PDTool – Migration Automated Test Framework

An Open Source Asset for use with TIBCO® Data Virtualization

Project Name	AS Assets PDTool (Promotion and Deployment Tool)
Document Location	This document is only valid on the day it was printed. The source of the document will be found in the PDTool and PDToolRelease folder (https://github.com/TIBCOSoftware)
Purpose	User's Guide

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Revision History

Version	Date	Author	Comments
1.0	06/11/2015	Mike Tinius	Initial revision for Migration Module Automated Test Framework
4.0	12/14/2017	Mike Tinius	Initial revision with Tibco

Related Documents

Name	Author
PDTool Module – Regression.pdf	Mike Tinius

Supported Versions

Name	Version
TIBCO® Data Virtualization	7.0.4 or later

Table of Contents

1 Introduction

Purpose

The purpose of the Regression Module "***Migration Automated Test Framework***" is to make it easier to utilize the PDTool Regression Module testing capability by generating the necessary PDTool plans and module files when performing a migration from Data Virtualization (DV) 6.x to Data Virtualization (DV) 7.x.

Audience

This document is intended to provide guidance for the following users:

- Architects
- Developers
- Administrators
- Operations personnel

Platform Support

The Automated Test Framework is only supported on Windows.

References

Product references are shown below. Any references to CIS or DV refer to the current TIBCO® Data Virtualization.

- TIBCO® Data Virtualization was formerly known as
    - Cisco Data Virtualization (DV)
    - Composite Information Server (CIS)

2 PDTool Migration Automated Test Framework

Introduction

Migration testing is the act of testing the same set of views on one DV instance with that of another DV instance to ensure that the migration of those resources performs the same on the new version of DV. In this case the framework is setup to test DV 6.2 and DV 7.0.

This framework provides a way to accomplish automated testing for Data Virtualization 6.2 and 7.0 published resources including Views, Procedures and Web Services. This framework is based on the PDTool Deployment and Regression Testing tool. Documentation for the PDTool can be found within the PDTool installation "docs" directory and the file "PDTool Module - Regression.pdf". There are several types of tests that can be performed with this framework including:

1. Functional Test (Generate):

   This represents the current functionality which tests whether the published view, procedure or web service is functional or not. All that is necessary for this test is to execute a SELECT COUNT(1) cnt FROM <view> or SELECT COUNT(*) cnt FROM <procedure> to prove that the view or procedure is functional. This type of test is also known as a "smoke" test. The only capability supported for Migration is to generate the SQL queries. The "smoke" test is not allowed to be executed because the regression test accomplishes the same thing.

2. Migration or Regresion Test (Data set and Log Comparison):

   The PD Tool Regression Module will help Administrators during Migrations from one version of DV to another by performing the regression testing on the new version of DV or by performing a Regression test against two releases of a project. These tests are functionally the same. The caveat to this test is that the result sets used for comparison must be derived from the same data sources. Any changes in data values may result in differences in result set and thus comparisons will not be equal.

3. Performance Test (Log Comparison):

   The PD Tool Regression Module can be used by QA to perform performance tests against views, procedures and web services. The two logs generated during the query execution are compared to determine success or failure based on a duration comparison.

Folder Structure

The following screenshot shows the "***Migration Automated Test Framework***" folder structure. This testing framework provides a wrapper around the PDTool capability. It allows for an automation of a DV Business Line/Business Area as defined by the user.

It provides a central place for documentation, logs, reports, output and PDTool scripts. This is a cookie-cutter (repeatable) approach to testing. As such there is a templates folder and a script that is used to generate the testing artifacts for a given Business Line/Business Area. The template scripts generate the "docs", "modules", and "plans" that PDTool uses. The "***Migration Automated Test Framework***" folder structure is as follows:

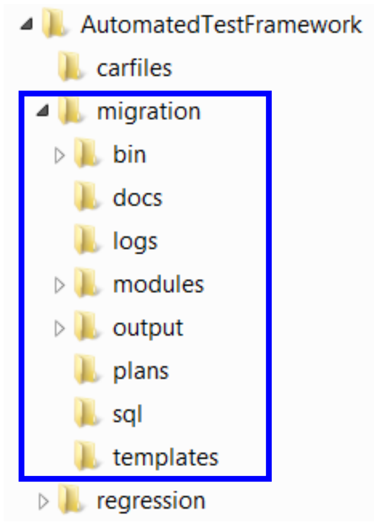


Image 2: Migration Automated Test Framework Folder Structure

The Scripts

The scripts in **"/bin"** provide the basis for the automation. The scripts will be defined in a later section.

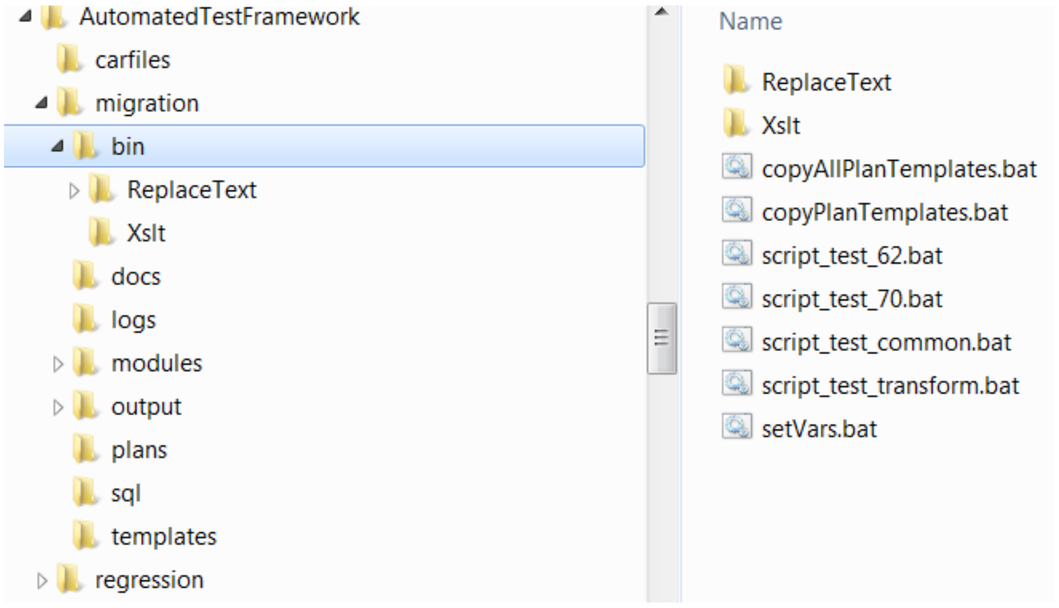


Image 3: Migration Automated Test Framework Scripts

Getting Started

This section discusses how to get started with the basics of testing.

