Uninstall a program and removing **ONLY** the following item from the list:



The following to be performed by TOMTEC:

7. A new TOMTEC TMMS license will need to be acquired for the new test Interface Server. Run the LicenseManager on the new server, then request and install the new license file from TOMTEC.
    a. Update the TMMS database to use **TTADB_Test** as the database name
    b. Change the test TMMS to point to the test PACS

The following to be performed by ASCEND:

8. Remove N-Central Probe from the new Interface Server
9. Remove and re-install the N-Central Agent application on the new test Interface Server
10. Where X is the drive where Ensemble was installed, delete the following file: **X:\InterSystems\HealthShare\mgr\cache.ids**
11. Start Healthshare
12. Change the database connections to the test Database Server and the **AscendCV_Test** database.
    c. Change ODBC **AscendCV** System DSN used by Ensemble
    d. Change the SQL login credentials to test credentials in **SourceDataToDBOperation via the Healthshare Management Portal (Ensemble->Configure-> Credentials)** if necessary
13. Change the test PACS to point to the test TMMS
14. Change the outbound HL7 connections
15. Restart the test Interface Server

ACV Desktop

1. Update the installations of ACV Desktop to point to the test reporting server.

Testing

1. Test in the following order: reporting, ensemble, TMMS, TOMTEC re-measurement.
2. Coordinate with the site's clinical resource to perform testing, which should confirm that both Ascend and external systems in the test environment are correctly connected and working.
3. Upon successful completion of testing, restart the pre-production Stand-alone Database Server (if any), Reporting Server(s), and Interface Server.

Pre-production to Production Migration Steps

The following outlines the steps required to migrate pre-production to production.

1. TOTMEC to configure TMMS to the production PACS
2. Agfa to configure production PACS to the TMMS
3. Configure devices to the production shares
4. Execute the scrub DB script
5. Delete any unused test users
6. Delete any unused procedure USIDs
7. Coordinate with the site's clinical resource to perform testing, which should confirm that both Ascend and external systems in the production environment are correctly pointed and working. While some sites will resist entering any test data into their production environment, the risks of waiting for a live patient should be discussed prior to cutover.

Post Go-Live Migration Steps

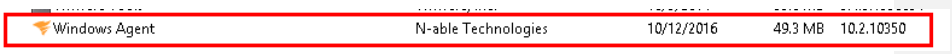
The following outlines the steps required to migrate a Production ASCEND CV to test environment.

Clone Production to Test and Reconfigure for Test Environment

Database Server

The following to be performed by Site IT:

1. Shut down the ASCEND Database Server
2. Clone the ASCEND Database Server to a new test Database Server
3. Modify the MAC/IP address on the new test Database Server
4. Start the new test Database Server
5. Modify the computer name of the new test Database Server
6. Uninstall N-Central Agent application if installed via Control Panel -> Uninstall a program and removing **ONLY** the following item from the list:



The following to be performed by ASCEND:

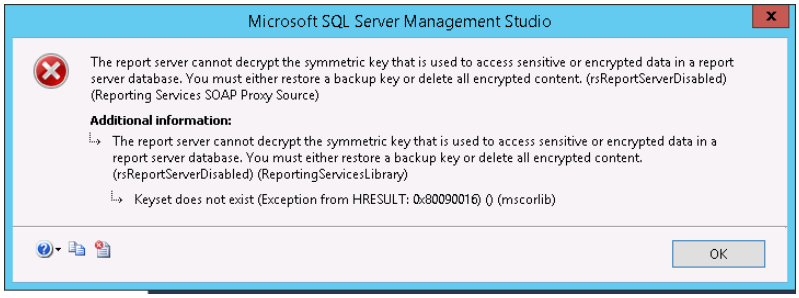
7. Install the N-Central Agent application on the new test Database Server
   Be sure to log into the test server instance when login into MSSQL – it will default to the prod servername since it was cloned from it!
8. Rename AscendCV database to **AscendCV_Test.**
9. The ASCEND CV test database should be set to Simple recovery model
10. Rename the ASCEND Analytics database to **AscendAnalytics_Test**
11. The **AscendAnalytics_Test** database should be set to Simple recovery model
12. Because there are a large number of objects in Stratus and Data Mart that reference data in AscendCV, we re-install those products. In Analytics, in order to preserve the data already loaded, we need to change some objects to point to the correct place in Ascend CV. Update ASCEND Analytics test database views to point to AscendCV_Test database by changing all instances of "**AscendCV**" to "**AscendCV_Test**." The following list details all the views that need to be updated. Right-click on each view and select Design, or right-click on the function and choose Modify:

