

PLMJobManager - NX-Refile

Refiling NX-Parts with Teamcenter environment

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Introduction

What is Refile?

At any new version of NX, there are new functionality and modules. This causes changes of the data model.

When opening a Part-file, there is a check in which version it was saved.

When the saved version is older than the current one, NX is converting the data model inside the Part-file. – This is called Refile

Why Refile?

From our development... we are able to open Part-files from Version 12.

Therefore we do not need a Refile?

When working with Teamcenter, we do not have write access to loaded or refiled parts.

Why do we have no write access?

- Part is owned by a different group
- Part is released
- Part has a different owning site

Parts from a prior NX-version get a modification flag after loading. If we refile the Parts during open it will increase the loading time. Without write access, we do a refile every time, when opening a part or assembly. Part is from an „old“ project ... does anybody know the NX-Version at that time? ... does anybody know that there are „old“ projects?

To have a clean NX-Environment it is necessary to Refile all Partfiles automatically and secure with the „ugmanager_refile_program.exe Utility“.

NX-Refile with the *PLMJobManager*

The PLMJobManager organizes the conversion of the NX-Data with the NX-Refile utility inside a Teamcenter environment.

Benefit of a NX-Refile with the PLMJobManager:

- ✓ Unique setup and control of the Refile-Options.
- ✓ Distribution of the Refile process to multiple computer-clients and organize them.
(Less Refile process time)
- ✓ Avoid „multiple“ Refile of NX-Parts.
- ✓ Supports the preparation of a Refile project.
- ✓ Simplifies the upgrade to newer NX-Versions.
- ✓ Both the TcEng Single and Multisite is supported
- ✓ Processing of „native“ NX data is also possible

NX-Refile with the *PLMJobManager*

It supports and optimizes the upgrade to a higher NX-Version within a unique procedural method.

The following methods are supported from the PLMJobManager:

- ✓ processing sequence of the NX Partfiles:
 - Single Parts → recent parts at first, older parts at last
 - Assemblies → with the „Button Up“ principle
(Button Up = dependent of the amount of components, from button to top)
- ✓ Adjustments for processing sequence i.e. volumes, groups, projects etc...
- ✓ Analysis of the Refile-Logfiles for Status, error messages, warnings, etc..
- ✓ Storage of the Client NX-Refile-Logfiles.
- ✓ Center control of the Refile processes in a Multisite environment
(with a central PLMJobServer Database we are able to serve multiple sites)

Project Phase

■ **Phase 1 – Analysis**

- How many Datasets/Parts
- Analyse the environment (Precise/Imprecise, Loadoptions, Reference-Sets, Release status ...)
- Analyse and Setup the Refile-Methods (order, settings and parameters)
- Check of disk space
- Clone the productive environment and Tests ...

■ **Phase 2 – Preparation and Test**

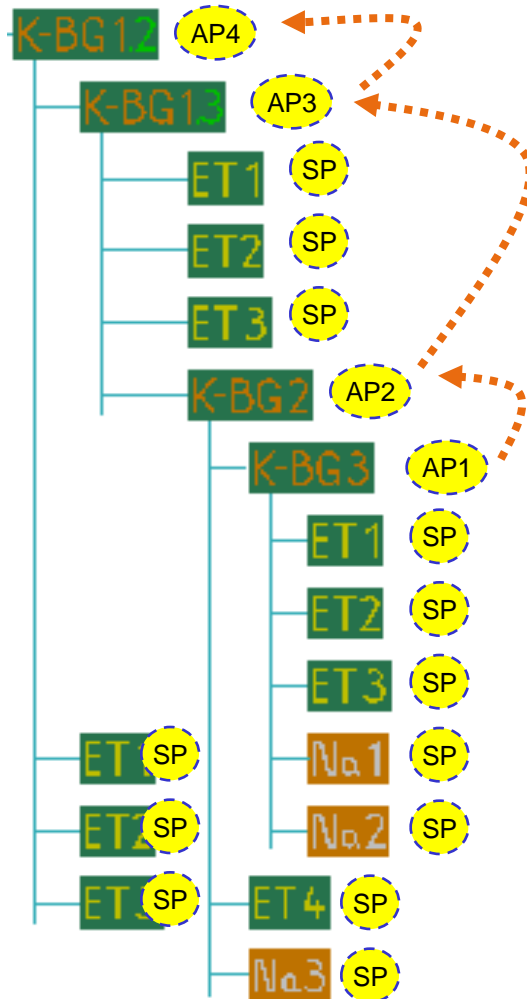
- PlmJobManager-OS-User and TC-User setup
- Check assemblies
- Access via Remote Desktop Connection or VNC
- Installation PlmJobManager -Manager-Tool (Server + Clients)
- Import PlmJobManager-Database from TCEng.
- Define Datapackage and Order for the PlmJobManager
- Define available Timeframes (day, night, take care of backup times)
- Check-Out Objects ... check them in, or mark them.
- Run Refile-Tests
- Run CheckBox

