INTERSYSTEMS LEARNING SERVICES

InterSystems Change Control

InterSystems
Creative data technology

InterSystems Change Control

COPYRIGHT NOTICE

© 2020 InterSystems Corporation, Cambridge, MA. All rights reserved.
InterSystems is a registered trademark of InterSystems Corporation.

InterSystems, InterSystems Caché, InterSystems Ensemble, InterSystems HealthShare, HealthShare, InterSystems TrakCare, TrakCare, InterSystems DeepSee, and DeepSee are registered trademarks of InterSystems Corporation.

InterSystems IRIS data platform, InterSystems IRIS for Health, InterSystems IRIS, InterSystems iKnow, Zen, and Caché Server Pages are trademarks of InterSystems Corporation.

All other brand or product names used herein are trademarks or registered trademarks of their respective companies or organizations.

This document contains trade secret and confidential information which is the property of InterSystems Corporation, One Congress Street, Boston, MA 02114, or its affiliates, and is furnished for the sole purpose of the operation and maintenance of the products of InterSystems Corporation. No part of this publication is to be used for any other purpose, and this publication is not to be reproduced, copied, disclosed, transmitted, stored in a retrieval system or translated into any human or computer language, in any form, by any means, in whole or in part, without the express prior written consent of InterSystems Corporation.

The copying, use and disposition of this document and the software programs described herein is prohibited except to the limited extent set forth in the standard software license agreement(s) of InterSystems Corporation covering such programs and related documentation. InterSystems Corporation makes no representations and warranties concerning such software programs other than those set forth in such standard software license agreement(s). In addition, the liability of InterSystems Corporation for any losses or damages relating to or arising out of the use of such software programs is limited in the manner set forth in such standard software license agreement(s).

THE FOREGOING IS A GENERAL SUMMARY OF THE RESTRICTIONS AND LIMITATIONS IMPOSED BY INTERSYSTEMS CORPORATION ON THE USE OF, AND LIABILITY ARISING FROM, ITS COMPUTER SOFTWARE. FOR COMPLETE INFORMATION REFERENCE SHOULD BE MADE TO THE STANDARD SOFTWARE LICENSE AGREEMENT(S) OF INTERSYSTEMS CORPORATION, COPIES OF WHICH WILL BE MADE AVAILABLE UPON REQUEST.

InterSystems Corporation disclaims responsibility for errors which may appear in this document, and it reserves the right, in its sole discretion and without notice, to make substitutions and modifications in the products and practices described in this document.

For Support questions about any InterSystems products, contact:

InterSystems WorldWide Response Center
Telephone: +1-617-621-0700
Tel: +44 (0) 844 854 2917
Email: support@InterSystems.com

ICC 620: CCR Tier 2 – Baselining TrakCare Configuration

InterSystems
Creative data technology

Objective

- Explain which tools can be used to perform a Tier 2 baseline of a TrakCare instance.
- Demonstrate the ability to use the baseline export tools.
- Identify places to go for more details and instructions on performing a Tier 2 baseline.

Part 1: Baselining Overview

Review: What is Baselining?

- Synchronizes contents of Perforce and all environments with a source of truth.
  - Source of truth usually current state of LIVE environment.
- Process steps include:
  - Export all source (Tier 1) and/or configuration (Tier 2) from environment.
  - Reconcile any content already in Perforce.
  - Populate other Perforce branches with reconciled export.
  - Populate source workspaces.
  - Refresh environments.

Review: Why is Baselining Important?

- Establishes starting point in Perforce.
  - Editing item in environment that isn’t in Perforce means:
    - Can’t diff change.
    - Can’t backout.
- Establishes clean integration history.

Re-baselining

- Performing a baseline again.
- Cleans up previous mistakes from poor CCR usage.
  - Abandoned changes.
  - Unlocked TEST or LIVE.
- Establishes clean integration history.
  - Prevents future merge conflicts.
- History of changes still maintained in Perforce.

Baselining Prerequisites

- Verify all productions use System defaults.
  - Ensemble and HealthShare only.
  - See ICC530 for more information.
- Progress all CCRs to terminal state (Closed, Cancelled, Merged).
  - (re)baselining significantly simpler when no active changes in flight for System.
    - Avoids needing to reintroduce active changes.

Baselining Prerequisites (cont.)