<u>Testing DV Published Resources:</u>

- Requirements:
  - For DV 6.2, PDTool 6.2 is required to be installed.
  - For DV 7.0, PDTool 7.0.0 is required to be installed.
- Planning
  - It is important to plan ahead when using the "***Migration Automated Test Framework***". The following section will help the test user prepare: Planning
- Installation and Configuration Setup
  - Some post-installation configuration is required to use the "***Migration Automated Test Framework***". The following section provides the details: Installation and Configuration Setup
  - Details for installing the sample can be found here: Sample Installation
- Generate Test Scripts
  - Determine the name to give to the set of published views that you want to test. Typically this is known as the "Business Line / Business Area / Subject Area". The scripts will be based on this nomenclature. The name is required to be unique across all other names in use because it is used to generate the scrits.
  - Use the script "***copyPlanTemplates.bat***" to generate the necessary PDTool plans and module files. More information can be found in this section of this document: Script Framework – Template Generation Scripts.
  - Save a list of all of your names using "***copyAllPlanTemplates.bat***" so that you can regenerate all of plans and modules at once if required.
- Determine which DV environment "ENV" you are going to execute against such as:
  - Example: DEV, UAT, PROD.
  - These environments are defined by the DV Administrator.
- Determine which Business Line / Business Area you are testing.
  - Open the generated documentation in /docs for your Business Line /Business Area.
  - E.g. \docs\ documentation_MyProject1SubProj.txt
- Determine which type of test you want to execute.
  - Smoke Test Generation
  - Regression Test Execution
  - Regression Test Comparison
  - Performance Test Execution
  - Performance Test Comparison
- Refer to \docs\documentation_BusLineBusArea.txt or the example in this document.

  Reference this document: Script Framework – "Test Type" Execution Scripts

Execute the test

Refer to the parameters for script execution. Set the RENAME_REL=false if you want a series of tests to go to the same release folder.

Reference this document: Script Framework – Baseline Execution Scripts

- **Example Scenario**: Test 2: Execute Regression Test for UAT 6.2 and MyProject using TOP SQL queries and force the test output to go into the existing "626R1" release folder without renaming it.

  script_test_62.bat UAT MyProject1SubProj_2Regression_exec.dp TOP false true

Script Framework – Template Generation Scripts

The scripts located in "**/bin**" provide the basis for generating the automation scripts from templates.

- ***copyPlanTemplates.bat*** – The purpose of this batch file is to make it easy to copy a *single* plan template for doing regression testing. The premise of this script is to prepare all of the necessary PDTool plans, modules and docs for a given Business Line / Business Area for all of the various PDTool Regression Module tests including: Smoke, Regression, Performance and Security.

1. copyPlanTemplates.bat [BusLineBusAreaSubjArea] [DATA_SOURCE_NAME] [RESOURCE_NAME] [false]
   a. BusLineBusAreaSubjArea - The BusLineBusAreaSubjArea is the portion of the deployment plan file name that occurs prior to the mandatory test type descriptor.
      i. Affix any prefix or postfix desired to BusLineBusAreaSubjArea such as BusLineBusAreaSubjArea_postfix
      ii. ***Test type descriptor***: _1Smoke_gen.dp, _2Regression_exec.dp, _2Regression_compare.dp, _3Performance_exec.dp, _3Performance_compare.dp
      iii. ***Example constructed Deployment plan***: prefix_MyProject1_MySubject_post_3Performance_exec.dp
      iv. |___BusLineBusAreaSubjArea____|
      v. |______________Deployment Plan File Name_____________|
   b. DATA_SOURCE_NAME - This is published DV data source to connect to for generating or executing queries.
   c. RESOURCE_NAME - This may be CATALOG.SCHEMA.* or it may just be CATALOG.*. This is the filter based on Business Line and Business Area.
   d. PROMPT_USER - when doing automated set PROMPT_USER=false so that it does not prompt the user to edit the Regression Module XML file.
2. Example1: *Test all views from all FooCat catalog schemas in the same framework*

   a. Create a the regression test framework for a new Business Line / Business Area called "Foo" with a published catalog called FooCat in the "MY DB" database. The catalog contains multiple schemas FooSch1 and FooSch2 and the user wants to be able to test all views from all schemas from the same test framework.

   b. copyPlanTemplates.bat Foo "MY DB" FooCat.* true

3. Example2: *Test views from each FooCat catalog schema separately in different frameworks.*

   a. Create a the regression test framework for a new Business Line / Business Area called "Foo" with a published catalog called FooCat in the "MY DB" database. The catalog contains multiple schemas FooSch1 and FooSch2 and the user wants to be able to test the views for each schema independently of the other schema. To accomplish this we will setup two test frameworks

   b. copyPlanTemplates.bat FooSch1 "MY DB" FooCat.FooSch1.* true

   c. copyPlanTemplates.bat FooSch2 "MY DB" FooCat.FooSch2.* true

- ***copyAllPlanTemplates.bat*** – The purpose of this batch file is to make it easy to copy "ALL" of the regression test Business Line / Business Areas at one time specified in the "copyAllPlanTemplates.bat" file. This batch file will overwrite existing deployment plans (/plans), module XML files (/modules) and docs files (/docs).

Script Framework – Baseline Execution Scripts

The scripts located in "**/bin**" provide the basis for executing PDTool standard scripts.

These scripts provide a wrapper around the actual PDTool scripts. They provide context for the environments [DEV, UAT, PROD]. They output the logs for each execution into /logs directory according to each type of test so that the log is retained across different types of tests.

Types of scripts

- ***script_test_62.bat*** – Provides an instance of execution for PDTool6.2. Requires its own installation of PDTool6.2. This script can only be run from a single command line window at one time. It cannot be run in parallel from two different command line windows.
- ***script_test_70.bat*** – Provides an instance of execution for PDTool7.0.0. Requires its own installation of PDTool7.0.0. This script can only be run from a single command line window at one time. It cannot be run in parallel from two different command line windows.
  - Command Line:
  - script_test_NN.bat ENV_TYPE DEPLOYMENT_PLAN [CUSTOM] [RENAME_REL] [PAUSE]

Parameters:

- *ENV_TYPE* – Example: [DEV|UAT|PROD]

1. The valid values are defined as a result of the variable: VALID_ENV_CONFIG_PAIRS

- *DEPLOYMENT_PLAN* - The name of the deployment plan such as:
  1. BusLineBusArea_1Smoke_gen.dp
  2. BusLineBusArea_2Regression_exec.dp
  3. BusLineBusArea_2Regression_compare.dp
  4. BusLineBusArea_3Performance_exec.dp
  5. BusLineBusArea_3Performance_compare.dp
- *CUSTOM* – [optional] variable
  1. blank or "" – [default]. Generate or execute using SQL SELECT COUNT(1) cnt or SELECT COUNT(*) cnt.
  2. TOP - If the word TOP is provided then generate or execute using the SELECT TOP 1 * command. Top is a special type of CUSTOM.
  3. CUSTOM value - If any other word is used then execute the SQL file using this pattern and the value of the CUSTOM variable:

  - Example: Developer creates a custom SQL file where the custom name = MyQueries

Template:		Example:
\sql\BusLineBusArea_RegressionTest_SQL_%CUSTOM%.txt	=	\sql\MyProject_RegressionTest_SQL_MyQueries.txt
\sql\BusLineBusArea_PerfTest_SQL_%CUSTOM%.txt	=	\sql\MyProject_PerfTest_SQL_MyQueries.txt

- *RENAME_REL* – [optional] variable. Default=true
  1. blank or "" or true - force a rename of the release output folders upon each execution of this script.
  2. false - disable the rename function and allow the results to go to the existing RELEASE_FOLDER1 directory.
     - Example. This can be useful when executing a series of tests for the same release such as the following: Smoke Test, Regression Test, Performance Test and Security Test.
     - Note: This script will automatically ignore renaming the output folder for the following and thus the RENAME_REL does not have to be set.
     - Generating Smoke Test, Compare Regression Test, Compare Performance Test and Generate Security Test.
- *PAUSE* – [optional] variable. Default=true
  1. blank or "" or true - pause during script execution.
  2. false - no pause during script execution.