■ **Phase 3 – Performing**

- Update the PlmJobManager-Database
- Explicit Check-Out Objects / User reference in a folder
- Check-Out Objects → prepare a Check In
- Run a Clearlocks
- Backup the Data
- Refile-Packages at the PlmJobManager-Clients
- Analyse the PlmJobManager-Database
- Analyse the error Refile-Parts
- Analyse the Refile results ... create reports from the PlmJobManager

How to Refile?

BottomUp Prinzip:



The Refile of the Nx Data should be done via Bottom Up Principe.

The advance is that the refile of Assembly is systematic processed from Bottom Up. It reduces the time of refile and improves the final Data quality

Therefore the Parts and Processed in this order:

- First all = Single Part's (SP)
- All Assembly's (AP) started with the lowest mound of levels and components.

| | | |
|-----|---------------|--------------|
| AP1 | has 1 Level | 5 Component |
| AP2 | has 2 Level's | 8 Component |
| AP3 | has 3 Level's | 12 Component |
| AP4 | has 4 Level's | 16 Component |

How to Refile?

For a optimum Refile Result we defined the following Steps:

Step 1: Rf. Last Used Singelpart's

Step 2: Rf. Last Used Assembly Part's

→ -record_altrep_notes=yes

Step 3: Rf. Last Used Assembly Part's

→ Base Refile

Step 4: Rf. Last Used Assembly Part's

→ -convert_mcs

Step 5: Rf. Remaining Singelpart's

Step 6: Rf. Remaining Assembly Part's

→ -record_altrep_notes=yes

Step 7: Rf. Remaining Assembly Part's → Base Refile

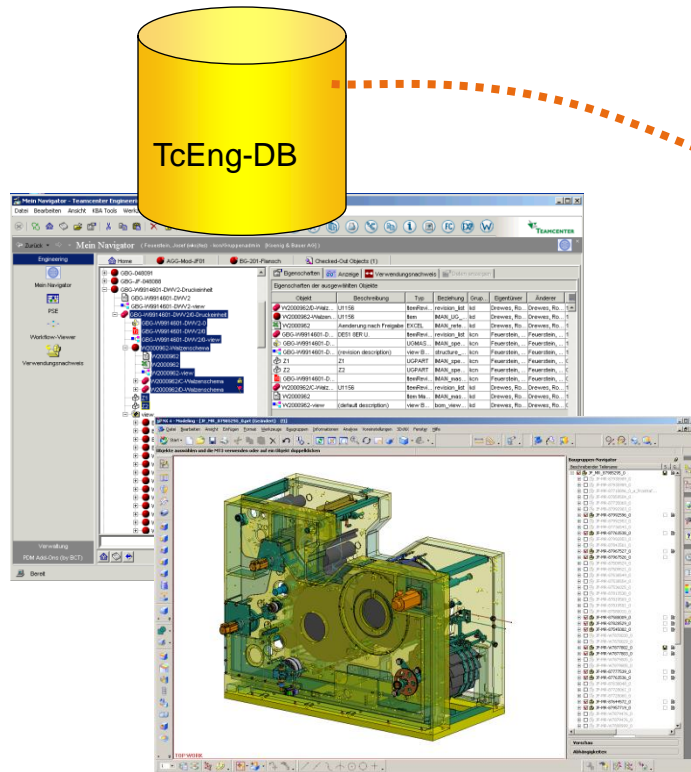
Step 8: Rf. Remaining Assembly Part's → -convert_mcs

Step 9: Generate Result Report

First we do Refile OwingSite Objects second we do refile ReplicaSite Objects. During Refile Process and specially between the Refile Steps it is recommended to Analyze the Refile Results.