- If (re)baselining multiple systems:
  - Each System will have to be frozen while (re)baselining that System.
    - (re)baseline one at a time.
    - Prioritize which System to finish first.

Baselining Process Notes

- InterSystems internal task.
  - Requires access to Perforce using p4 client.
- Must first properly configure:
  - CCR System Details.
    - ICC320.
  - Namespace.
    - ICC430.
- **Always** create a CCR to document process.
- Consider connecting via Remote Desktop to Cambridge for Perforce updates to improve efficiency.

Baselining Process Notes (cont.)

- Add system alert to warn everyone not to create CCRs.
  - See ICC320.
- Consider locking BASE to prevent accidental changes.
  - Use Tools > Change Control > Configure > Lock Change Control.
- Verify Bundle Queue empty.
  - Tools > Change Control > Bundle and Upload ItemSet.
- In environment from which exporting configuration, run:
  - XML.Element:AssignGUIDs(1).
  - XML.Element:CheckGUIDs(1).

Quiz: Purpose of Baselining

Question:

Which of the following is true about baselining? Select all that apply.

A. Rollback not possible without baselining.

B. Establishes starting point for every item managed via CCR.

C. Establishes clean integration history.

D. Required for diffing changes.

Answer:

All of the above.

Quiz: Baselining Procedure

Question:

Which of the following is required for baselining? Select all that apply.

A. Machine with Perforce client (P4) installed.

B. Valid Perforce user.

C. Machine with access to InterSystems internal network.

D. Environment with change control enabled.

Answer:

All of the above.

Manual Baseline

1. Export configuration:
   - `Set st = ##class(TC.ChangeControl.CCR).BaselineExport().`
2. Upload to InterSystems FTP2 site.
3. Download on RDP server with P4V client.
4. Manually create workspace, load files and branch were required.
5. Typically takes 3 days to achieve and full-time equivalent resource.

Part 2: AutoBaseline Script For TrakCare Configuration

Automation Overview

- This course discusses an automation baselining script created to decrease time and minimize errors when doing a CCR Tier 2 (TrakCare configuration) baseline.
- The script covers the process of reconciling a baseline against a Perforce branch and automatically resolving and submitting the contents of the new baseline on top of existing branch content.

Automation Overview (cont.)

- This is an InterSystems-internal task which requires access to a machine with a Perforce client (p4) where the script can be run.
- Scripts can be found within Perforce at:
  - //custom_ccrs/_common/tools/AutoBaselineScripts/.

References

- Latest version of AutoBaseline script can be found here:
  - //custom_ccrs/_common/tools/AutoBaselineScripts/client/cls/Custom/Utility/Baseline/BaselineHelper.xml.
  - //custom_ccrs/_common/tools/AutoBaselineScripts/client/inc/Custom_Utility_Baseline_Main_inc.xml.
- Latest version of Perforce AutoScript can be found here:
  - //custom_ccrs/_common/tools/AutoBaselineScripts/internal/bat/p4BaselineAutoScript.bat.

References (cont.)

- Optional.
  - Latest version of TrakCare SSADMIN Regional Menu for baselining can be found here:
    - //custom_ccrs/_common/tools/AutoBaselineScripts/client/cls/Custom/Utility/Baseline/Menu.xml.

Summary of Baseline Steps Using Scripts

1. Configure CCR system details and CCR environments appropriately.
2. Use AutoBaseline script to export source from BASE and upload to FTP2 site.
3. Use Perforce baseline batch script to download and submit export to Perforce.
4. Copy Perforce branches to environment source workspaces.
5. Perform refresh of environment.

Steps in AutoBaseline Script

1. Export XML files to temp location.
2. Compress files.
3. Create .ini configuration file.
4. Upload zip of files and configuration file to InterSystems FTP2 site.