Exiting a script

- ***How to exit a script*** – Use Control-C to exit a script. Type Y and return to exit. If the script is in the middle of executing and you press Control-C the prompt will not be visible. Type "Y" and press the return key to exit the script.

Script Framework – "Test Type" Execution Scripts

The scripts provide the basis for executing PDTool standard scripts.

Script framework "test type" *single* execution scripts

The section provides information on how to run a single specific type of test. The optional parameters at the end indicate whether to use the SQL queries containing CUSTOM queries ot not. The keyword TOP is classified as a special kind of CUSTOM query that allows the user to execute queries such as "SELECT TOP 1 * ". The user may wish to specify other CUSTOM keywords that relate to SQL query files where the user has populated the file with their own queries. If no CUSTOM option is provided, then the "SELECT COUNT(1)" queries are used.

Additionally, there is an option for RENAME_REL and PAUSE set to true or false following CUSTOM. RENAME_REL informs the script to rename the release folder or not. If RENAME_REL=false then the user can force the output for a series of tests to be placed into the RELEASE_FOLDER1 which is defined within the script execution batch files [script_test_62.bat and script_test_70.bat].

PAUSE informs the scripts to pause before execution so that the user can see what variables are set before continuing.

- Test 1: Generate Smoke Test SQL for ENV

```
script_test_62.bat ENV BusLineBusArea_1Smoke_gen.dp ""   ""   [PAUSE]
script_test_70.bat ENV BusLineBusArea_1Smoke_gen.dp ""   ""   [PAUSE]
```

- Test 2: Execute Regression Test for ENV

```
script_test_62.bat ENV BusLineBusArea_2Regression_exec.dp [CUSTOM]  [RENAME_REL]  [PAUSE]
script_test_70.bat ENV BusLineBusArea_2Regression_exec.dp [CUSTOM]  [RENAME_REL] [PAUSE]
```

- Test 2: Execute Regression Test Compare for ENV - Compare files and logs for difference

```
script_test_62.bat ENV BusLineBusArea_2Regression_compare.dp [CUSTOM]  ""   [PAUSE]
script_test_70.bat ENV BusLineBusArea_2Regression_compare.dp [CUSTOM]  ""   [PAUSE]
```

- Test 3: Execute Performance Test for ENV

```
script_test_62.bat ENV BusLineBusArea_3Performance_exec.dp [CUSTOM]  [RENAME_REL] [PAUSE]
script_test_70.bat ENV BusLineBusArea_3Performance_exec.dp [CUSTOM]  [RENAME_REL] [PAUSE]
```

- Test 3: Execute Performance Test Compare for ENV - Compare logs for difference

```
script_test_62.bat ENV BusLineBusArea_3Performance_compare.dp [CUSTOM]  ""   [PAUSE]
script_test_70.bat ENV BusLineBusArea_3Performance_compare.dp [CUSTOM]  ""   [PAUSE]
```

- **EXAMPLE 1**:

- Scenario: Test 2: Execute Regression Test for UAT 6.2 and MyProject using TOP SQL queries and force the test output to go into the existing "626R1" release folder without renaming it.

script_test_62.bat UAT MyProject1SubProj_2Regression_exec.dp TOP false true

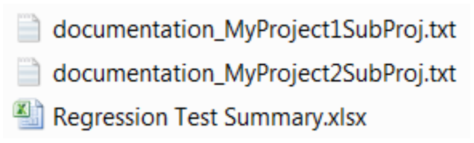
- **EXAMPLE 2**:

- Scenario: Test 2: Execute Regression Test for UAT 6.2 and MyProject using cusom SQL queries and force the test output to go into a new "626R1" release folder.

script_test_62.bat UAT MyProject1SubProj_2Regression_exec.dp MyCustom ""

Script Framework – Documentation

The "**/docs**" folder contains all of the Business Line / Business Area generated documentation for all of the tests. It was prepared by the "***copyPlanTemplates.bat***" script. The file "***Regression Test Summary.xlsx***" provides a place to tally test results.

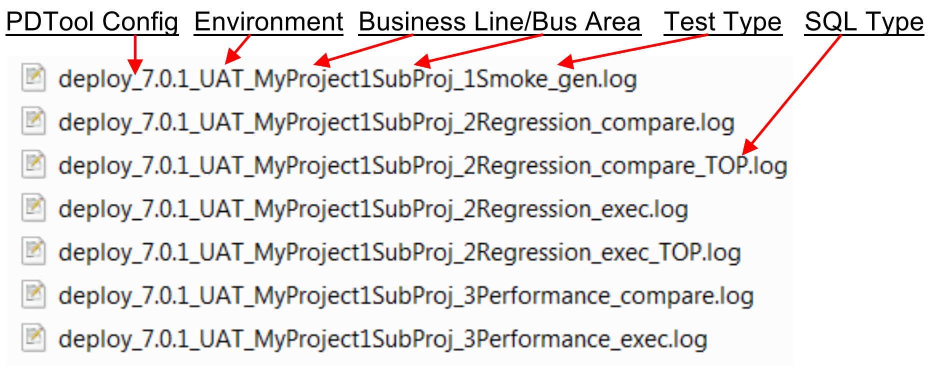


documentation_MyProject1SubProj.txt
documentation_MyProject2SubProj.txt
Regression Test Summary.xlsx

Image 4: Documentation for Business Line / Business Area

Script Framework – Log

The "**/logs**" folder contains output for a given DV version, environment, Business Line/Area, Test Type and SQL test type. In the screenshot below each part of the log file path is described. This allows for a high degree of naming so that the logs can be preserved across different test types. However, if the exact same test is run again then it will overwrite an existing log of the same name.



deploy_7.0.1_UAT_MyProject1SubProj_1Smoke_gen.log
deploy_7.0.1_UAT_MyProject1SubProj_2Regression_compare.log
deploy_7.0.1_UAT_MyProject1SubProj_2Regression_compare_TOP.log
deploy_7.0.1_UAT_MyProject1SubProj_2Regression_exec.log
deploy_7.0.1_UAT_MyProject1SubProj_2Regression_exec_TOP.log
deploy_7.0.1_UAT_MyProject1SubProj_3Performance_compare.log
deploy_7.0.1_UAT_MyProject1SubProj_3Performance_exec.log

Image 5: Log Naming Conventions

Script Framework – Plans

The "**/plans**" folder contains all of the deployment plan files for all of the tests. It was prepared by the copyAllPlanTemplates.bat script.

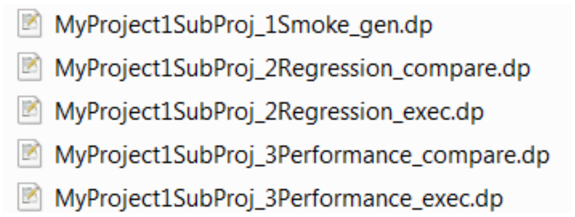

MyProject1SubProj_1Smoke_gen.dp
MyProject1SubProj_2Regression_compare.dp
MyProject1SubProj_2Regression_exec.dp
MyProject1SubProj_3Performance_compare.dp
MyProject1SubProj_3Performance_exec.dp

Image 6: Deployment Plan Files

Script Framework – Modules

The "**/modules**" folder contains all of the deployment module files for all of the tests. It was prepared by the copyAllPlanTemplates.bat script.