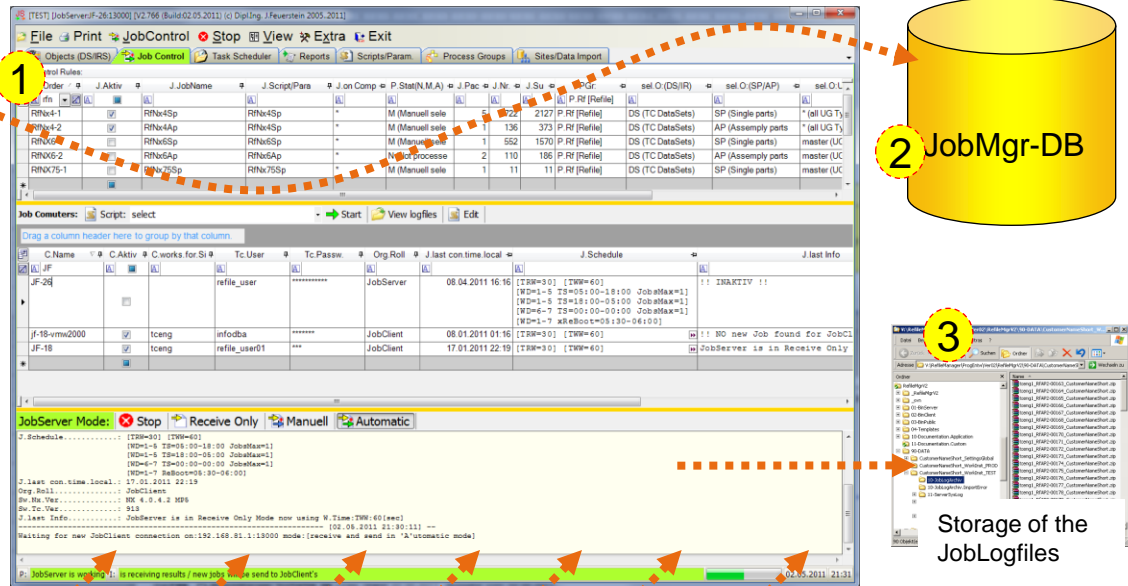
Chart Overview "Basic functionality"

Teamcenter and NX environment



PLMJobServer NX-Refile environment

All the jobs are administered by the JobServer. Furthermore, the JobServer controls the associated database (DB) (2) and manages the results of the jobs. The related log files are stored on a file server (3).



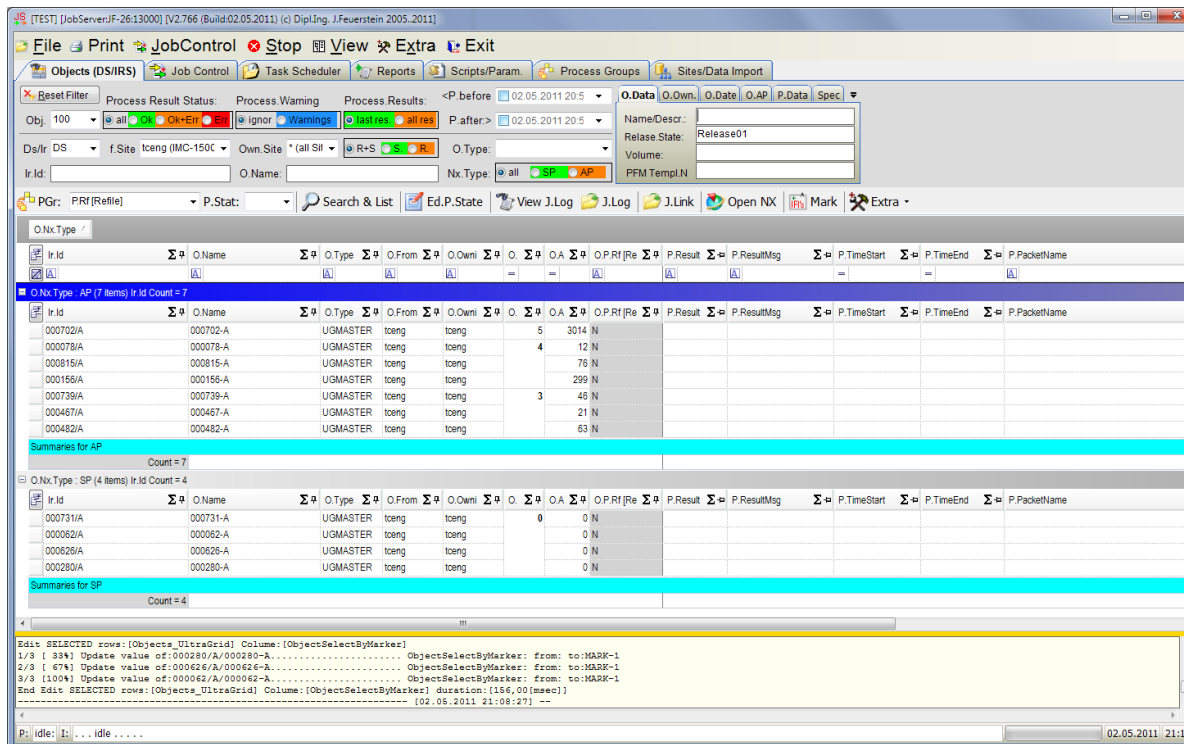
The clients (4) connect to the JobServer (1). Then jobs, which are created by the JobManager, are given to the clients (4). After one client has finished „his“ job, the results are transferred to the JobManager. After the results are analyzed by the JobServer(1) a new job will be created and assigned to the same client.