How To: Run AutoBaseline Script

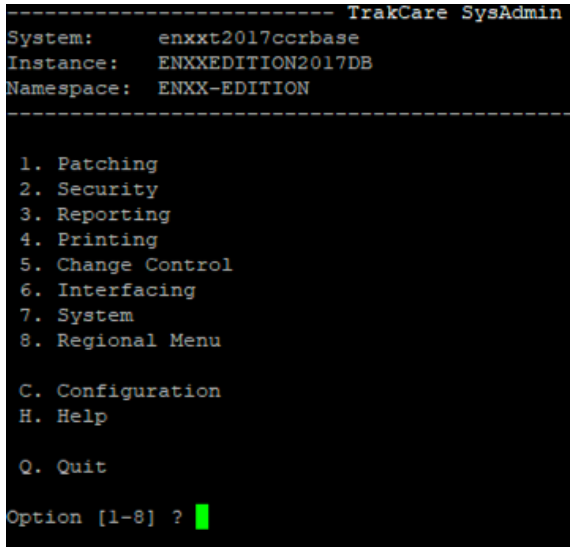
1. On Windows, 7Zip installed in C:\Program Files\7-Zip\7z.exe.
2. Verify using latest version of script.
   - Use Get Latest action in p4v.
   - Verify Id tag in files.
3. Import include file into environment.
   - Custom_Utility_Baseline_Main_inc.xml.
4. Import BaselineHelper into environment.
   - Custom.Utility.Baseline.BaselineHelper.xml.
5. Use SSADMIN tool to run baseline.
   - Alternatively, call methods directly.

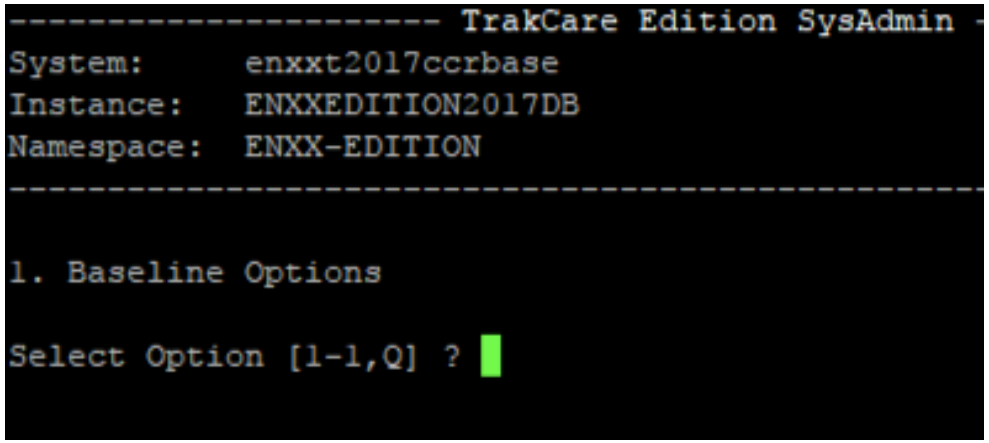
How To: Setup SSADMIN Utility for Baselines

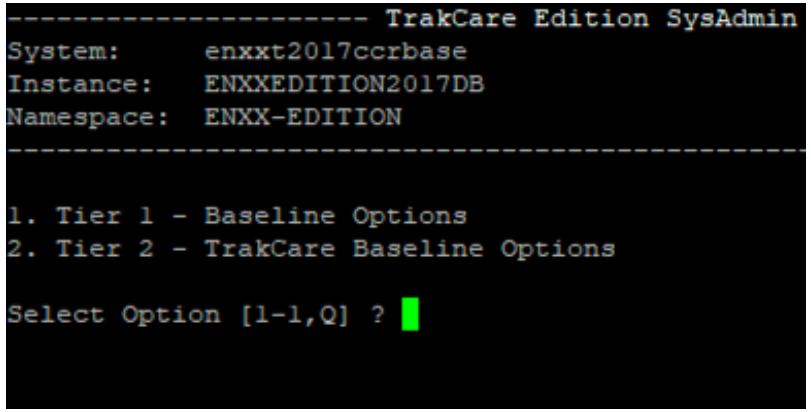
1. Get latest version of menu from Perforce:
   - //custom_ccrs/_common/tools/AutoBaselineScripts/client/cls/Custom/Utility/Baseline/Menu.xml.
2. Import Menu.xml into namespace.
   - May require Tier 1 CCR.
3. Run `do ##class(Custom.Utility.Baseline.Menu).SetupMenu()`.
   - Once installed, prompt enters into SSADMIN tool.

How To: Use SSADMIN Utiltiy for Baselines

1. Enter SSADMIN utility.
   - Automatically entered into utility after installation.
   - Call `do ^SSADMIN` to run at any time.
2. Choose 8 > 1 > 2 to access Tier 2 baseline options.