    CAFunction_StudyPersonnel_IDs_Internal (Programmability/Functions/Table-valued Functions)
    GetOemReportUrl (Programmability/Functions/Scalar-valued Functions)
    CACustomerView_BillingAndPerformance
    CAView_AllStudies
    CAView_Facilities
    CAView_LastConfirmingPhysician
    CAView_Patients
    CAView_StudyEventDateTimes
    CAView_StudyPersonnel
    CAView_StudyPersonnel_IDs_Internal
    CAView_UnconfirmedStudies
    CAView_UnconfirmedStudiesXml

13. Install Ascend Analytics in the test environment – use settings for the test server, the test Ascend CV database and the test SSRS database.
14. Install Stratus in the test environment – use the settings for the test server, use the real customer name, use TEST (or something unique for that environment if they have multiple test environments and you want to keep them distinct), and get an activation and cloud zip key for that customer/environment so that the data can go to the cloud if you want.
15. Install Data Mart in the test environment – use similar settings for the test server.

NOTE: You may get an error when you first try to access the AscendAnalytics_Test database. If you get the following error message, please see Appendix A for instructions on how to delete

the encryption key.



16. There are several tables in AscendCV which have triggers to update Ascend Analytics and Ascend Data Mart. These need to be updated in SSMS.

Commented [JS3]: Need the same instructions requested above for here.

Table Name	Trigger Name
Admission	Admission_DataMartNotify
AuditLog	AuditLog_DataMartNotify
Case	Case_DataMartNotify
Patient	Patient_DataMartNotify
PatientIdentifier	PatientIdentifier_DataMartNotify
Provider	Provider_DataMartNotify
Study	Study_DataMartNotify
StudyInstance	StudyInstance_DataMartNotify
StudyParticipantRole	OEMTrigger_CAPersisted_StudyPersonnel_IDs
StudyParticipantRole	StudyParticipantRole_DataMartNotify

17. Update SSRS database setting (via Reporting Services Configuration Manager) to point to the test database server and the ReportServer database – using Service Account and NT Service\ReportServer under the Current Report Server Database Credential section
18. Log into the test database report server URL (the clone will default to the pre-prod server's URL) and click on the Details View to unhide Data Sources and update the CA_DS connection string to point to the test database server and the AscendAnalytics_Test database.
19. Test Connection and Apply changes.
20. Hide Data Sources via Right-click -> Manage

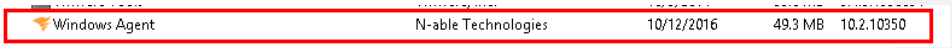
Reporting Server

Commented [JS4]: Need instructions for the Core Server (which this looks like it probably is?) and Reporting Nodes.