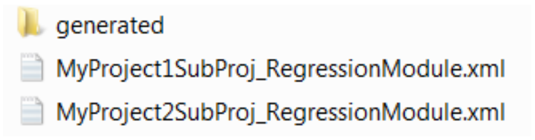

generated
MyProject1SubProj_RegressionModule.xml
MyProject2SubProj_RegressionModule.xml

Image 7: Deployment Module Files

Script Framework – SQL Queries

The "**/sql**" folder contains all of the SQL query files for all of the tests. The Smoke test files were generated. The Regression and Performance files were prepared manually so that the tester can control what they want to test. Custom queries can be provided or the tester can copy and paste from the Smoke Test query set. For custom files add a custom name following "SQL_" as shown below in a file name such as "MyProject1SubProj_RegressionTest_SQL_**MyCustom**.txt". Not "_TOP" is a special kind of custom file that contains "select TOP 1 *" queries.

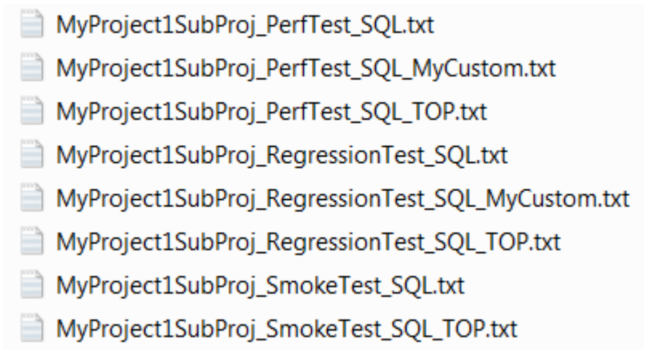

MyProject1SubProj_PerfTest_SQL.txt
MyProject1SubProj_PerfTest_SQL_MyCustom.txt
MyProject1SubProj_PerfTest_SQL_TOP.txt
MyProject1SubProj_RegressionTest_SQL.txt
MyProject1SubProj_RegressionTest_SQL_MyCustom.txt
MyProject1SubProj_RegressionTest_SQL_TOP.txt
MyProject1SubProj_SmokeTest_SQL.txt
MyProject1SubProj_SmokeTest_SQL_TOP.txt

Image 8: SQL Query Files

Script Framework – Output

The "**/output**" folder contains a folder for each Business Line / Business Area. That subfolder contains the result logs for each test type as well as subfolders for the regression tests which contain the data files for each query.

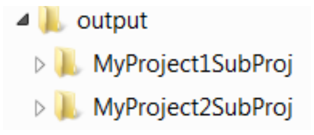

output
MyProject1SubProj
MyProject2SubProj

Image 9: Output Folders

For example, let's use *MyProject1SubProj* as a guide. The screen shot below shows several release folders for both 6.2 and 7.0. The folder "626R1" is the RELEASE_FOLDER1 and "701R1" is RELEASE_FOLDER2 as specified in the script execution batch files. The folders with ".0001" and so on represent the archive of the "R1" folders:

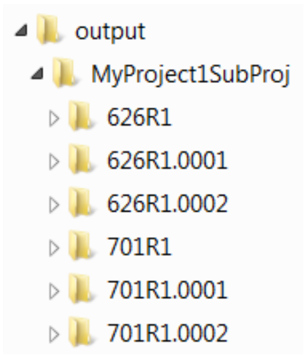

output
MyProject1SubProj
626R1
626R1.0001
626R1.0002
701R1
701R1.0001
701R1.0002

Image 10: Contents of a Business Line / Business Area Folder

The screen shot below shows an example of the content of a release folder such as "RELEASE_FOLDER1" or "RELEASE_FOLDER2". The release folder contains one or more logs and sub-folders where the query output is stored for each test type segregated by environment type. All log files are prefixed with the environment type so that any given release can be tracked across multiple DV environments.

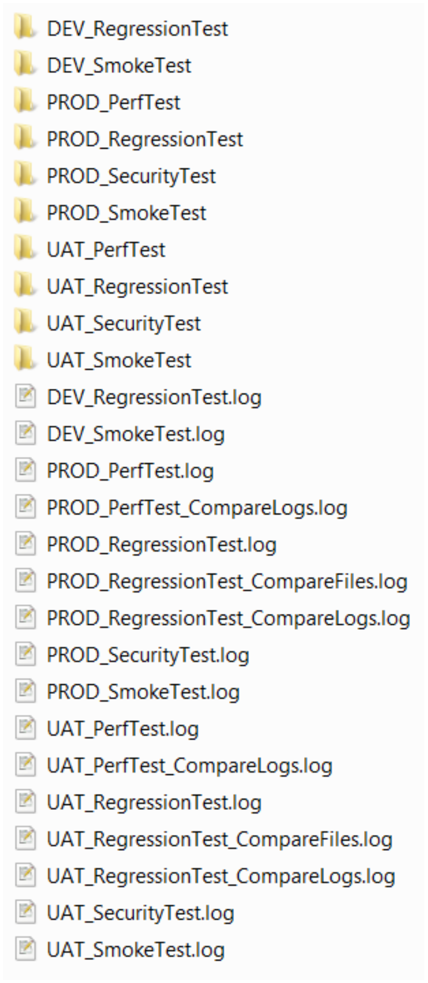

DEV_RegressionTest
DEV_SmokeTest
PROD_PerfTest
PROD_RegressionTest
PROD_SecurityTest
PROD_SmokeTest
UAT_PerfTest
UAT_RegressionTest
UAT_SecurityTest
UAT_SmokeTest
DEV_RegressionTest.log
DEV_SmokeTest.log
PROD_PerfTest.log
PROD_PerfTest_CompareLogs.log
PROD_RegressionTest.log
PROD_RegressionTest_CompareFiles.log
PROD_RegressionTest_CompareLogs.log
PROD_SecurityTest.log
PROD_SmokeTest.log
UAT_PerfTest.log
UAT_PerfTest_CompareLogs.log
UAT_RegressionTest.log
UAT_RegressionTest_CompareFiles.log
UAT_RegressionTest_CompareLogs.log
UAT_SecurityTest.log
UAT_SmokeTest.log

Image 11: Contents a release folder such as “626R1” or “701R1”

Description of the various log files

ENV_PerfTest.log or ENV_PerfTestTOP.log – This is the performance test log for a given release [701R1] as a result of executing regular queries or TOP-n queries. It logs the duration of execution for each thread along with the query executed over a defined period of time. It logs any errors that occur.

ENV_PerfTest_CompareLogs.log or ENV_PerfTestTOP_CompareLogs.log – Provides a comparison between two different DV instances [626R1 and 701R1] of *performance* logs for regular or TOP-n queries to determine [for the same query] the following:

- Duration matched (same)
- Duration improved (performance improved)
- Duration was within acceptable range (user defined)
- Duration exceeded range

ENV_RegressionTest.log or ENV_RegressionTestTOP.log – This is the regression test log for a given release [701R1] as a result of executing regular queries or TOP-n queries. It only executes the query once. It logs duration of execution for each query along with the query executed. It logs any errors that occur.