Using SSADMIN tool - Options

- Select from the baseline options for Tier 2:
  - Full TrakCare Baseline.
    - Exports all tables from TrakCare usual after a refresh, patching or upgrade.
  - Selective Baseline Tables.
    - If only a subset of tables need to be baselined then this option can be used. It requires configuration set as a one-off task.
  - Selective Baseline GUID List(s).
    - Upload scripts or GUID syncs may provide the ability to detect the rows and classes which are being updated. It maybe quicker to export just the list of GUIDs rather than full tables to provide faster turn around on baselines.

Using SSADMIN tool – Options (cont.)

- TrakCare Baseline CCR.
  - The ability to export a list of changes in the uncommitted queue based on CCR number rather than using CCR. This can be handy for large items and especially when dealing with CT_Overrides.
- Configuration options.
  - This provides the mechanism to group a common list of classes under a tag. This tag just needs setup once and allows for quick exports when using option ‘Selective Baseline Tables’ rather than setting up the logic every time it needs run. More details on this can be found later.

Using SSADMIN tool – Options (cont.)

- For selective baseline tables you need to create a group set code which can be achieved under option 5 'Configuration options.’

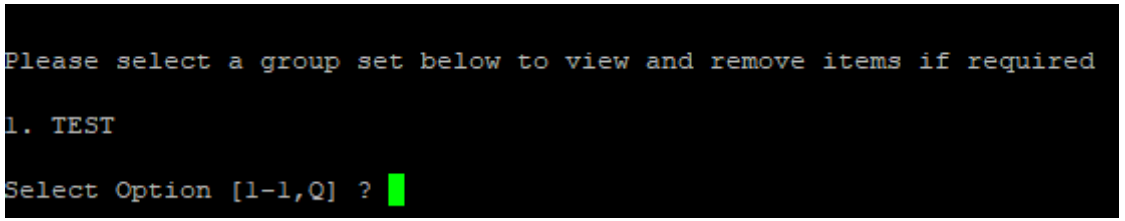
Using SSADMIN tool - Configuration options

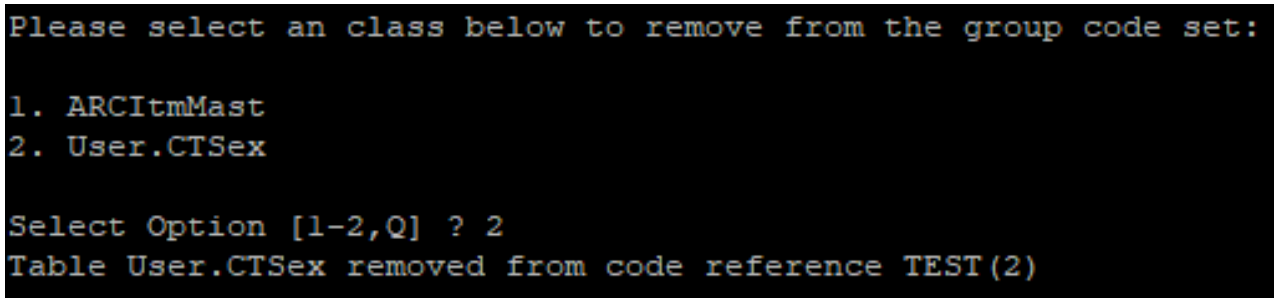
- To create group set codes for selective baseline tables then configure this under option 5 'Configuration options.’
- To create a new group code set select option 1 and add code and class. To add multiple select same option again and use the same code.

```
Amend and delete group code sets used for selective baselines

1. Create Table Group Set
2. Remove Table Group Set Items

Select Option [1-2,Q] ? 1

Enter Group Name ? TEST
Enter Table Class e.g. User.CTSex ? User.ARCItmMast
```

Using SSADMIN tool - Configuration options (cont.)

- To remove any items select option 2 'Remove Table Group Set Items'. This will display a list of the group code sets.
- Select group code to amend. This will display all the classes associated with this code set.
- Select the option number and this will be removed.





Full Baseline Details

- Using the script 'Custom.Utility.Baseline.BaselineHelper.xml' at site this will do the following items:
  - Run final CCR setup (exclusion list, itemset configuration source global).
  - Lock environment if required.
  - Assign GUIDs if required.
  - Export the files.

