



TAURUS

Integrating Tools in Eclipse or RDz

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- **Focus**

- SoforTe is specialized in optimizing mainframe based application development processes and team collaboration
- Eclipse, RDz, RTC EE, RAA,
- SCLM, Endeavor, ChangeMan, ...

- **Clients**

- Mainframe customers across all industries

- **Technology**

- TAURUS



- **Lessons learned**

- Integrating existing mainframe development processes and tools in RDz / Eclipse is time consuming and requires special skills
- Risk – Implementation is not done to the full extend and developers reject Eclipse
- Current RDz/Eclipse “out of the box” solutions are not sufficient.

- **Consequence**

- Eclipse implementations need to be simplified and easily customizable for the customers existing development process
- => development of TAURUS Integration Toolkit

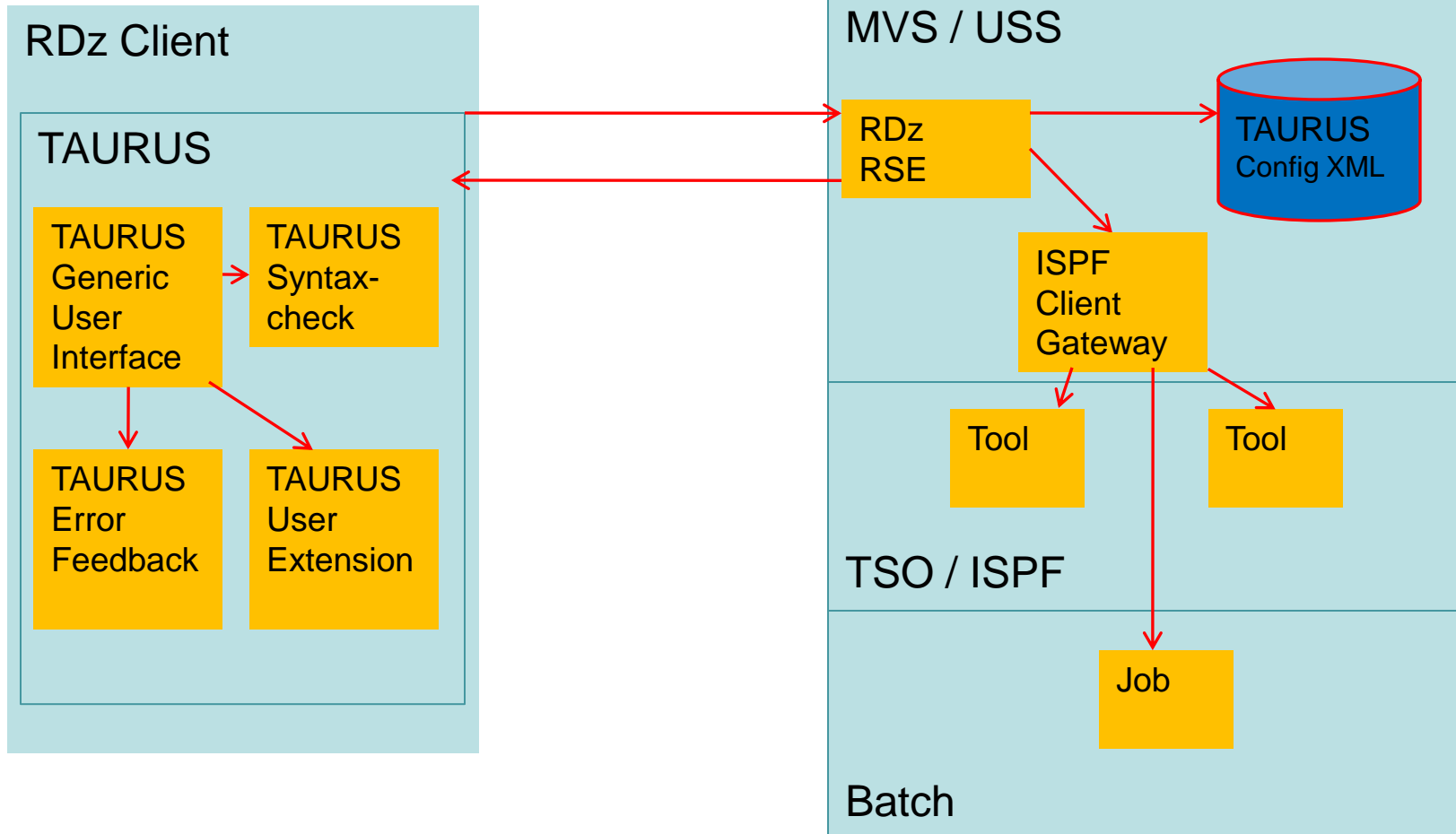
SoforTe – TAURUS – key objectives

- **Supports standard mainframe utilities in Eclipse**
 - MVS dataset explorer
 - JES Job explorer
- **Model driven tool integration**
 - Modeling of user interfaces and tool integration
 - Supports integration of SCLM, Endeavor, ChangeMan, ...
 - Fully customizable
 - Fully integrated into Eclipse or RDz
- **Reducing effort**
 - Integration with major SCM systems out of the box
 - Predefined models for different development processes
 - Integration with all kinds of tools like RAA, RTC, ...
 - Existing skill is sufficient – no plug-in development skill required
- **Faster integration compared to native plug-in development**
 - 10 times faster
 - Complete and deep integration becomes affordable
 - High functionality and quality of UI increase developer acceptability and productivity