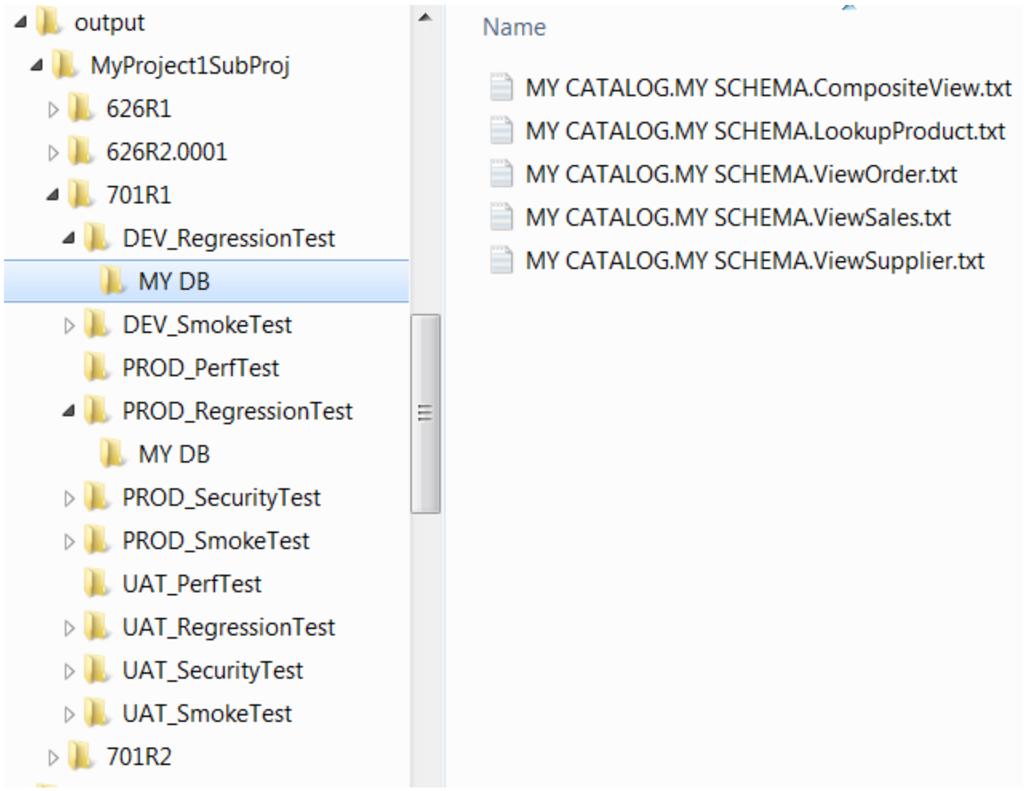
ENV_RegressionTest_CompareFiles.log or **ENV_RegressionTestTOP_CompareFiles.log** – Provides a comparison between two different DV instances [626R1 and 701R1] of *data* files for regular or TOP-n queries to determine [for the same query] whether the files are an exact match or not. If the row-by-row checksums match then the query is marked with “SUCCESS” otherwise it is marked with “FAILURE”. The key to this test is to test against the same data set for both releases [626R1 and 701R1].

ENV_RegressionTest_CompareLogs.log or **ENV_RegressionTestTOP_CompareLogs.log** – Provides a comparison between two different DV instances [626R1 and 701R1] of *regression* logs for regular or TOP-n queries to determine [for the same query] the following:

- Duration matched (same)
- Duration improved (performance improved)
- Duration was within acceptable range (user defined)
- Duration exceeded range

Regression Test Data Files:

The screen shot below demonstrates how a data file is created. A subfolder is created to represent the type of test and version such as “701R1\RegressionTest_TOP” so that tests can be run against either 6.2 or 7.0. Underneath that folder is another with the same name as the DV Data Source being tested such as “MY DB”. Underneath “MY DB” are the data files for each query and named according to Catalog.Schema.Table name.



MY CATALOG.MY SCHEMA.CompositeView.txt
MY CATALOG.MY SCHEMA.LookupProduct.txt
MY CATALOG.MY SCHEMA.ViewOrder.txt
MY CATALOG.MY SCHEMA.ViewSales.txt
MY CATALOG.MY SCHEMA.ViewSupplier.txt

Image 12: Regression Test Data Files

Performance Test Data Files

Even though a subfolder is created for performance test such as “701R1\ENV_PerfTest_TOP” there are no data files created.

3 Installation and Configuration

Introduction

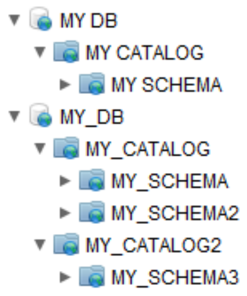
This section describes how to install and configure the "***Migration Automated Test Framework***".

Planning

The section helps the test user to plan for how they want to use the testing framework.

Planning worksheet:

1. Identify Published Resources to test: ______________________
   a. Example published data source, catalogs and schemas



```
▼ MY DB
  ▼ MY CATALOG
    ▶ MY SCHEMA
▼ MY_DB
  ▼ MY_CATALOG
    ▶ MY_SCHEMA
    ▶ MY_SCHEMA2
  ▼ MY_CATALOG2
    ▶ MY_SCHEMA3
```

Image 13: Sample Published Databases

2. Assign a name to the published resources: ______________________
   a. Known as the Business Line or Business Area or Subject Area
3. Determine the DV environment names: ______________________
   a. Example: DEV, UAT PROD
4. Determine the PDTool config file mappings: ______________________
   a. This is how a PDTool configuration property file maps to a given DV environment.
   b. Example:
      i. ENV PDTool Configuration Property File Name
      ii. DEV = deploy_7.0_DEV.properties
      iii. UAT = deploy_7.0_UAT.properties
      iv. PROD = deploy_7.0_PROD.properties
5. PDTool 6.2 directory location: ______________________
6. PDTool 7.0 directory location: ______________________

Installation and Configuration Setup

The section provides the necessary steps for setting up the batch scripts used for testing.

Edit/Configure the ***setVars.bat*** batch file:

1. Location: \AutomatedTestFramework\migration\bin\setVars.bat

   REM # Set environment variables for PDTool 6.2

   REM # Set the location of PDTool 6.2

   set PDTOOL_INSTALL_HOME_6=C:\PDTool_Test\PDTool6.2

   REM # List of valid Environments~Config property file name pairs.   Comma separated no space and no double quotes. Tilde separates pairs: ENV~ConfigFileName. These are the property file names configured in the PDTool6.2\resources\config folder minus the .properties extension.

   set VALID_ENV_CONFIG_PAIRS_6=DEV~deploy_6.2_DEV,UAT~deploy_6.2_UAT,PROD~deploy_6.2_PROD

   REM # Set environment variables for PDTool 7.0

   REM # Set the location of PDTool 7.0

   set PDTOOL_INSTALL_HOME_7=C:\DTool_Test\PDTool7.0.0

   REM # List of valid Environments~Config property file name pairs.   Comma separated no space and no double quotes. Tilde separates pairs: ENV~ConfigFileName. These are the property file names configured in the PDTool7.0.0\resources\config folder minus the .properties extension.

   set VALID_ENV_CONFIG_PAIRS_7=DEV~deploy_7.0.1_DEV,UAT~deploy_7.0.1_UAT,PROD~deploy_7.0.1_PROD

   REM # Set environment variables for Automated Test Framework

   REM Automated Test Framework Home. This folder may be independent of where PDTOOL_INSTALL_HOME is located.

   set ATF_HOME= C:\PDTool_Test\PDTool6.2\AutomatedTestFramework\migration

   REM # Used by copyPlanTemplates.bat

   REM # Set JAVA_HOME to JRE7

   if not defined JAVA_HOME set JAVA_HOME=C:\Program Files\Java\jre7

   REM # Used by copyPlanTemplates.bat

   REM # Use one or the other or provide your own text editor path.