Commented [JS5]: Import Export service

The following to be performed by Site IT:

1. Set the ASCEND CV Lock Service to Manual Startup
2. Set the ASCEND CV Reporting Service to Manual Startup
3. Set the World Wide Web Publishing Service to Manual Startup
4. Shut down the ASCEND Reporting Server
5. Clone the ASCEND reporting server to a new test Reporting Server
6. Modify the MAC/IP address on the new test Reporting Server
7. Start the new test ASCEND Reporting Server
8. Modify the computer name of the new test Reporting Server
9. Uninstall N-Central Agent application if installed via Control Panel -> Uninstall a program and removing **ONLY** the following item from the list:



The following to be performed by ASCEND on the new test Reporting Server:

10. Install the N-Central Agent application on the new test Reporting Server
11. Change the database connections to the test Database Server and the **AscendCV_Test** database
    a. Change the bolded values in
    C:\inetpub\wwwroot\AscendHiT.AscendCV\Web.config and
    C:\inetpub\wwwroot\AscendHiT.AscendCV.ImportListener\Web.config
    <connectionStrings>
    <add name="AscendCV_Entities" connectionString="Data Source=**testDBServer;** Initial Catalog=**AscendCV_Test**; User Id=**user**; password=**password;** MultiSubnetFailover=False; MultipleActiveResultSets=True; Min Pool Size=1; Max Pool Size=100; Connection Timeout=15; Pooling=true; app=AscendWebsite" providerName="System.Data.SqlClient" />
    </connectionStrings>
    b. Update the test interface server name under:
    <applicationSettings>
    <AscendHiT.AscendCV.ImportListener.Properties.Settings>
    <setting name="DicomSRInDirectory" serializeAs="String">
    <value>**testinterfaceserver**\DICOMSRIn</value>
    </setting>
    <setting name="DicomSCInDirectory" serializeAs="String">
    <value>**testinterfaceserver**\DICOMSCIn\</value>
    </setting>
    c. Change the bolded values in C:\Program Files\ASCEND HIT\AscendHiT.AscendCV.ReportWizardService\bin\ AscendHit.AscendCV.ReportWizardService.exe.config

<connectionStrings>
<add name="AscendCV_Entities" connectionString="Data Source=**testDBServer**; Initial Catalog=**AscendCV_Test**; User Id=**user**; password=**password**; MultiSubnetFailover=False; MultipleActiveResultSets=True; Min Pool Size=1; Max Pool Size=100; Connection Timeout=15; Pooling=true;app=ReportWizardService" providerName="System.Data.SqlClient" />
</connectionStrings>

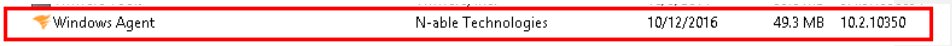
d. Change the bolded values in C:\Program Files\ASCEND HIT\AscendHiT.LockProvider.Server\bin\AscendHiT.LockProvider.Server.exe.config
<connectionStrings>
<add name="AscendCV_Entities" connectionString="Data Source=**testDBServer**; Initial Catalog=**AscendCV_Test**; User Id=**user**; password=**password**; MultiSubnetFailover=False; MultipleActiveResultSets=True; Min Pool Size=1; Max Pool Size=100; Connection Timeout=15; Pooling=true;app=ReportWizardService" providerName="System.Data.SqlClient" />
</connectionStrings>
e. Remove the production server instance from IIS and connect to the test server.
f. Remove the server certificate pointing to the production reporting server from Server Certificates and request (or install if already available) a new cert for test.
g. Restart IIS

12. Set the ASCEND CV Lock Service to Automatic (Delayed Start)
13. Set the ASCEND CV Reporting Service to Automatic (Delayed Start)
14. Set the World Wide Web Publishing Service to Automatic
15. Restart the test Reporting Server
16. Ensure reporting services are up and running and log into the ACV URL
17. Update the ASCEND Analytics connection string and URL in the Administrator Settings tab to point to the test ASCEND Analytics DB
18. Update the Catalyst URL, ID, and secret to point to a test Catalyst in the Administrator Settings tab to point to the test Catalyst server
19. Update the Stratus settings

Interface Server

The following to be performed by Site IT:

1. Shut down the ASCEND Interface Server
2. Clone the ASCEND interface server to a new test Interface Server
3. Modify the MAC/IP address on the new test Interface Server
4. Start the new test ASCEND Interface Server
5. Modify the computer name of the new Interface Server
6. Uninstall N-Central Agent application if installed via Control Panel -> Uninstall a program and removing **ONLY** the following item from the list:



The following to be performed by TOMTEC:

7. A new TOMTEC TMMS license will need to be acquired for the new test Interface Server. Run the LicenseManager on the new server, then request and install the new license file from TOMTEC.
    e. Update the TMMS database to use **TTADB_Test** as the database name—
    f. Change the test TMMS to point to the test PACS

The following to be performed by ASCEND:

8. Remove N-Central Probe from the new Interface Server
9. Remove and re-install the N-Central Agent application on the new test Interface Server
10. Where X is the drive where Ensemble was installed, delete the following file: "X:\InterSystems\HealthShare\mgr\cache.ids"
11. Start Healthshare
12. Change the database connections to the test Database Server and the **AscendCV_Test** database.
    g. Change ODBC **AscendCV** System DSN used by Ensemble
    h. Change the SQL login credentials to test credentials in **SourceDataToDBOperation via the Healthshare Management Portal (Ensemble->Configure-> Credentials)** if necessary
13. Change the test PACS to point to the test TMMS
14. Restart the test Interface Server
15. Install the N-Central Agent application on the production Interface Server

ACV Desktop

1. Update the installations of ACV Desktop to point to the test reporting server.

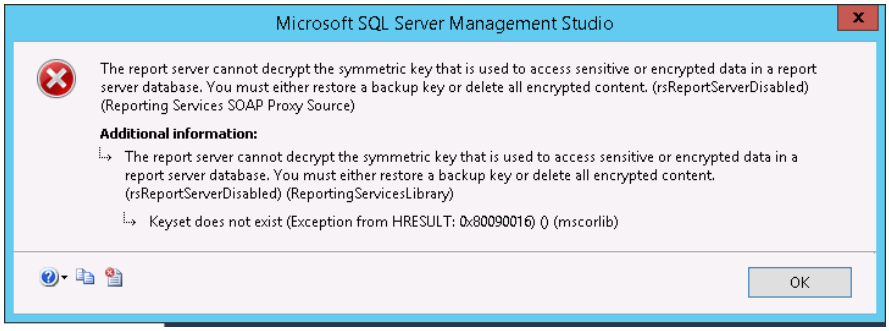
Testing

1. Test in the following order: Reporting, Ensemble, TMMS, TOMTEC re-measurement.

Coordinate with the site's clinical resource to perform testing, which should confirm that both Ascend and external systems in the test environment are correctly pointed and working

Appendix A: Deleting SSRS Encryption Key

Occasionally, when restoring the AscendAnalytics database, you will receive an error about a symmetric key that cannot be decrypted. If you receive this error, the only option to get the database into a working state is to delete the encryption key and recreate it. The following appendix details steps on how to do so.



1. Start the Reporting Services Configuration tool, and then connect to the report server instance you want to configure.
2. Click **Encryption Keys,** and then click **Delete**. Click **OK.**
3. Restart the Report Server Windows service. You should no longer get the error.

Appendix B: Transferring SQL Logins Between Servers

Prerequisites

1. Backup of ASCEND CV database, already transferred to the new SQL server
2. Remote access to the old SQL server (Server A) and the new SQL server (Server B)
3. SA Credentials

Old SQL Server (Server A)

