

Tivoli Common Reporting (TCR)

(Versions: 2.1, 2.1.1,3.1)

Migrating from Derby to an Enterprise Database

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Introduction

Customers using Derby as the content store for Tivoli Common Reporting (TCR) are strongly encouraged to plan a migration to a supported enterprise databases like DB2 or Oracle. Although TCR 1.3 and 2.x come with Derby as an out-of-the-box content store, Derby is intended only for demo purposes and **not for production environments**. Please refer to [this link](#) for more information on the same.

This document provides guidance on how to migrate from Derby to an enterprise database and also includes troubleshooting information specific to TCR 2.x. If there are customers who intend to perform similar migration from TCR 1.3, please contact the author(s) of this document to check the applicability of this document and for any additional considerations.

The TCR Content Store

The TCR Content Store is the repository for storing report designs, data models, and saved reports. It is extensively used when you run, view, edit, create, or save reports. For this reason, an enterprise database (i.e., not Derby) is required. Derby can be a bottleneck with respect to performance & stability and hence customers must ensure not to use Derby.

The officially supported databases for the content store of TCR 2.x (that embeds Cognos Business Intelligence (BI) 8.4.1) are listed in [this link](#)

Migration Considerations

Customers with Derby database of small size must be able to use the normal instructions for exporting from Derby and importing to a new database. These instructions are included in the TCR User Guide (see Additional References for links to these documents) and documented in the [TCR InfoCenter](#)

Customers with Derby database of large size (> 1 Gigabytes (GB)) may need to take special steps before exporting and importing, as mentioned in this document.

You can determine the size of a Derby database for TCR by checking the size of the following folder:

[<TCR_INSTALL>/tipv2Components/TCRComponent/cognos/contentstore](#)

Important Notes:

- It is recommended to take backup of the above folder that contains Derby content store.
- It is recommended to perform this migration during non-business hours so that impact to production environment is minimal and to ensure sufficient time is available to complete this procedure.

Special considerations to upgrade Derby before Migration

Existing Derby version 10.1.2.1 that is embedded in TCR 2.x is going End of Support (EOS). Also as stated above, Derby is not supported in a production environment. Hence we strongly recommend customers to move out of Derby to an Enterprise database (as explained in this document)

Before starting the Migration process, please do the following steps:

1. Copy
`<TCR_INSTALL>/tipv2Components/TCRComponent/cognos/configuration/derby.properties.sample` to
`<TCR_INSTALL>/tipv2Components/TCRComponent/cognos/configuration/derby.properties`
(If the file does not exist)

2. Set the below properties in the `derby.properties` file copied in the above step:

`derby.language.maxMemoryPerTable=0`
`derby.storage.pageCacheSize=1000`

(**Note:** Make sure that `derby.storage.pageCacheSize` is not being set to a different value elsewhere in system property or in another line in the `derby.properties` file. The notes in the `derby.properties` currently encourage users to bump this as high as possible but this is wrong)

3. Restart TCR to reflect the above changes:

Stop TCR:

`<TCR_INSTALL>/tipv2Components/TCRComponent/bin/stopTCRserver.sh[.cmd]`

Start TCR:

`<TCR_INSTALL>/tipv2Components/TCRComponent/bin/startTCRserver.sh[.cmd]`

Steps to Export Derby Content Store of size >1 GB

Prerequisites:

- Customers who are not running TCR 2.1.1 64-bit has to download the image from [IBM Passport Advantage](#) and extract the contents. You can find the 64-bit Java at the following path in the extracted location:
`<TCR_2.1.1_64>\TCRInstaller\COI\PackageSteps\eWAS\FILES\eWAS-Win64-7.0.0.15.zip`
Copy and extract the contents and copy the entire Java folder to `<JAVA_64bit>`
- After successful export, the content store is stored in the following folder:
`<TCR_INSTALL>/tipv2Components/TCRComponent/cognos/deployment`
Ensure that the disk space is adequate to store the exported content store. The output of the export will be multiple zip files and the collective size of these zip files exceeds the actual size of the content store.
For example: If the content store size is 10GB, the exported content store size will be around 12-14GB.