   REM #   If you have notepad++ it is a much better editor than notepad.

   REM #   Do not put double quotes around path. The script takes care of that.

   set EDITOR=C:\Program Files (x86)\Notepad++\notepad++.exe

   rem set EDITOR=%windir%\system32\notepad.exe

   REM Script Main Activity

   set SCRIPT_ACTIVITY=Execute Migration Test

   REM # Set the release folders to indicate which version is being tested

   REM #   Release folder 1 is designated as the DV 6 instance migrating from. R1 designates it is a release 1 primary folder.

REM # Release folder 2 is designated as the DV 7 instance migrating to. R1 designates it is a release 1 primary folder.

set RELEASE_FOLDER1=626R1

set RELEASE_FOLDER2=701R1

REM Debug=Y or N. Default=N

set DEBUG=N

Sample Installation

The section provides the necessary steps for setting up the sample.

Create groups on the target server where the sample will be imported:

1. Launch DV Manager and login
    a. For 6.2, select "Users → Group Management"
    b. For 7.0, select "Security → Group Management"
    c. Select "Add Group"
        i. Group name: **group1**
        ii. Click OK
    d. Select "Add Group"
        i. Group name: **group2**
        ii. Click OK

Create users on the target server where the sample will be imported:

1. Note: The users "user1" and "user2" use the password text "password" within the sample files. If you wish to change the password, then you will need to provide the same password in the sample files
    a. \AutomatedTestFramework\regression\modules
        i. \MyProject1SubProj_RegressionModule.xml
        ii. \MyProject2SubProj_RegressionModule.xml
    b. Encrypting passwords in files:

    ExecutePDTool.bat -encrypt ..\AutomatedTestFramework\migration\modules\MyProject1SubProj_RegressionModule.xml

    ExecutePDTool.bat -encrypt ..\AutomatedTestFramework\migration\modules\MyProject2SubProj_RegressionModule.xml
2. Launch DV Manager and login
    a. For 6.2, select "Users → User Management"
    b. For 7.0, select "Security → User Management"

   c. Select “Add Group”
      i. User name: **user1**
      ii. New password: **password**
      iii. Confirm password: **password**
      iv. Click OK
   d. Select “Add Group”
      i. User name: **user2**
      ii. New password: **password**
      iii. Confirm password: **password**
      iv. Click OK

Associate users with groups on the target server where the sample will be imported:

1. Launch DV Manager and login
   a. For 6.2, select “Users → User Management”
   b. For 7.0, select “Security → User Management”
   c. Check the box next to “**user1**” and click “Edit Group Membership”
      i. Check the box for “**group1**”
      ii. Click OK
   d. Check the box next to “**user2**” and click “Edit Group Membership”
      i. Check the box for “**group2**”
      ii. Click OK

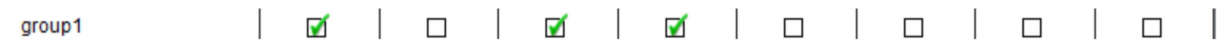
Import the sample CAR file:

1. Launch DV Studio 6.2 or 7.0
2. Right click on “Desktop (user)” and select Import
3. Browse to the location of \AutomatedTestFramework\carfiles
4. Select MySampleDBs.car and click Open
5. Click Import>
6. Click Done

Verify Privileges:

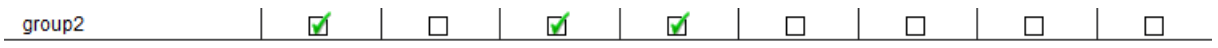
1. Launch DV Studio 6.2 or 7.0
2. Right-click on “/services/databases/MY DB” and select “Privileges”

3. Select the middle radio button “Hide users and groups without explicit privileges” and click OK
4. The privileges should be as follows:



group1	✓	☐	✓	✓	☐	☐	☐	☐

5. Right-click on “/services/databases/MY_DB” and select “Privileges”
6. Select the middle radio button “Hide users and groups without explicit privileges” and click OK
7. The privileges should be as follows:



group2	✓	☐	✓	✓	☐	☐	☐	☐

4 Migrating Server Attributes

Introduction

This section describes how to migrate server attributes from DV 6.2 to DV 7.0. There are hundreds of server attributes and going through the configuration one at a time is both time-consuming and error-prone. The section of the "Migration Automated Test Framework" assists the technical specialist in migrating the DV 6.2 server attributes to DV 7.0.

There are a series of attributes that require transformation prior to updating in DV 7.0. The transformations include the following:

- DV 6.2 attributes that have changed names.
- DV 6.2 attributes that should be ignored and not transferred.
- DV 6.2 attributes where the file paths must be changed.

The XSLT file "***ServerAttributes_Transform_62_to_70.xsl***" is used for the transformation and is generated into the directory "…\AutomatedTestFramework\migration\bin\Xslt"

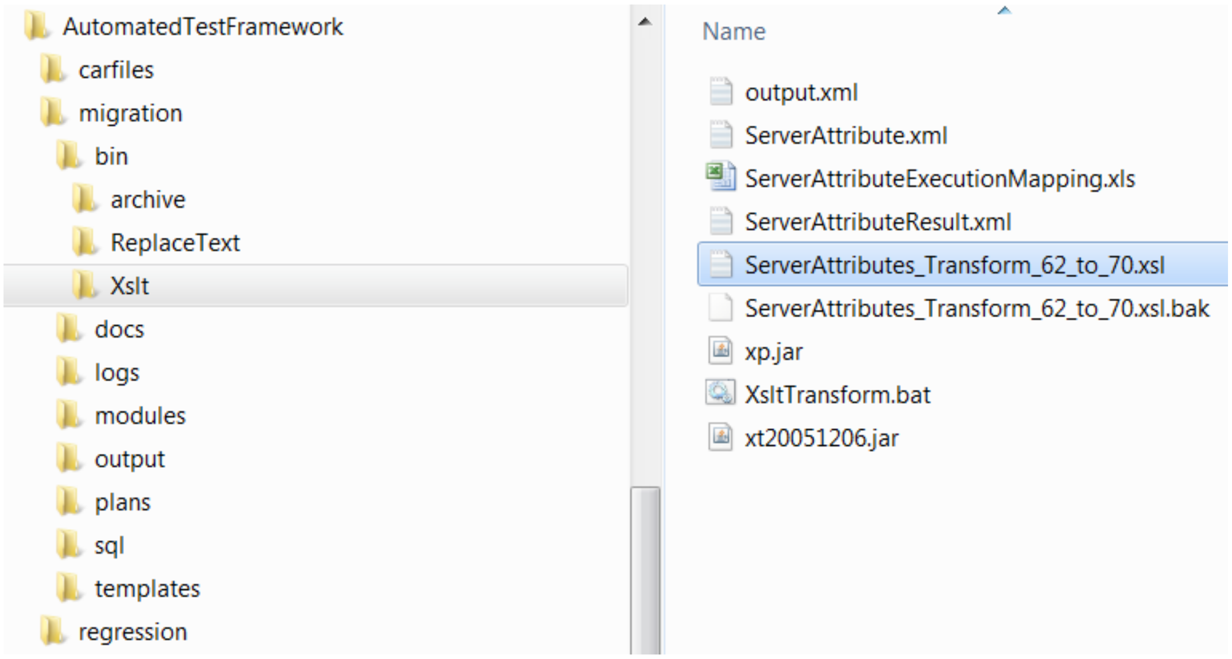


Image 14: Migration Server Attributes XSL Transform File

Getting Started

The first thing to do is to provide the mapping of the 6.2 to 7.0 paths in setVars.bat and then generate the XSL transformation file. The transformation file provides up to 5 variations on the path name to accommodate differences in paths for different server installations within the organization.