Interface of the *PLMJobManager*

The Interface is divided into different task areas:

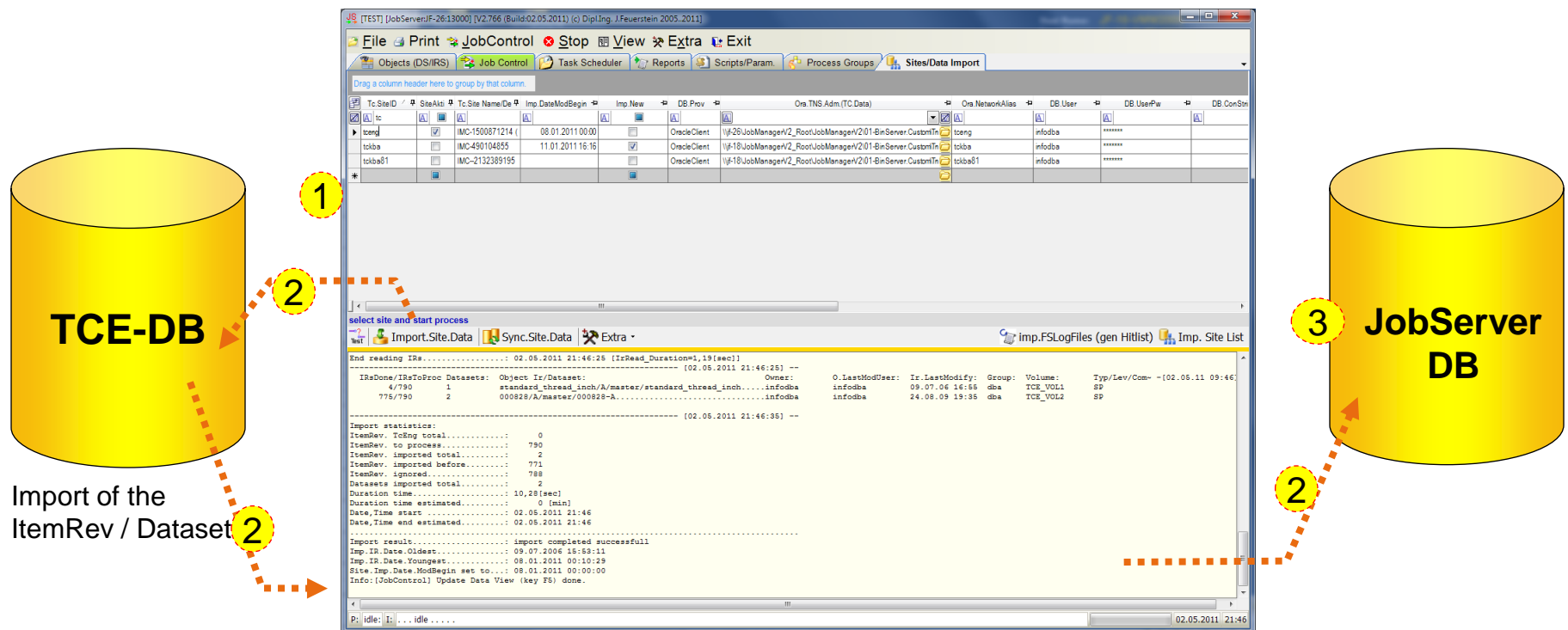
- **Objects (DS/IRS)** → Shows the Object (Datasets/Irs) and Job results
- **Job Control** → Organize and control of the JobClient processes
- **Task Scheduler** → Organize and control Scheduled processes
- **Reports** → Analysis of the Results
- **Job Scripts and Parameters** → Setup and control of the Job parameter and scripts
- **Process Groups** → Settings for Process Groups
- **Sites/Data Import** → Setup and control and dispatching of the data (ItemRev, Datasets)



JobManager Database

Load the data into the PlmJobManager

- In the PLMJobServer we capture all customer Sites (1)
- Import all ItemRev and Datasets into the JobServer-DB (2).
- This is the content of the JobServer-DB (3) and they are the database for the Job Process