1. Increase the memory for the Derby process according to the steps & recommendations below:

a. Open the following file:

`<TCR_INSTALL>/tipv2Components/TCRComponent/cognos/bin/derby.sh[.cmd]`

b. Comment the following line in the file (add # to the beginning of the line):

`MEM_SETTINGS=-Xmx256m`

c. Then add the following line:

`MEM_SETTINGS="-X64 -Xmx8192m -Xms8192m -XX:MaxPermSize=128M"`

(Setting of 8GB for both Min and Max Java heap memory is executed)

Note:

- ✓ Setting of 8GB for Java heap size is required for a Derby content store size of 10GB
- ✓ Recommended system memory is around 10-20GB for successful migration
- ✓ If the Derby content store size is less and system has less memory, then the setting can be brought down to 4GB or 6GB for both Min and Max Java heap size
- ✓ If the Derby content store size is more than 10GB, then the setting of 8GB for both Min and Max Java heap size might not be sufficient and this has to be increased to higher value depending on how much system memory is available.

d. Save the updates.

2. Stop the running TCR server by using the following command:

`<TCR_INSTALL>/tipv2Components/TCRComponent/bin/stopTCRserver.sh[.cmd]`

3. Open a separate terminal window [command prompt] and set the JAVA_HOME variable to the 64bit Java (downloaded & extracted from TCR 2.1.1 64-bit) by using the following command:

`export JAVA_HOME=<PATH-of-JAVA-64bit >`

4. Execute the following script to set the environment parameters:

`<TCR_INSTALL>/tipv2Components/TCRComponent/cognos/bin/derbyenv.sh[.bat]`

5. Now execute the below command to start the Derby process:

`<TCR_INSTALL>/tipv2Components/TCRComponent/cognos/bin/derby.sh[.bat] start <derby_port>`

For example:

`<TCR_INSTALL>/tipv2Components/TCRComponent/cognos/bin/derby.sh start 1527`

(The following message is displayed after a successful start: "Server is ready to accept connections on port 1527")

6. Start the TCR server using the following command:

`<TCR_INSTALL>/tipv2Components/TCRComponent/bin/startTCRserver.sh[.cmd]`

7. Download the utility `exportCS.zip` from the following [link](#)

8. Extract the contents of the `exportCS.zip` to any location and name it

`<EXTRACTED_exportCS_FOLDER>`

9. Extract the `cognos_sdk.zip` present in the following location

`<TCR_2.1.1_64>\TCRInstaller\COI\PackageSteps\TCRCore\FILES\c8\cognos_sdk`
and copy all JAR files to the above folder, mentioned in the above step.

10. Find the `<EXTRACTED_exportCS_FOLDER>/runexport.sh` file and complete the following steps:

- a. Find this line in the file: `${JAVA_HOME}/bin/java -classpath "$ {COG_CLASSPATH}" Export -a CMarchALLi -i <archive password> -s VMMProvider -u <TIP Admin Username> -p <TIP Admin Password> -g <Replace your dispatcher url>`

- b. Replace the value for JAVA_HOME variable with a valid java path, as per the environment `JAVA_HOME=<Replace your java path>`
For example: JAVA_HOME=/opt/IBM/tivoli/tipv2/java

- c. Provide a password for the export in the place of `<archive password>`

- d. Provide the values for `<TIP Admin username>` and `<TIP Admin password>`

- e. Replace the value for Dispatcher URL as per the environment: `<Replace your dispatcher url>`

For example: <http://localhost:16310/tarf/servlet/dispatch>

- f. Save the updates.
10. Now run the above modified *runexport* script.
(On Unix environment: Please provide execute permission for this script if required)
11. The script runs as follows:

```
# ./runexport.sh
log4j:WARN No appenders could be found for logger
(org.apache.axis.i18n.ProjectResourceBundle).
log4j:WARN Please initialize the log4j system properly.
Exporting CMarchALL ...
```
- (**Note:** Export may take long time depending on the size of the Derby database.)
12. When the export is complete, the following message is displayed after the script lines:
The Export is complete. The details have been saved to a file Export.csv
13. The output of the export is stored in a single or multiple zip files (**CMarchUI***) and stored in the following path:
<TCR_INSTALL>/tipv2Components/TCRComponent/cognos/deployment