1. On **server A**, start **SQL Server Management Studio**.
2. Open a new **Query Editor** window, and then run the following script to add two stored procedures that will be used to recover logins:

```
USE master
GO
IF OBJECT_ID ('sp_hexadecimal') IS NOT NULL
  DROP PROCEDURE sp_hexadecimal
GO
CREATE PROCEDURE sp_hexadecimal
    @binvalue varbinary(256),
    @hexvalue varchar (514) OUTPUT
AS
DECLARE @charvalue varchar (514)
DECLARE @i int
DECLARE @length int
DECLARE @hexstring char(16)
SELECT @charvalue = '0x'
SELECT @i = 1
SELECT @length = DATALENGTH (@binvalue)
SELECT @hexstring = '0123456789ABCDEF'
WHILE (@i <= @length)
BEGIN
  DECLARE @tempint int
  DECLARE @firstint int
  DECLARE @secondint int
  SELECT @tempint = CONVERT(int, SUBSTRING(@binvalue,@i,1))
  SELECT @firstint = FLOOR(@tempint/16)
  SELECT @secondint = @tempint - (@firstint*16)
  SELECT @charvalue = @charvalue +
    SUBSTRING(@hexstring, @firstint+1, 1) +
    SUBSTRING(@hexstring, @secondint+1, 1)
  SELECT @i = @i + 1
END

SELECT @hexvalue = @charvalue
GO
```

```
IF OBJECT_ID ('sp_help_revlogin') IS NOT NULL
  DROP PROCEDURE sp_help_revlogin
GO
CREATE PROCEDURE sp_help_revlogin @login_name sysname = NULL AS
DECLARE @name sysname
DECLARE @type varchar (1)
DECLARE @hasaccess int
DECLARE @denylogin int
DECLARE @is_disabled int
DECLARE @PWD_varbinary  varbinary (256)
DECLARE @PWD_string  varchar (514)
DECLARE @SID_varbinary varbinary (85)
DECLARE @SID_string varchar (514)
DECLARE @tmpstr  varchar (1024)
DECLARE @is_policy_checked varchar (3)
DECLARE @is_expiration_checked varchar (3)

DECLARE @defaultdb sysname

IF (@login_name IS NULL)
  DECLARE login_curs CURSOR FOR

      SELECT p.sid, p.name, p.type, p.is_disabled, p.default_database_name,
l.hasaccess, l.denylogin FROM
sys.server_principals p LEFT JOIN sys.syslogins l
      ON ( l.name = p.name ) WHERE p.type IN ( 'S', 'G', 'U' ) AND p.name <> 'sa'
ELSE
  DECLARE login_curs CURSOR FOR


      SELECT p.sid, p.name, p.type, p.is_disabled, p.default_database_name,
l.hasaccess, l.denylogin FROM
sys.server_principals p LEFT JOIN sys.syslogins l
      ON ( l.name = p.name ) WHERE p.type IN ( 'S', 'G', 'U' ) AND p.name =
@login_name
OPEN login_curs

FETCH NEXT FROM login_curs INTO @SID_varbinary, @name, @type, @is_disabled,
@defaultdb, @hasaccess, @denylogin
IF (@@fetch_status = -1)
BEGIN
  PRINT 'No login(s) found.'
  CLOSE login_curs
  DEALLOCATE login_curs
  RETURN -1
END
SET @tmpstr = '/* sp_help_revlogin script '
PRINT @tmpstr
SET @tmpstr = '** Generated ' + CONVERT (varchar, GETDATE()) + ' on ' +
@@SERVERNAME + ' */'
PRINT @tmpstr
PRINT ''
WHILE (@@fetch_status <> -1)
BEGIN
  IF (@@fetch_status <> -2)
  BEGIN
```

```
    PRINT ''
    SET @tmpstr = '-- Login: ' + @name
    PRINT @tmpstr
    IF (@type IN ( 'G', 'U'))
    BEGIN -- NT authenticated account/group

      SET @tmpstr = 'CREATE LOGIN ' + QUOTENAME( @name ) + ' FROM WINDOWS WITH
DEFAULT_DATABASE = [' + @defaultdb + ']'
    END
    ELSE BEGIN -- SQL Server authentication
        -- obtain password and sid
            SET @PWD_varbinary = CAST( LOGINPROPERTY( @name, 'PasswordHash' ) AS
varbinary (256) )
        EXEC sp_hexadecimal @PWD_varbinary, @PWD_string OUT
        EXEC sp_hexadecimal @SID_varbinary,@SID_string OUT

        -- obtain password policy state
        SELECT @is_policy_checked = CASE is_policy_checked WHEN 1 THEN 'ON' WHEN 0
THEN 'OFF' ELSE NULL END FROM sys.sql_logins WHERE name = @name
        SELECT @is_expiration_checked = CASE is_expiration_checked WHEN 1 THEN
'ON' WHEN 0 THEN 'OFF' ELSE NULL END FROM sys.sql_logins WHERE name = @name

            SET @tmpstr = 'CREATE LOGIN ' + QUOTENAME( @name ) + ' WITH PASSWORD =
' + @PWD_string + ' HASHED, SID = ' + @SID_string + ', DEFAULT_DATABASE = [' +
@defaultdb + ']'

        IF ( @is_policy_checked IS NOT NULL )
        BEGIN
          SET @tmpstr = @tmpstr + ', CHECK_POLICY = ' + @is_policy_checked
        END
        IF ( @is_expiration_checked IS NOT NULL )
        BEGIN
          SET @tmpstr = @tmpstr + ', CHECK_EXPIRATION = ' + @is_expiration_checked
        END
    END
    IF (@denylogin = 1)
    BEGIN -- login is denied access
      SET @tmpstr = @tmpstr + '; DENY CONNECT SQL TO ' + QUOTENAME( @name )
    END
    ELSE IF (@hasaccess = 0)
    BEGIN -- login exists but does not have access
      SET @tmpstr = @tmpstr + '; REVOKE CONNECT SQL TO ' + QUOTENAME( @name )
    END
    IF (@is_disabled = 1)
    BEGIN -- login is disabled
      SET @tmpstr = @tmpstr + '; ALTER LOGIN ' + QUOTENAME( @name ) + ' DISABLE'
    END
    PRINT @tmpstr
  END

  FETCH NEXT FROM login_curs INTO @SID_varbinary, @name, @type, @is_disabled,
@defaultdb, @hasaccess, @denylogin
   END
CLOSE login_curs
DEALLOCATE login_curs
RETURN 0
GO
```