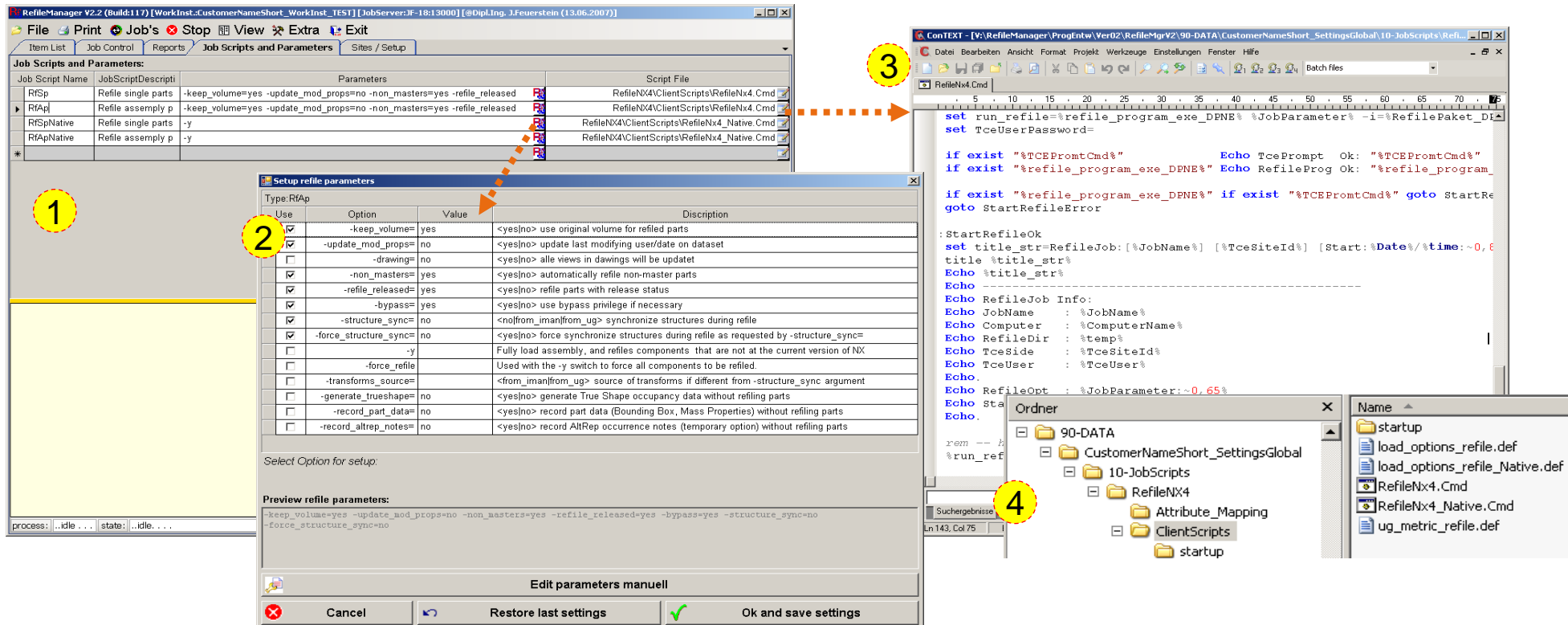


Setup and control of the Refile options and scripts

The setup and control of the NX-Refile Parameter **(2)** is done inside the JobServer **(1)**. Also the needed scripts **(3)** and the NX-Refile setup **(4)** will be organized there.

Benefit:

- ✓ Easy administration of all NX-Refile parameters. **(2)**
- ✓ Clear organization of the scripts **(3)** and setups **(4)**



The screenshot displays the RefileManager V2.2 (Build 117) interface. The main window shows the 'Job Scripts and Parameters' tab, listing various job scripts and their parameters. A yellow circle labeled '1' highlights the 'Job Scripts and Parameters' window. A yellow circle labeled '2' highlights the 'Setup refile parameters' dialog, which allows users to configure refile options like 'keep_volume', 'update_mod_props', and 'drawing'. A yellow circle labeled '3' highlights the 'RefilleNx4.Cmd' script file, which contains the refile command and its parameters. A yellow circle labeled '4' highlights the '90-DATA' directory structure, which organizes the refile scripts and parameters.

1 Job Scripts and Parameters:

| Job Script Name | JobScriptDescription | Parameters | Script File |
|-----------------|----------------------|---|--|
| RTSp | Refile single parts | -keep_volume=yes -update_mod_props=no -non_masters=yes -refile_released | RefilleNx4\ClientScripts\RefilleNx4.Cmd |
| RTAp | Refile assembly p | -keep_volume=yes -update_mod_props=no -non_masters=yes -refile_released | RefilleNx4\ClientScripts\RefilleNx4.Cmd |
| RTSpNative | Refile single parts | -y | RefilleNx4\ClientScripts\RefilleNx4_Native.Cmd |
| RTApNative | Refile assembly p | -y | RefilleNx4\ClientScripts\RefilleNx4_Native.Cmd |