For example: Sample output is given below

```
/opt/IBM/tivoli/tipv2Components/TCRComponent/cognos/deployment
# ls -lrt
6808125 -rw-r--r-- 1 root root 2146467906 Feb 18 22:18 CMarchUI.z01
6823938 -rw-r--r-- 1 root root 1605296631 Feb 18 22:44 CMarchUI.z02
6808124 -rw-r--r-- 1 root root 2146481399 Feb 18 22:15 CMarchUI.zip
1010476 -rw-rw-r-- 1 root root 30151 Nov 8 08:23 tcrReportPackage.zip
```


Importing the Exported Content Store to an Enterprise Database

Special considerations for Oracle as an enterprise database:

Prerequisite: Before you begin importing the exported content store to Oracle, ensure the following:

- Oracle database is installed & available
- Oracle database user has all the required privileges
- Oracle database has right character sets

For more information about user privileges and character sets, please check [this link](#).

Special considerations for DB2 as an enterprise database:

Prerequisite: Before you begin importing the exported content store to DB2, ensure the DB2 Database is created which is explained in [this link](#)

To import the exported content store, follow these steps:

1. Stop the running TCR server by using the following command:
`<TCR_INSTALL>/tipv2Components/TCRComponent/bin/stopTCRserver.sh[.cmd]`
2. Depending on the database chosen for migration, execute the following steps:

Special considerations for Oracle:

Copy the Oracle jdbc driver file (ojdbc5.jar) to the following folders:

`<TCR_INSTALL>/tipv2/profiles/TIPProfile/InstalledApps/TIPCell/IBM Cognos
8.ear/p2pd.war/WEB-INF/lib`

`<TCR_INSTALL>/tipv2Components/TCRComponent/cognos/webapps/p2pd/WEB-INF/lib`

Special considerations for DB2:

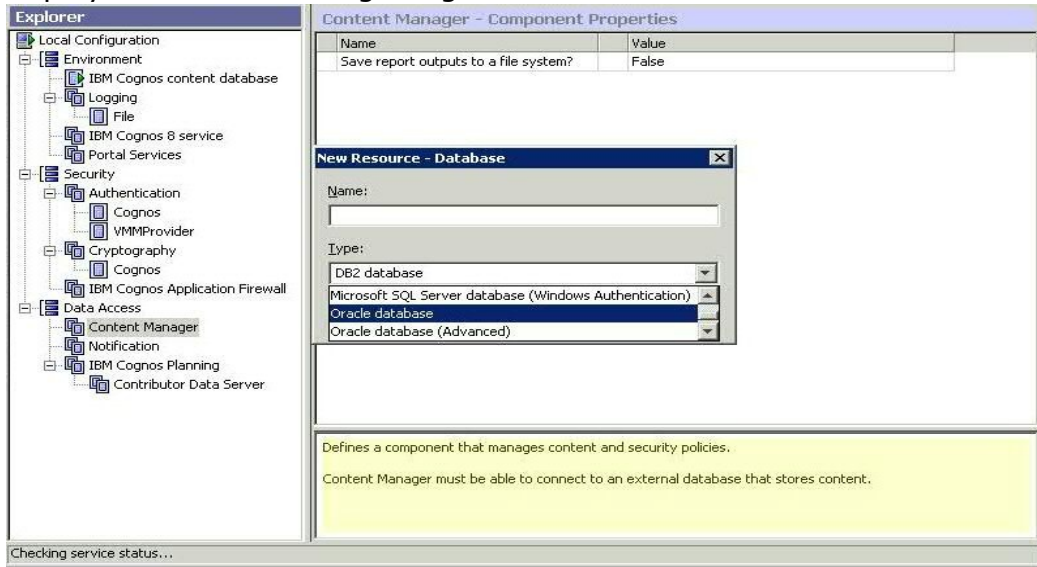
Copy the DB2 jdbc driver files (db2jcc.jar, db2jcc_license_cu.jar) to the following folders:

`<TCR_INSTALL>/tipv2/profiles/TIPProfile/InstalledApps/TIPCell/IBM Cognos
8.ear/p2pd.war/WEB-INF/lib`

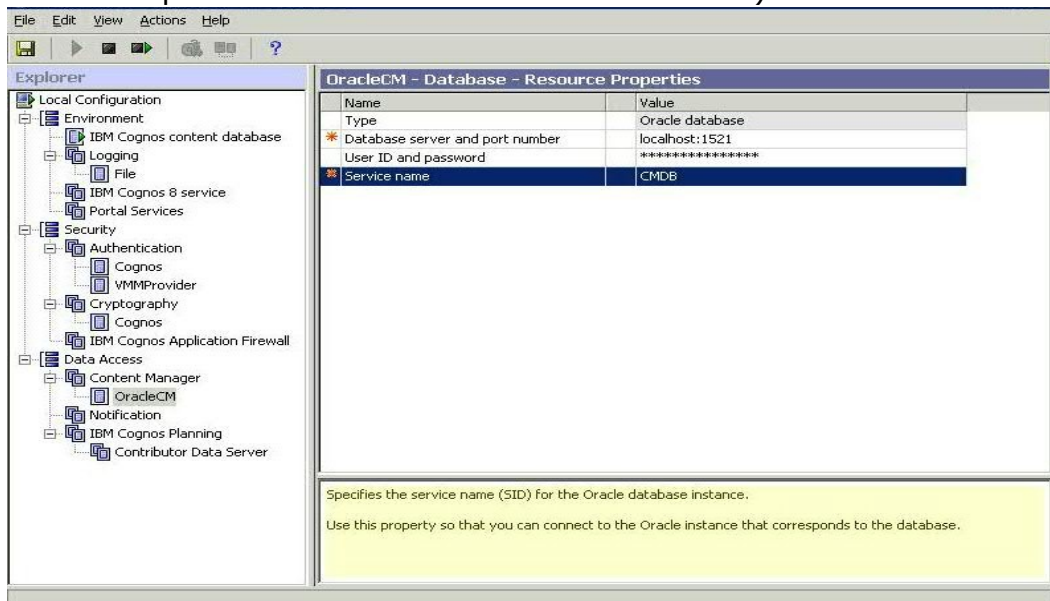
`<TCR_INSTALL>/tipv2Components/TCRComponent/cognos/webapps/p2pd/WEB-INF/lib`

3. Open the Cognos configuration UI by invoking the following script:
`<TCR_INSTALL>/tipv2Components/TCRComponent/cognos/bin/tcr_cogconfig.sh[.bat]`
 - a. Please follow [this link](#) to uninstall completely derby only till the steps number 7
(Note:c8_location=`<TCR_INSTALL>/tipv2Components/TCRComponent/cognos`)
 - b. Remove the existing content store in Cognos Configuration. To achieve this right-click **Data Access** -> **Content Manager** -> **IBM Cognos Content Store** in the left navigation area and then select **Delete**.

- c. Now add a New content store. To achieve this, right-click **Data Access** -> **Content Manager** -> **New Resource** -> **Database** in the left navigation area as displayed in the following image.



- d. This will display a pop-up where in the **Name** field, input the name of the content store to be displayed and in **Type** field, Select the enterprise database (DB2, Oracle) which is used as the content store. For more information to set the database specific properties, please check [this link](#).
- e. After adding the new content store, Cognos configuration window will be visible as displayed in the following image:
(**Note:** Example for Oracle database as content store)



4. Save the configuration.

5. To test the connection, right click the name of the new content store -> **Test**. It must show as Successful.

6. Close the Configuration UI.

Note: Please do not choose to start the services from the configuration window while closing. Follow these steps:

- Exit the configuration window.
- Select **No** if there is any pop-up window.