SoforTe – TAURUS – Architecture for RDz

Windows / Linux

z/OS



SoforTe – TAURUS – Architecture for Eclipse

Windows / Linux

z/OS

Eclipse or RDz Client

TAURUS

TAURUS
Generic
User
Interface

TAURUS
MVS
Explorer

TAURUS
JES Job
Explorer

TAURUS
Error
Feedback

TAURUS
User
Extension

TAURUS
Syntax-
check

TCP/IP

MVS

TAURUS
zServer

TAURUS
Config XML

TCP/IP

zServer
ISPF
Interface

Tool

Tool

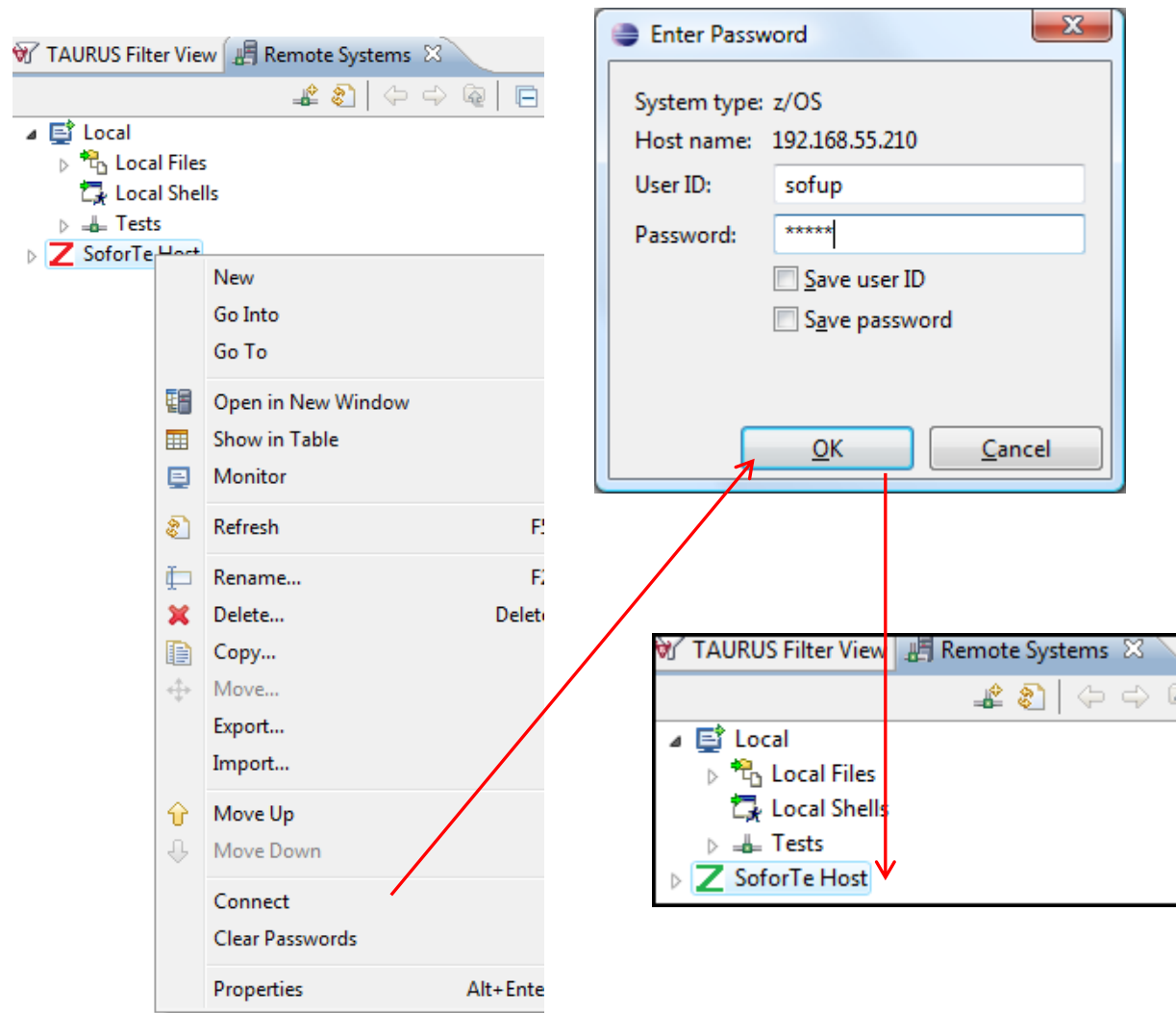
TSO / ISPF

Job

Batch

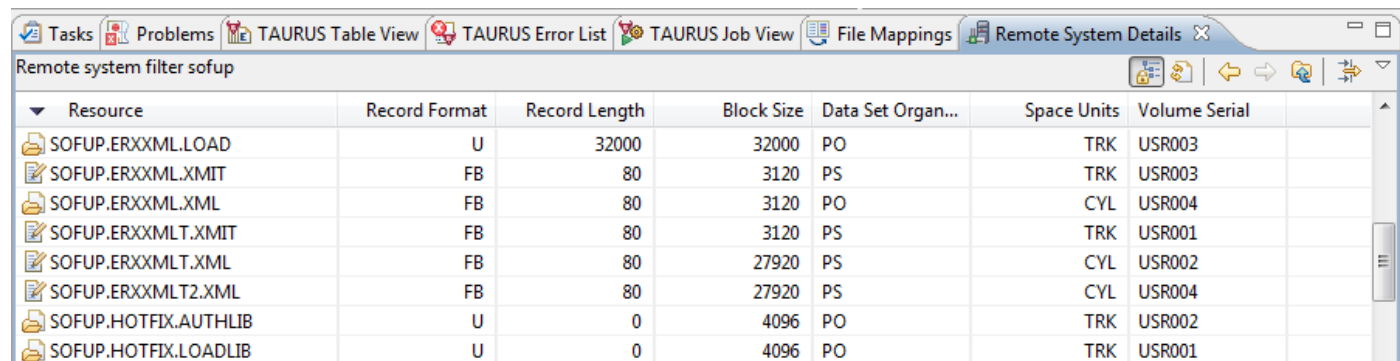
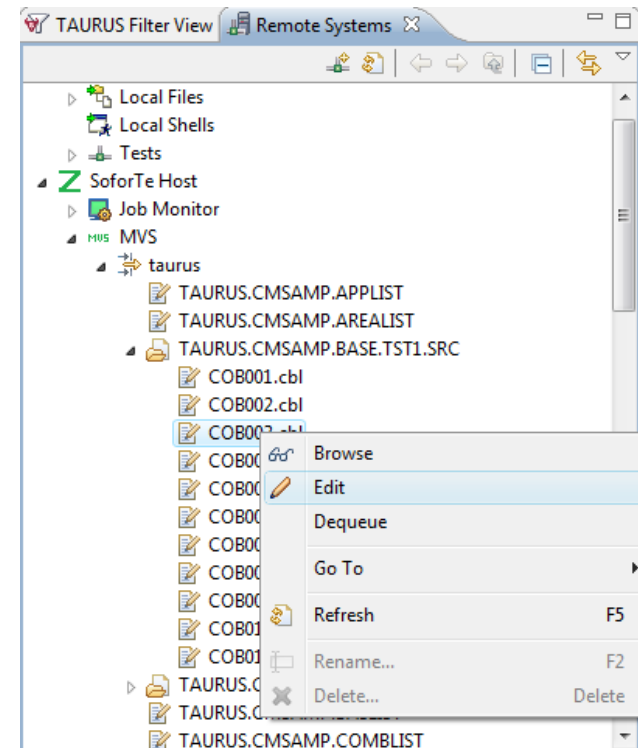
Connecting to the TAURUS zServer on z/OS