2 Setup refile parameters:

| Use | Option | Value | Description |
|-------------------------------------|------------------------|-------|---|
| <input checked="" type="checkbox"/> | -keep_volume= | yes | <yes no> use original volume for refiled parts |
| <input checked="" type="checkbox"/> | -update_mod_props= | no | <yes no> update last modifying user/date on dataset |
| <input type="checkbox"/> | -drawing= | no | <yes no> all views in drawings will be updated |
| <input checked="" type="checkbox"/> | -non_masters= | yes | <yes no> automatically refile non-master parts |
| <input checked="" type="checkbox"/> | -refile_released= | yes | <yes no> refile parts with release status |
| <input checked="" type="checkbox"/> | -bypass= | yes | <yes no> use bypass privilege if necessary |
| <input checked="" type="checkbox"/> | -structure_sync= | no | <no from_iman from_ug> synchronize structures during refile |
| <input checked="" type="checkbox"/> | -force_structure_sync= | no | <yes no> force synchronize structures during refile as requested by -structure_sync= |
| <input type="checkbox"/> | -y | | Fully load assembly, and refiles components that are not at the current version of NX |
| <input type="checkbox"/> | -force_refile | | Used with the -y switch to force all components to be refiled. |
| <input type="checkbox"/> | -transforms_source= | | <from_iman from_ug> source of transforms if different from -structure_sync argument |
| <input type="checkbox"/> | -generate_trueshape= | no | <yes no> generate True Shape occupancy data without refile parts |
| <input type="checkbox"/> | -record_part_data= | no | <yes no> record part data (Bounding Box, Mass Properties) without refile parts |
| <input type="checkbox"/> | -record_altrp_notes= | no | <yes no> record AltRep occurrence notes (temporary option) without refile parts |

3 RefilleNx4.Cmd:

```

set run_refile=%refile_program_exe_DPNE% %JobParameter% -i=%RefilePaket_Di
set TceUserPassword=

if exist "%TCEPromtCmd%" Echo TcePromt Ok: "%TCEPromtCmd%"
if exist "%refile_program_exe_DPNE%" Echo RefileProg Ok: "%refile_program_

if exist "%refile_program_exe_DPNE%" if exist "%TCEPromtCmd%" goto StartRe
goto StartRefileError

:StartRefileOk
set title_str=RefileJob: [%JobName%] [%TceSiteId%] [Start: %Date%/%time:~0,6
title %title_str%
Echo %title_str%
Echo -----
Echo RefileJob Info:
Echo JobName : %JobName%
Echo Computer : %ComputerName%
Echo RefileDir : %temp%
Echo TceSide : %TceSiteId%
Echo TceUser : %TceUser%
Echo.
Echo RefileOpt : %JobParameter:~0,65%
Echo Sta
Echo.

rem -- h
%run_ref
  
```

4 90-DATA directory structure:

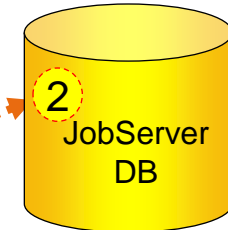
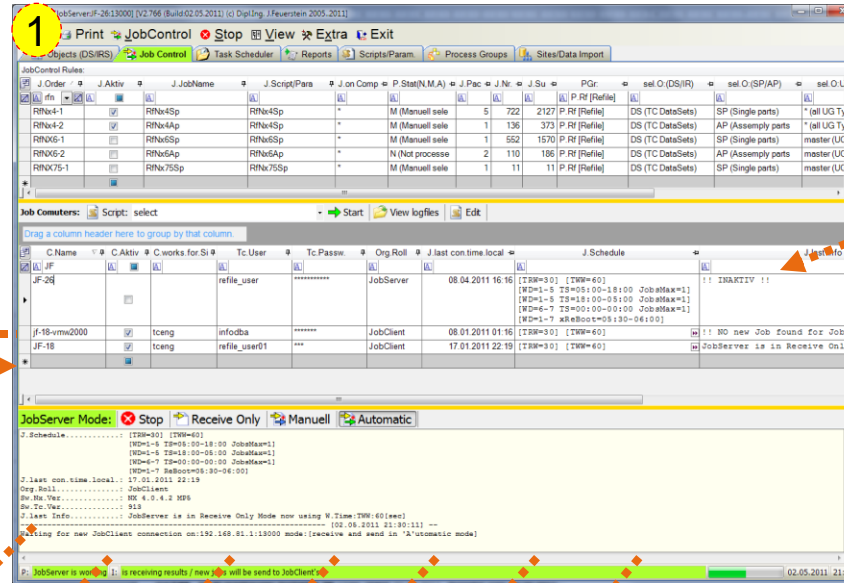
- 90-DATA
 - CustomerNameShort_SettingsGlobal
 - 10-JobScripts
 - RefilleNx4
 - Attribute_Mapping
 - ClientScripts
 - startup

Working with the JobServer: Job Control

The JobServer (1) will be located at one of your locations. It organizes the JobServer-DB (2) organizes all Job Clients (3) and storage of the Refile results. (4)



Procedure of the processing:
 The JobClients (5) are connecting to the JobServer (1) and receiving a Refile Job (packet) (6). The JobClient hands over the Results to the JobServer (7).