Full Baseline Details (cont.)

- Using the script 'Custom.Utility.Baseline.BaselineHelper.xml' at site this will do the following items:
  - Compress the file to tar.gz.
    - File name displayed at end of script.
  - Create configuration ini file with the same name as compressed file.
  - FTP to ftp2.intersystems.com.
  - NOTE: This can run from any environments.

Selective Baseline

- Using the script 'Custom.Utility.Baseline.BaselineHelper.xml' at site this will do the following items:
  - Assign GUIDs if required.
  - Export the selected tables.
  - Compress the file to tar.gz.
    - Filename displayed at end of script.
  - Create configuration ini file with the same name as compressed file.
  - FTP to ftp2.intersystems.com.

GUID List Export

- Using the script above 'Custom.Utility.Baseline.BaselineHelper.xml' at site this will do the following items:
  - Export list of GUIDS based in a file or files separated by a semi colon.
  - Compress the file to tar.gz.
    - Filename displayed at end of script.
  - Create configuration ini file with the same name as compressed file.
  - FTP to ftp2.intersystems.com.

Baseline CCR List

- Using the script above 'Custom.Utility.Baseline.BaselineHelper.xml' at site this will do the following items:
  - Export list of changes by CCR number where items are in the bundle queue.
  - Compress the file to tar.gz.
    - Name of file displayed at end of script.2
  - Create configuration ini file with the same name as compressed file.
  - FTP to ftp2.intersystems.com.
  - Removes items from the uncommitted queue for the given CCR, sets the file permissions back to read only and removes backup files.

Running Baselines Without SSADMIN Utility

- Can directly run method called by SSADMIN.
- For each, run method and verify returned value equals 1.
- Can use `write $system.Status.DisplayError(sc)` to get error text.

How to: Run Full Baseline Method

- `set sc = ##class(Custom.Utility.Baseline.BaselineHelper).Baseline(FinalCCRSetup, LockEnv, AssignGUIDS).`
- Method Parameters:
  - All passed as 0 for false or 1 for true.
  - FinalCCRSetup = Checks exclusion list and sets this up if not present and assigns global ^SYS("SourceControl","ItemSetConfig","Source") if not present.
  - LockEnv - Lock environment down as part of the baseline.
  - AssignGUIDS - runs the AssignGUIDs and checkGUIDS commands.

How to: Run Selective Baseline Method

1. Assign Code Set.
   - To setup selective baseline, need code set ID allocated against set of tables.
   - `set sc = ##class(Custom.Utility.Baseline.BaselineHelper).AssignBaseRefCode(ExportCodeRef,ClassTable).`
     - ExportCodeRef = code to assign.
     - ClassTable = Table to associate with ExportCodeRef.
   - To remove a table:
     `set sc = ##class(Custom.Utility.Baseline.BaselineHelper).RemoveBaseRefCode(ExportCodeRef,ClassTable).`

How to: Run Selective Baseline Method (cont.)

2. Run baseline.
   - `set sc = ##class(Custom.Utility.Baseline.BaselineHelper).BaselineTables(ExportCodeRef, AssignGUIDS).`
   - Method parameters:
     - ExportCodeRef = The code for the code set used linked to selected tables for baseline.
     - AssignGUIDS = Run the AssignGUIDs and checkGUIDS commands. Pass as 0 or 1.

How To: Run GUID List Export Method

- `set sc = ##class(Custom.Utility.Baseline.BaselineHelper).BaselineGUIDs(RefCode,FileList).`
- Method Parameters:
  - RefCode = used for the file name to make unique.
  - FileList = list of filenames including full path separated by semi colon.
- ^zCustom.Baseline.Log has log details.