Step 1. Edit/Configure the ***setVars.bat*** batch file:

1. Location: \AutomatedTestFramework\migration\bin\setVars.bat
2. If general setup has not been completed go to the following section to complete: Installation and Configuration Setup and the return here.
3. Complete the setup for Migration of Server Attributes:

   REM # Set environment variables for Automated Test Framework Server Attribute Migration

   REM # This section should be set if planning to use the Automated Test Framework for migrating server attributes.

   REM # When migrating server attributes from DV 6.x to DV 7.x there are a series of hard-coded file system paths in the server attributes. There are 5 sets of paths provided below that allow up to 5 different path configurations. If more than 5 path combinations are required then these files need to be modified:

   - **\migration\bin\setVars.bat**
   - **\migration\bin\copyPlanTemplates.bat**
   - **\migration\templates\ServerAttributes_Transform_62_to_70.xsl**

   REM # The CIS_PREV_VERSION and CIS_NEW_VERSION represent the portion of the various DV paths within the Server Attribute XML file. If DV previous and new install are installed on the same base path then it will only be necessary to change the version as shown below. However, if they are installed on different paths, then the full base path should be provided for both variables.

   REM # Leave the pair blank with double quotes if there is no pair to be defined. This results in the text '_NO_TRANSFORM_OPERATION_' being placed into the .xsl file for that variable. In effect, this satisfies the XSLT rules but has no affect because the text will not be found in the source file.

   REM # DV Path Version 1

   set CIS_PATH_PREV_VERSION_1="CIS_6.2"

   set CIS_PATH_NEW_VERSION_1="CIS_7.0"

   REM # DV Path Version 2

   set CIS_PATH_PREV_VERSION_2="6.2.5"

   set CIS_PATH_NEW_VERSION_2="7.0.0"

   REM # DV Path Version 3

   set CIS_PATH_PREV_VERSION_3="6.2.6"

   set CIS_PATH_NEW_VERSION_3="7.0.0"

   REM # DV Path Version 4

   set CIS_PATH_PREV_VERSION_4=""

   set CIS_PATH_NEW_VERSION_4=""

   REM # DV Path Version 5

   set CIS_PATH_PREV_VERSION_5=""

   set CIS_PATH_NEW_VERSION_5=""

   REM XSL Transformation script

set XSL_TRANSFORM_SCRIPT=ServerAttributes_Transform_62_to_70.xsl

Step 2. Generate the XSL Transformation script file:

1. Execute **copyPlanTemplates.bat true true false**
    a. Definition: copyPlanTemplates.bat PROMPT_USER GENERATE_XSL_TRANSFORM GENERATE_TEMPLATES
2. Location: \AutomatedTestFramework\migration\bin\copyPlanTemplates.bat
3. Upon completion the file will be displayed in the configured editor.
4. The CIS_PREV_VERSION and CIS_NEW_VERSION represent the portion of the various DV paths within the Server Attribute XML file. If DV previous and new install are installed on the same base path then it will only be necessary to change the version as shown below. However, if they are installed on different paths, then the full base path should be provided for both variables.   There are 5 versions to accommodate different server installation paths. An example excerpt of the XSL Stylesheet is shown below.

```
<!-- DV Path Version 1 -->
<xsl:variable name="CIS_PATH_PREV_VERSION_1" select="'CIS_6.2'"/>
<xsl:variable name="CIS_PATH_NEW_VERSION_1" select="'CIS_7.0'"/>
<!-- DV Path Version 2 -->
<xsl:variable name="CIS_PATH_PREV_VERSION_2" select="'6.2.5'"/>
<xsl:variable name="CIS_PATH_NEW_VERSION_2" select="'7.0.0'"/>
<!-- DV Path Version 3 -->
<xsl:variable name="CIS_PATH_PREV_VERSION_3" select="'6.2.6'"/>
<xsl:variable name="CIS_PATH_NEW_VERSION_3" select="'7.0.0'"/>
<!-- DV Path Version 4 -->
<xsl:variable name="CIS_PATH_PREV_VERSION_4" select="'_NO_TRANSFORM_OPERATION_'"/>
<xsl:variable name="CIS_PATH_NEW_VERSION_4" select="'_NO_TRANSFORM_OPERATION_'"/>
<!-- DV Path Version 5 -->
<xsl:variable name="CIS_PATH_PREV_VERSION_5" select="'_NO_TRANSFORM_OPERATION_'"/>
<xsl:variable name="CIS_PATH_NEW_VERSION_5" select="'_NO_TRANSFORM_OPERATION_'"/>
```

Executing Scripts

The next thing to do is to execute the script for the DV 6.2 target environment.   If there are three envrionments such as [DEV,UAT,PROD] then the script will be run for each environment. Server Attributes are unique for each DV instance. It is not recommended to use a single file set to update server attributes for all environments.

Step 3. Pre-requisites

- Perform a backup of the DV server file system before proceeding
    - Shutdown the DV 7.0 server and repository
    - Zip up the DV 7.0 server file system in order to take a backup

- Startup the DV 7.0 server and repository

Step 4.1. Workflow for generating TEST server attributes on 6.2

- Generate a TEST Server Attributes for ENV to \modules\ServerAttributes_TEST_ENV.xml
  - Target: \modules\ServerAttributes_TEST_ENV.xml

```
script_test_62.bat ENV CIS_Generate_ServerAttributes_TEST.dp ""   ""
```

Step 4.2. Workflow for generating FULL server attributes on 6.2

- Generate all Server Attributes for ENV to \modules\ServerAttributes_ENV.xml
  - Target: \modules\ServerAttributes_ENV.xml

```
script_test_62.bat ENV CIS_Generate_ServerAttributes.dp ""   ""
```

Step 5.1. Workflow for Transforming TEST server attributes on 6.2

- Transform a TEST Server Attributes for ENV
  - Source: \modules\ServerAttributes_TEST_ENV.xml
  - Target: \modules\ServerAttributes_TEST_ENV_xform.xml

```
script_test_transform.bat ENV ServerAttributes_TEST_ENV.xml
```

Step 5.2. Workflow for Transforming FULL server attributes on 6.2

- Transform all Server Attributes for ENV
  - Source: \modules\ServerAttributes_ENV.xml
  - Target: \modules\ServerAttributes_ENV_xform.xml

```
script_test_transform.bat ENV ServerAttributes_ENV.xml
```

The following screen shot shows that the server attribute XML gets generated into the \modules\generated folder on the file system. In the example below, "***ServerAttributes_UAT.xml***" represents the original server attributes from the UAT 6.2 DV instance. The file "***ServerAttributes_UAT_xform.xml***" represents the transformed Server Attributes XML that is ready to be updated into DV 7.0. The file "***ServerAttributes_Transform_62_to_70.xsl***" contains the transformations that are executed to create the "***_xform.xml***" file. The resulting "***ServerAttributes_UAT_xform.xml***" file is used to update the server attributes on the target DV 7.0 server.