The JobServer organizing the received JobLogfiles

Coordination of the JobClient's

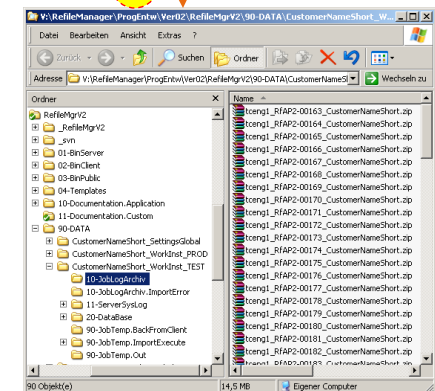
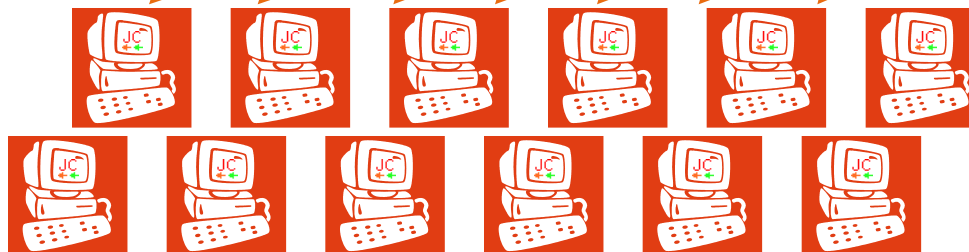
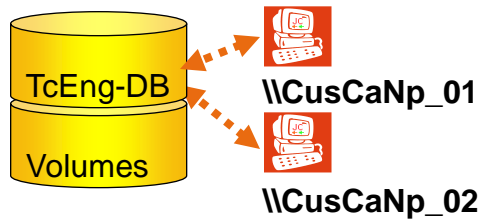


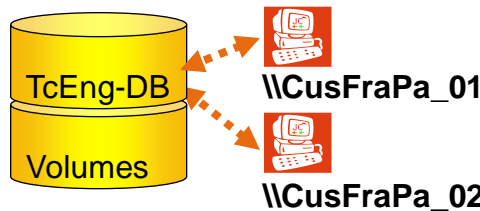
Chart Overview “Multisite environment”

Sites

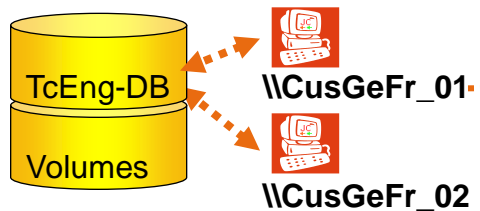
Site: USA
Location: Newport, Carlifornia



Site: Europe1
Location: Paris, France



Site: Europe2
Location: Frankfurt, Germany



JobServer and NXRefile environment

The JobServer will be located at one of your locations. From all sites the IR Lists for NX-Refile will be imported to the JobServer Database

JobServer V2.31 (Build:09.02.2008) [WorkInst.:TEST] [JobServer:JF-18:13000] [©Dipl.Ing. J.Feuerstein]

File Print Job's Stop View Extra Exit

Items Rf. Job Control Reports Scripts/Param. Sites/Data Import

| Or | JobName | Job description | Aktiv | valid on site | Job Script/Para | MultiSite Objects | Packet IRs si |
|----|-----------------|--|-------------------------------------|---------------|-----------------|-------------------|---------------|
| 01 | RfSpOwningParts | Refile Single Parts from Owning Site | <input checked="" type="checkbox"/> | All Sites(*) | RfSp | S_Obj | |
| 02 | RfSpRemoteParts | Refile Single Parts from Remote Site | <input checked="" type="checkbox"/> | All Sites(*) | RfSp | Remote Obj. only | |
| 03 | RfApOwningParts | Refile Assembly Parts from Owning Site | <input checked="" type="checkbox"/> | All Sites(*) | RfAp | S_Obj | |
| 04 | RfApRemoteParts | Refile Assembly Parts from Remote Site | <input checked="" type="checkbox"/> | All Sites(*) | RfAp | Remote Obj. only | |
| * | | | <input checked="" type="checkbox"/> | | | | |

Job Computers: Script: select Start View logfiles Edit

Drag a column header here to group by that column.