3. Run the following statement in a new query window:
   ```
   EXEC sp_help_revlogin
   ```
   The script that's generated is the **login script**. This login script creates the logins that have the original Security Identifier (SID) and the original password. You'll use the login script to transfer the logins from Server A to Server B.

New SQL Server (Server B)

Before executing the l**ogin script** that was generated on Server A, please review the following things:

- A password can be hashed as either VERSION_SHA1 – which is used by SQL Server 2000 to SQL Server 2008 R2 – or VERSION_SHA2 – which is used by SQL Server 2012 and later.
- Review the **login script** *carefully*. If the servers are on different domains, you **will have to modify** the login script by replacing the original domain name with the new domain name in the **CREATE LOGIN** statements. If the domains are the **same**, you will not need to modify the script.
- You **have** to use the **sysadmin** user or another user with that fixed server role to run the login script successfully.
- The **default database** setting will be lost when running the script. You will have to manually adjust this setting after running the script.
- If there is a login on both servers with the same name, then you will get an error when running the login script on Server B:
  ```
  Msg 15025, Level 16, State 1, Line 1
  The server principal 'MyLogin' already exists
  ```
- If there are SIDs that are the same between the two servers, you'll get this error:
  ```
  Msg 15433, Level 16, State 1, Line 1
  Supplied parameter sid is in use
  ```
- To avoid these errors:
  - Review the output script carefuly
  - Examine the contents of the sys.server_principals view on Server B
  - Address errors messages as appropriate

After reviewing these settings and making any necessary adjustments to the login script:

1. On Server B, start **SQL Server Management Studio**
2. Open a new Query window, then run the **login script** that was generated on Server A.

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