Special considerations for Oracle:

Before you start with the Import of the content store to Oracle, ensure that the following recommended configuration tunings in the Oracle database is complete:

- a. Login as sysdba to the Oracle content store database.
- b. Execute the following command: `ALTER TABLESPACE <tablespace name> ADD DATAFILE '<oracle instance DBF files path>/<instance name>/<db_name_DDMM>.dbf' SIZE 60M AUTOEXTEND ON NEXT 100M MAXSIZE UNLIMITED;`

Example: `ALTER TABLESPACE CONTENT_DATA ADD DATAFILE '/oradata05/content/content_data_4.dbf' SIZE 60M AUTOEXTEND ON NEXT 100M MAXSIZE UNLIMITED;`

(Note: If this command is NOT executed, there is a possibility that the Import operation might fail with the following exception:

`"ORA-1691: unable to extend lobsegment COGNOS.SYS_LOB0000043954C00008$$ by 8192 in tablespace <tablespace name>"`)

- c. Next take backup of the files under \$ORACLE_HOME/dbs and execute the following commands:
 - i. `ALTER SYSTEM SET sga_target=3G SCOPE=spfile sid='<SID of database>' ;`
 - ii. `ALTER SYSTEM SET sga_max_size=3G SCOPE=spfile sid='<SID of database>';`

(Note: If the above mentioned commands are NOT executed, there is a possibility that the import operation might fail with the following exception:

`"java.sql.SQLException: ORA-00604: error occurred at recursive SQL level 1 ORA-04031: unable to allocate 4120 bytes of shared memory"`)

Important Note: You must restart Oracle database instance after executing the

7. If the Import is being performed in a new TCR/TIP instance, then we recommend to complete the "**TIP Migration**" (next section) and then come back to continue the Import procedure. If not, please skip this step and continue.

8. Start the TCR server using the following command:

`<TCR_INSTALL>/tipv2Components/TCRComponent/bin/startTCRserver.sh[.cmd]`

9. Login to the TCR console using the super admin user credentials. (example: `tipadmin`)

10. After login, start the import procedure as mentioned in [this link](#) to import the package.

Note:

- Select the deployment archive as *CMarchALL* in step-5 of the import procedure
- The password for the archived package is the same as given during export (in the file *runexport.sh*)

11. Verify the **Import** status in the **Run History** link, as [explained here](#). Import status must show as “**Succeeded**” in the Run History page.

Note: There might be some failed objects during import and this can be safely ignored if the Import is successful. However, if there are custom images to be displayed in report, those have to be manually imported by following this [link](#).

12. This completes the import procedure and TCR is now configured to use an enterprise database as content store.

TIP migration

Note: This section is applicable only if the migration is being performed on a new TCR installation which creates a new TIP instance. In such case some TIP related items such as custom pages, custom settings, users / groups / roles will neither be exported nor imported. This can be achieved manually by following these steps:

1. In the previous TCR/TIP instance, execute the following command in a shell/command prompt to export all the TIP related data:

```
tipcli.sh[.bat] Export --username <tipadmin username> --password <tipadmin password>
--excludePlugins TCRExportPlugins
```

This gives an output in the form of "data.zip" with all TIP data, in the folder

<tip_home_dir>/profiles/TIPProfile/output

- Refer [this link](#) for more information

2. Now, navigate to the new TCR/TIP instance and copy the above data.zip into the same <tip_home_dir>/profiles/TIPProfile/output folder
(**Note:** if "output" folder does not exist, create one manually)

3. Execute the following command to import the exported data into this new TIP instance:

```
tipcli.sh[.bat] Import --username <tipadmin username> --password <tipadmin password>
--excludePlugins TCRImportPlugins
```

Note: LDAP configuration and eWAS security (supporting entity types) configurations cannot be exported from previous TIP and imported into the new TIP. These configurations has to be done manually.

4. If there are custom images running on previous TIP instance, then copy the following files into the new TIP instance.

(**Note:** First take a backup of these files before copying)

- a. <tip_home_dir>/profiles/TIPProfile/config/cells/TIPCell/applications/isc.ear/deployments/isc/isclite.war/WEB-INF/consoleProperties.xml
- b. <tip_home_dir>/profiles/TIPProfile/config/cells/TIPCell/applications/isc.ear/deployments/isc/isclite.war/WEB-INF/customizationProperties.xml

5. If there are custom themes running on previous TIP instance, then copy the following folder into the new TIP instance.