| Computer Na | Aktiv | work for Site | ComputerAssign | Schedule | Job.Info |
|-------------|-------------------------------------|---------------|----------------|--|----------|
| CusCaNp_01 | <input checked="" type="checkbox"/> | CusCaNP | JobClient | [TRW=4] [TWW=15] [WD=* TS=17:30-05:30] | aktive |
| CusCaNp_02 | <input checked="" type="checkbox"/> | CusCaNP | JobClient | [TRW=4] [TWW=15] [WD=* TS=17:30-05:30] | aktive |
| CusFraPa_01 | <input checked="" type="checkbox"/> | CusFraPa | JobClient | [TRW=4] [TWW=15] [WD=* TS=17:30-05:30] | aktive |
| CusFraPa_02 | <input checked="" type="checkbox"/> | CusFraPa | JobClient | [TRW=4] [TWW=15] [WD=* TS=17:30-05:30] | aktive |
| CusGeFr_01 | <input checked="" type="checkbox"/> | CusGeFr | JobClient | [TRW=4] [TWW=15] [WD=* TS=17:30-05:30] | aktive |
| CusGeFr_02 | <input checked="" type="checkbox"/> | CusGeFr | JobClient | [TRW=4] [TWW=15] [WD=* TS=17:30-05:30] | aktive |
| * | <input checked="" type="checkbox"/> | | | | |

Set Server Mode Stop Receive Only Obj.with Status:M (Manuell) Obj.with Status:N (Not Pro

```

SiteId      : CusCaNP
Node Name   : CusCaNP_01 (Mem:1023Mb)
Node NX Version : v4.0.3.3
Node TCE Version : 913
RefileJob.Log : _RefileJob.LOG
Refile IR list : CusCaNP_RfSp-00006_CustomerNameShort_ObjectsList.txt
Refile comands : -keep_volume=yes -update_mod_props=no -non_masters=yes -refile_released=yes -bypass=yes

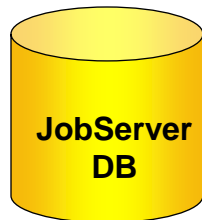
Site:      ItemNameRev:      DataSetName:      DataSetType:      ErrCode:      Process Time Start:
CusCaNP    000128/A          000128/A          master           0             18.02.2008 14:12:43

process: ..idle ... state: ..idle ...
  
```

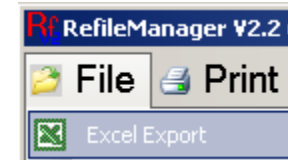
Working with the JobServer: Reports

Reporting functionality:

- Monitoring of the JobClient processes
- Analysis of the Refile-Logfiles



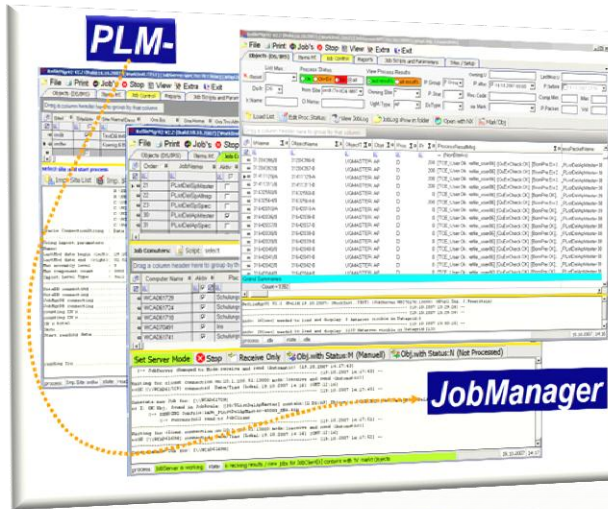
The **Excel Export** functionality allows you to easily store all needed data for further own calculations.



Use the clipboard (copy/paste) functionality if some data is needed in your own documents.

| SiteID | Owning Site Rel. | UG Master Type | DataSet Type: | Datasets | Status: OK | Status: Err |
|--------|------------------|------------------|---------------------|---------------|------------|-------------|
| 10 | tceng2 | 1-OwningSite Rls | 1-SP (Single Parts) | master | 165 | 165 |
| 11 | tceng2 | 1-OwningSite Rls | 2-AP (Assembly) | master | 18 | 17 |
| 12 | tceng2 | 1-OwningSite Rls | 2-AP (Assembly) | specification | 1 | 1 |
| 13 | | | Sum | 184 | 183 | 1 |
| 14 | | | | | 99,46% | 0,54% |

System requirements



JobServer:

- WinXp - Win7 32/64 bit
- Win Server 2003 - 2008 32/64 bit



JobClient:

- WinXp - Win7 32/64 bit
- Win Server 2003 - 2008 32/64 bit
- with full Nx-2tier and TC installation

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