- Connecting to a z/OS system
- RACF Logon



TAURUS – MVS Explorer / MVS Dataset Support

- Creating Dataset Filter
- High Performance Communication:
 - List Datasets
 - List Members
 - Browse / Edit
 - Enqueue / Dequeue
 - HSM Support : Recall of migrated datasets
- File Mapping (Dataset / Member → File Suffix)
- Show in Table (Column sort ...)
- Dataset / Member functions:
 - Create/Delete
 - Copy / Paste
 - Rename
 - Search
 - Compare

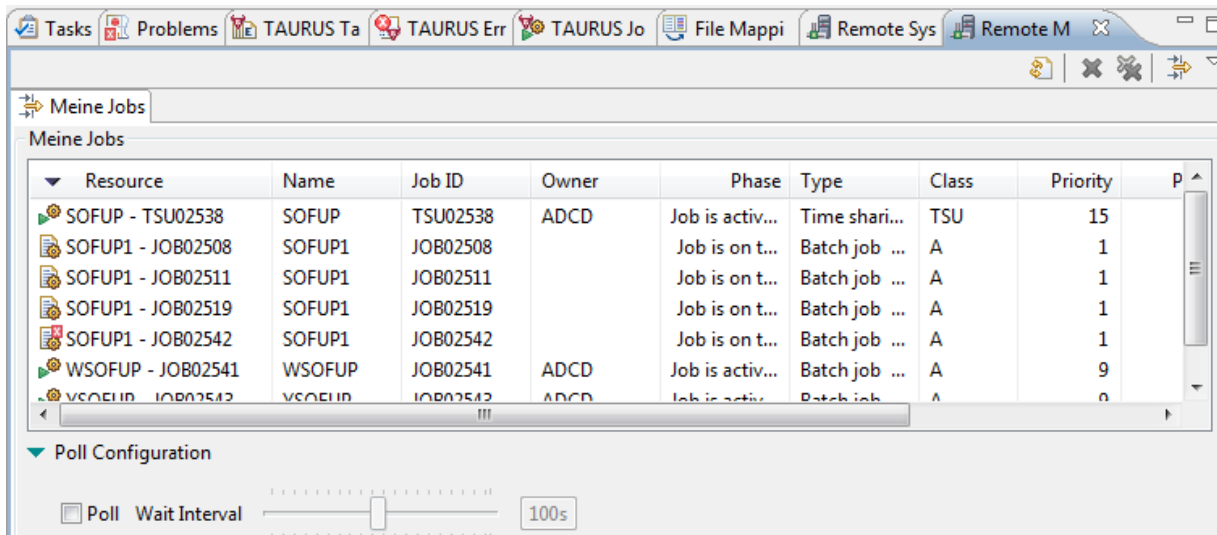


The screenshot shows the 'TAURUS Table View' window displaying a table of dataset members. The table has columns for Resource, Record Format, Record Length, Block Size, Data Set Organ..., Space Units, and Volume Serial.

Resource	Record Format	Record Length	Block Size	Data Set Organ...	Space Units	Volume Serial
SOFUP.ERXXML.LOAD	U	32000	32000	PO	TRK	USR003
SOFUP.ERXXML.XMIT	FB	80	3120	PS	TRK	USR003
SOFUP.ERXXML.XML	FB	80	3120	PO	CYL	USR004
SOFUP.ERXXMLT.XMIT	FB	80	3120	PS	TRK	USR001
SOFUP.ERXXMLT.XML	FB	80	27920	PS	CYL	USR002
SOFUP.ERXXMLT2.XML	FB	80	27920	PS	CYL	USR004
SOFUP.HOTFIX.AUTHLIB	U	0	4096	PO	TRK	USR002
SOFUP.HOTFIX.LOADLIB	U	0	4096	PO	TRK	USR001