How To: Run Baseline CCR List Method

- `set sc = ##class(Custom.Utility.Baseline.BaselineHelper).BaselineCCR(CCRNumber).`

BaselineHelper Script Prompts

- No matter which of the above options chosen, script will ask:
  - Do you want to test compression/FTP process before baseline [Y/N]?
    - Recommend Y.
  - If previously run the script, asks whether System changed.
  - If never run or respond Y to System changed, prompts Y/N for each possible environment.

```
Do you want to test compression/FTP process before baseline [Y/N]? Y
START TEST PROCESS
TEST PROCESS COMPLETED SUCCESSFULLY!


Does you CCR environment have a BASE stage [Y/N]? Y
Does you CCR environment have a TEST stage [Y/N]? Y
Does you CCR environment have a UAT stage [Y/N]? N
Does you CCR environment have a LIVE stage [Y/N]? Y

CCR Environment Stages set to: BASE,TEST,LIVE

Click any key to start baseline export
```

Configuration Ini File

- Created by script.
- Contains information about System.
- Used by Perforce batch script discussed in next section.

```
COUNTRY_CODE=enx
ORGANISATION_CODE=ENNU
SYSTEM_CODE=HS2014CRIS
ENVIRONMENT_CODE=BASE
PERFORCE_DIR=trak\ennuBASE\hs\mgr\Temp\BaselineHS2014CRIS
ENVIRONMENT_STAGES=BASE,TEST
CCR_TIER=1
```

Quiz: TrakCare AutoBaseline Script

Question:

Which of these are TrakCare baseline options? Select all that apply.

A. Full TrakCare Baseline.

B. Selective Baseline Tables.

C. Selective GUID list(s).

D. TrakCare Baseline CCR.

Answer:

All of the above.

Quiz: TrakCare Baseline Script

Question:

The TrakCare AutoBaseline script can only run from the BASE environment. True or False?

Answer:

False. The TrakCare AutoBaseline script can run from any environment in a System.

Quiz: TrakCare AutoBaseline Script

Question:

What does the TrakCare AutoBaseline script do? Select all that apply.

A. Exports the XML files to temp location.

B. Compresses file to tar.gz.

C. Creates a configuration file to hold CCR baseline information.

D. Uploads the compressed file and configuration ini file to InterSystems FTP2 site.

Quiz: TrakCare AutoBaseline Script (cont.)

Answer:

All of the above.

Part 3: Perforce Baseline Batch File Script

Perforce Baseline Batch File Script

- Automates process after running AutoBaseline script.
- Unofficial testing shows takes 1 hour.
- Requires identical perforce username and SSO username.
  - Contact appservices@intersystems.com if not possible.
- Maintained in Perforce.
  - //custom_ccrs/_common/tools/AutoBaselineScripts/internal/bat/p4BaselineAutoScript.bat.

Steps in Batch File

1. Create temp subfolder of script directory.
2. Download tar.gz compressed file and .ini configuration file from InterSystems FTP2 to temp folder in directory of batch file.
3. Unzip file.
4. Read configuration ini file for default variable settings.
5. Prompt for any settings still empty.
6. Create workspace.
   - Username_CCR_BASELINE.

Steps in Batch File (cont.)

7. Copy new files from zip file.
8. Reconcile files in BASE in batches.
   - For Tier 2: only files under /misc branch.
     - Example: //custom_ccrs/us/ISCU/TRAK/BASE/misc/…
9. Integrate and resolve changelists for BASE to other branches.
10. Delete workspace if no pending changelists present.
11. Delete temp files and workspace.

How To: Run Perforce Batch Script

1. RDP to us2wwperforce.
2. Log into Perforce using P4V.
   - Stores credentials for use by script.
3. Get latest version of script from Perforce.
   - Must have connected to Perforce on this machine before running script.
   - Always use current version of script!

How To: Run Perforce Batch Script (cont.)

4. Create local filesystem location for temporary Perforce workspace.
   - Directory, but not workspace, must exist before running script.
   - Script will delete all files at end of script.
     - Do not use directory with pre-existing contents.
   - Script prompts for directory.
5. Double click batch script to run.

Perforce Batch File Prompts

- Workspace directory?
  - Default D:\Workspace\jgoody_US2WWPerforce_9103.
  - See notes on previous slide.
  - Cannot have trailing slash.
- Name of compressed file?
  - Specify name of file generated by AutoBaseline script.
- Download files from FTP server?
  - Default: Y.
  - Enter N when FTP not accessible.
    - Put zipped files in temp subfolder of script directory.

Perforce Batch File Prompts (cont.)