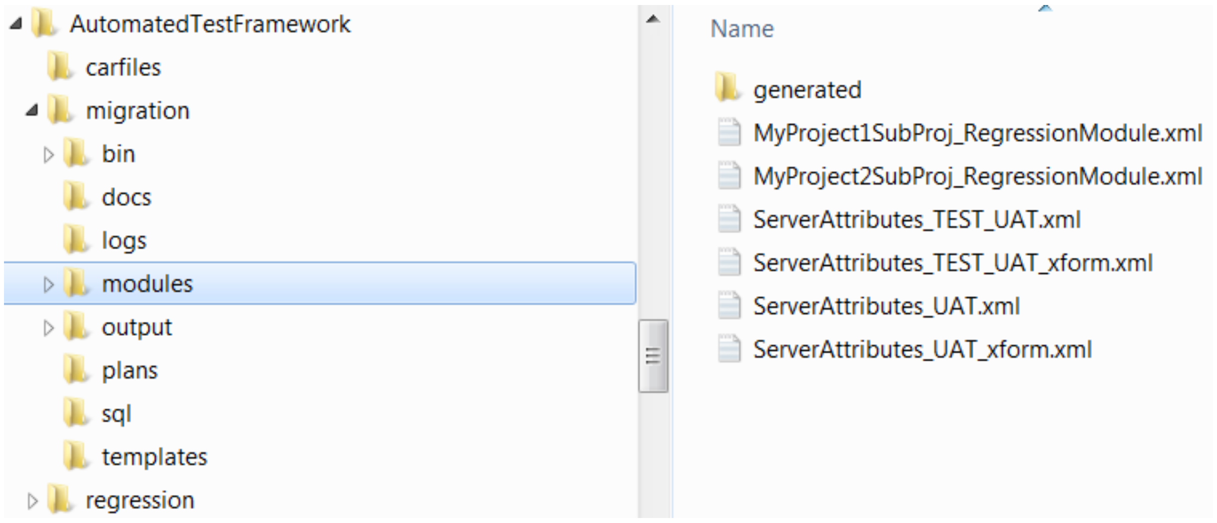

AutomatedTestFramework
carfiles
migration
bin
docs
logs
modules
output
plans
sql
templates
regression
Name
generated
MyProject1SubProj_RegressionModule.xml
MyProject2SubProj_RegressionModule.xml
ServerAttributes_TEST_UAT.xml
ServerAttributes_TEST_UAT_xform.xml
ServerAttributes_UAT.xml
ServerAttributes_UAT_xform.xml

Image 15: Migration Server Attributes Generated XML

Step 6.1. Workflow for updating TEST server attributes on 7.0

- Update TEST Server Attributes for ENV
  - Source: \modules\ServerAttributes_TEST_ENV_xform.xml

script_test_70.bat ENV CIS_Update_ServerAttributes_TEST.dp ""   ""

Step 6.2. Workflow for updating FULL server attributes on 7.0

- Update all Server Attributes for ENV
  - Source: \modules\ServerAttributes_ENV_xform.xml

script_test_70.bat ENV CIS_Update_ServerAttributes.dp ""   ""

Transformation Actions

The following table describes the transformation actions.

Action	ServerID	From6.2.6	To7.0.1
REPLACE	server2	/server/communications/generateSSLDiagnostics	/server/communications/generateSSLDiagnosticsOnServerRestart
REPLACE	server89	/server/config/debug/useFifoRepositoryCache	/server/config/debug/useFifoRepositoryCacheOnServerRestart
IGNORE	-server101	/server/config/info/displayName	
IGNORE	-server102	/server/config/license/licenseInfo	
IGNORE	-server103	/server/config/license/licenseManager	
IGNORE	-server366	/server/sql/optimizations/enableCheckForNestedAggregates	
REPLACE	server108	/server/config/metadata/optimizeDatabaseOnStartup	/server/config/metadata/optimizeDatabaseOnServerRestart
REPLACE	server120	/server/config/net/nioConnectorMaxIdleTime	/server/config/net/nioConnectorMaxIdleTimeOnServerRestart
REPLACE	server137	/server/config/net/useBlockingIOConnectors	/server/config/net/useBlockingIOConnectorsOnServerRestart
REPLACE	server319	/server/processing/requests/maxRequestsTracked	/server/processing/requests/maxRequestsTrackedOnServerRestart
REPLACE	server329	/server/processing/transactions/maxTransactionsTracked	/server/processing/transactions/maxTransactionsTrackedOnServerRestart
REPLACE	server385	/server/webservices/communications/http/headerBufferSize	/server/webservices/communications/http/headerBufferSizeOnServerRestart
REPLACE	server388	/server/webservices/communications/https/headerBufferSize	/server/webservices/communications/https/headerBufferSizeOnServerRestart

5 Changing PDTool Password

Introduction

This section describes how to change your PDTool password.

PDTool 6.2

1. Locate the PDTool 6.2 folder

   C:\Users\%USERNAME%\.compositesw\PDTool\PDTool6.2

2. Edit the variables file – setMyPrePDToolVars.bat

   a. Locate the variable CIS_PASSWORD

      set CIS_PASSWORD=Encrypted:6ABCABC9F46BAA2

   b. Modify the password by removing all text after the "=" including the "Encrypted:"

      set CIS_PASSWORD=

   c. Enter your new password.

   d. Save and close the file

3. Open a command line

   a. Change directories to the following location

      cd C:\Users\%USERNAME%\.compositesw\PDTool\PDTool6.2\bin

   b. Execute the following command

      ExecutePDTool.bat -encrypt ..\..\setMyPrePDToolVars.bat

4. Edit the variables file – setMyPrePDToolVars.bat

   a. Locate the variable CIS_PASSWORD and determine if the password is now encrypted.

PDTool 7.0

1. Locate the PDTool 7.0.0 folder

   C:\Users\%USERNAME%\.compositesw\PDTool\PDTool7.0.0

2. Edit the variables file – setMyPrePDToolVars.bat

   b. Locate the variable CIS_PASSWORD

      set CIS_PASSWORD=Encrypted:6ABCABC9F46BAA2

   c. Modify the password by removing all text after the "=" including the "Encrypted:"

      set CIS_PASSWORD=

   d. Enter your new password.
   e. Save and close the file
3. Open a command line
   a. Change directories to the following location

      cd C:\Users\%USERNAME%\.compositesw\PDTool\PDTool7.0.0\bin
   b. Execute the following command

      ExecutePDTool.bat -encrypt ..\..\setMyPrePDToolVars.bat
4. Edit the variables file – setMyPrePDToolVars.bat
   f. Locate the variable CIS_PASSWORD and determine if the password is now encrypted.

6 Conclusion

Concluding Remarks

The Promotion and Deployment Tool is a set of pre-built modules intended to provide a turn-key experience for promoting DV resources from one DV instance to another. The user only requires system administration skills to operate and support. The code is transparent to operations engineers resulting in better supportability. It is easy for users to swap in different implementations of a module using the Spring framework and configuration files.

How you can help!

Build a module and donate the code back to Professional Services for the advancement of the "***Promotion and Deployment Tool***".