TAURUS – JES JOB Explorer

- Creating Job Filter
- High Performance Communication:
 - List Jobs
 - List Job Parts
 - Browse Jobs / Parts
- Submit Jobs
- Show in Table (Column sort ...)
- Automatic Refresh (Polling)

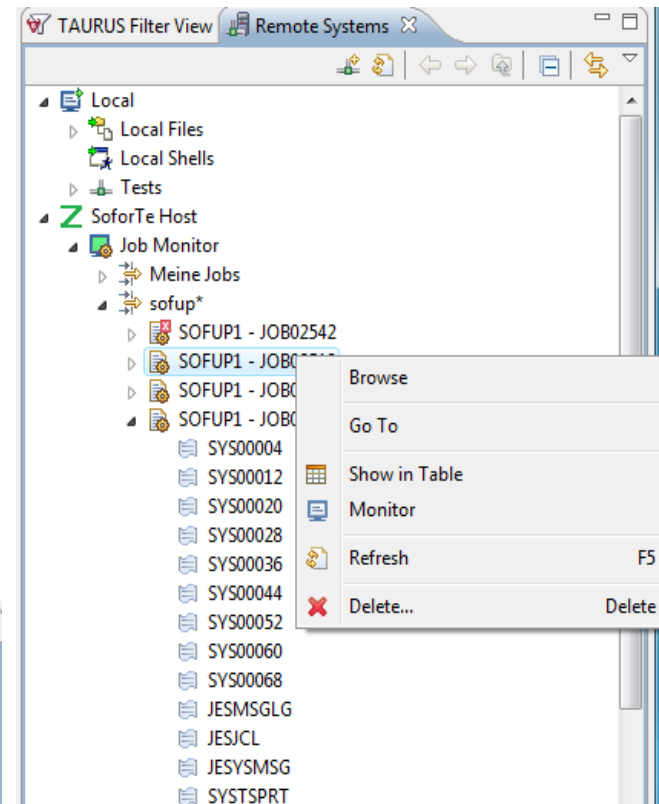


Meine Jobs

Resource	Name	Job ID	Owner	Phase	Type	Class	Priority	p
SOFUP - TSU02538	SOFUP	TSU02538	ADCD	Job is activ...	Time shari...	TSU	15	
SOFUP1 - JOB02508	SOFUP1	JOB02508		Job is on t...	Batch job ...	A	1	
SOFUP1 - JOB02511	SOFUP1	JOB02511		Job is on t...	Batch job ...	A	1	
SOFUP1 - JOB02519	SOFUP1	JOB02519		Job is on t...	Batch job ...	A	1	
SOFUP1 - JOB02542	SOFUP1	JOB02542		Job is on t...	Batch job ...	A	1	
WSOFUP - JOB02541	WSOFUP	JOB02541	ADCD	Job is activ...	Batch job ...	A	9	
VSOFUP - JOB02542	VSOFUP	JOB02542	ADCD	Job is activ...	Batch job ...	A	0	