(**Note:** First take a backup of the folder before copying)

- a. <tip_home_dir>/profiles/TIPProfile/installedApps/TIPCell/isc.ear/isclite.war/themes

6. If the LDAP configuration between previous TIP instance and new TIP instance is different and if there is trouble logging into the new TIP instance with the same user id that worked in previous TIP instance, then copy the following Authorization related files/folders from previous TIP instance to new TIP instance.

(**Note:** First take a backup of the files/folder before copying)

- a. <tip_home_dir>/profiles/TIPProfile/config/cells/TIPCell/commonauthz
- b. <tip_home_dir>/profiles/TIPProfile/config/cells/TIPCell/wim/config/wimconfig.xml

7. If there were any configuration changes done in previous TIP instance, the same has to be manually applied in the new TIP instance. For example: Java heap memory settings, TIP Fixpacks and also Cognos configuration settings.

Note: It is highly recommended to install the latest TIP Fixpack for TCR 2.1.1 from [IBM Fix Central](#)

8. Restart the new TCR/TIP server to reflect the changes.

Stop TCR (if running) using the following script:

```
<TCR_INSTALL>/tipv2Components/TCRComponent/bin/stopTCRserver.sh[.cmd]
```

Start TCR using the following script:

```
<TCR_INSTALL>/tipv2Components/TCRComponent/bin/startTCRserver.sh[.cmd]
```

9. Login to the new TCR/TIP console and verify that the custom pages, LDAP configuration, custom images are in place.

Note: If the custom pages are still pointing to the previous TIP instance host/port, then the properties of each custom page has to be modified to point to the new TIP instance host/port. However, change of host/port depends on the installed host/port of the new TIP/TCR instance.

For example: If a new TCR instance is installed in the same host but on a different port, then only the port related properties have to be modified in the new TIP instance.

Importing the content store on TCR 3.1

Note: This section is applicable only if the migration is being performed on a TCR3.1. In such case some TIP related items such as custom pages, custom settings, users / groups / roles will neither be exported nor imported. This can be achieved manually by Tivoli Integrated Portal (TIP) CLI export / import commands. Please refer the TIP infocenter for more information.

1. Please export the complete content store package from the derby by following the steps from 1 to 13 from section “Steps to Export Derby Content Store of size >1 GB” on page number 6.
2. If the existing TCR setup was using LDAP, then ensure to configure TCR 3.1 with LDAP. Else migrate the users from Tivoli Integrated Portal(TIP) to Dashboard Application Services Hub (DASH) using the file based user registry.
3. Copy the exported packages from TCR 2.1.1
<TCR_INSTALL>/tipv2Components/TCRComponent/cognos/deployment folder to the new TCR location <JAZZSM_HOME>\reporting\cognos\deployment folder
4. Import the package by following the instructions provided here - [Import the Package](#)
5. Verify the status of the import, by following the instructions provided here - [verify the package](#)
6. If you have any BIRT reports with drill through definitions that you were using, before the upgrade, import them again.
7. Run the migrated reports in Tivoli Common Reporting v3.1

Additional References

- TCR InfoCenter documentation on Derby migration
http://pic.dhe.ibm.com/infocenter/tivihelp/v3r1/topic/com.ibm.tivoli.tcr.doc_211/ttcr_rec_onf_db.html
- TCR User Guide
http://pic.dhe.ibm.com/infocenter/tivihelp/v3r1/topic/com.ibm.tivoli.tcr.doc_211/ic-home.html
- TCR User Guide
http://pic.dhe.ibm.com/infocenter/tivihelp/v3r1/topic/com.ibm.tivoli.tcr.doc_211/tcr_211_ug_book.pdf
- TCR User Guide
http://pic.dhe.ibm.com/infocenter/tivihelp/v3r1/index.jsp?topic=%2Fcom.ibm.psc.doc_1.1.0%2Fpsc_ic-homepage.html
- Flash/Alert stating that Derby is unsupported in production
<http://www-01.ibm.com/support/docview.wss?uid=swg21609287>
- Supported contentstore list from IBM Cognos
<http://www-01.ibm.com/support/docview.wss?uid=swg27017522#contentstore>