- Environment Details.
  - Uses values in configuration file to skip prompts.

```
Workspace Details:

Workspace directory? [Default is D:\Workspace\jgoody_US2WWPerforce_9103] : C:\Baseline\Workspace
Compressed file name located in C:\Baseline\temp? [Example: ENSP_T2017_CCRBaseline.tar.gz] : MyExport_ISCU_TESTSYS_CCRBaseline.tar.gz
Download files from ISC FTP server? [Default is Y] :

FTP and retrieve files MyExport_ISCU_TESTSYS_CCRBaseline.tar.gz and MyExport_ISCU_TESTSYS_CCRBaseline.ini


       File MyExport_ISCU_TESTSYS_CCRBaseline.tar.gz downloaded
       File MyExport_ISCU_TESTSYS_CCRBaseline.ini downloaded
Config file present and loading parameters

       Working Perforce Directory In Compressed File: Perforce
       CCR Country Code:               US
       CCR Site Organsiation Code:     ISCU
       CCR Site System Code:           TESTSYS
  CCR Site Environment Code:           BASE
  CCR Site Environment Stages:         BASE,TEST,LIVE
       CCR Tier:                       1
```

Log files

- Several log files created during script execution.
- Upon script completion:
  - Adds output.log and error.log to log.log.
  - Deletes all except log.log.

Log file	Description	Deleted
log.log.	Overall log of full process.	No.
output.log.	Temp log for each process step.	Yes.
error.log.	Temp error log for each process step.	Yes.
submitlog.log.	Submitted changelists for workspace, user, branch and date/time between merges.	Yes.

Review Changes

- Review:
  - Log file.
  - Branches.
    - Ensure folders present and merges executed correctly.

Quiz: Baseline Batch script

Question:

Which of the following is true about the configuration ini file?

A. Contains environment default information required for baselining.

B. Speeds up the process of baselining.

C. Contains the CCR site organization code.

D. Contains the CCR site stage environments.

Answer:

All of the above.

Quiz: Perforce Baseline Batch File Script

Question:

Which of the following is true about the Perforce baseline batch file script? Select all that apply.

A. Requires access to a machine with a Perforce client (p4).

B. Running the script is an InterSystems-internal task.

C. The perforce username must match the ISC active directory username running the script.

Answer:

All of the above.

Quiz: Perforce Baseline Batch File Script

Question:

What differences relating to file types and processes are only involved when running a Tier 2 baselining script? Select all that apply.

A. Classes only imported.

B. Classes and configuration items are imported.

C. Configuration items imported only.

D. Only looks at the misc branch.

Quiz: Perforce Baseline Batch File Script (cont.)

Answer:

C. Configuration items imported only.

D. Only looks at the misc branch.

Quiz: Perforce Baseline Batch File Script

Question:

A Perforce user account is required to run the Perforce baseline batch file script. True or False?

Answer:

True.

Part 4: Refresh Environment

Refresh Environment

- Need to update environments to match Perforce branches.
- Refresh^%buildccr only imports Tier 1 source.
- Need to either clone VM used for export or copy code databases and TrakCare files.
- If clone VM, make sure to:
  - Update source workspace path.
    - Source workspace path contains environment type (BASE/TEST/UAT/LIVE).
  - Run Configure^%buildccr to update environment type and lock/unlock appropriately.

Part 5: Re-baselining

How To: Re-Baseline

- Same prerequisites and notes from earlier apply.
- Usually export from LIVE instead of BASE.

How To: Re-Baseline (cont.)

1. Get Latest on BASE branch.
2. Delete all files in BASE folder from your Perforce workspace.
3. Copy files from export into BASE folder of Perforce workspace.
4. In p4v, right-click BASE branch > Reconcile Offline Work.
   - Reconcile Offline Work compares files in workspace to files in depot.
5. Choose just the edits > New Changelist > Reconcile.
6. Repeat steps 4 and 5 for Adds, adding to a new changelist.

How To: Re-Baseline (cont.)

7. Submit changelists.
   - Don’t forget to attach CCR number as a job.
8. Integrate changelists from BASE to TEST.
   - Add both integrations to same changelist.
   - Resolve changelist, choosing Accept Source.
   - Submit changelist.
9. Repeat step 8, integrating TEST to next environment through LIVE.
10. Refresh environments.

Baseline Conclusion

- All branches and environments in sync.
- Branches and environments will remain in sync provided:
  - Best practices followed regarding ItemSet deployment and backing out.
  - All changes made via CCR.
  - CCR never disabled.
  - Locks on non-BASE environment never removed.

Additional Resources

- Confluence: CCR Baseline Guidelines

Summary

- What are the key points for this module?