Poll Configuration

Poll Wait Interval



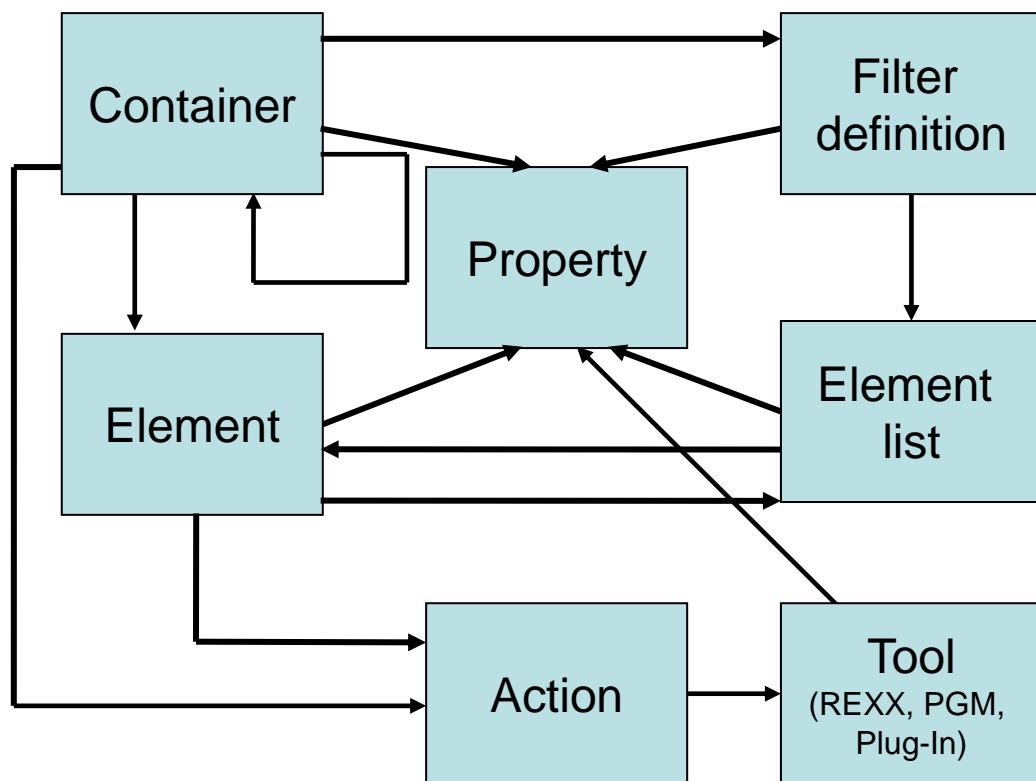
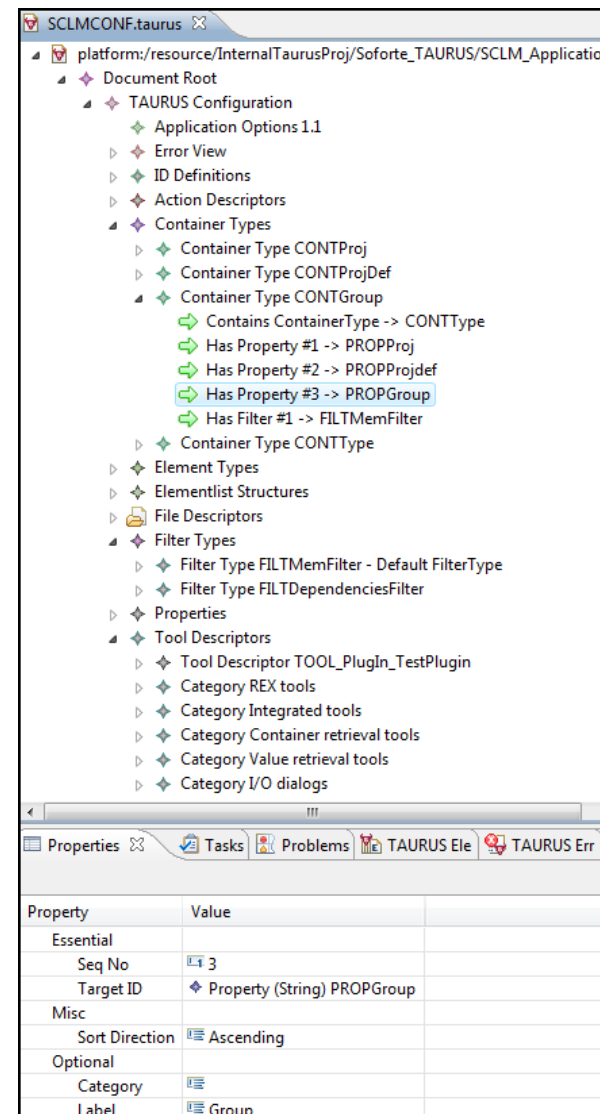
TAURUS Filter View Remote Systems

- Local
 - Local Files
 - Local Shells
 - Tests
- SoforTe Host
 - Job Monitor
 - Meine Jobs
 - sofup*
 - SOFUP1 - JOB02542
 - SOFUP1 - JOB02508
 - SOFUP1 - JOB02511
 - SOFUP1 - JOB02519
 - SOFUP1 - JOB02542
 - SYS00004
 - SYS00012
 - SYS00020
 - SYS00028
 - SYS00036
 - SYS00044
 - SYS00052
 - SYS00060
 - SYS00068
 - JESMSGGL
 - JESJCL
 - JESYSMSG
 - SYSTSPRT

Context Menu:

- Browse
- Go To
- Show in Table
- Monitor
- Refresh
- Delete...

TAURUS – Modeling the UI and Tool Integration

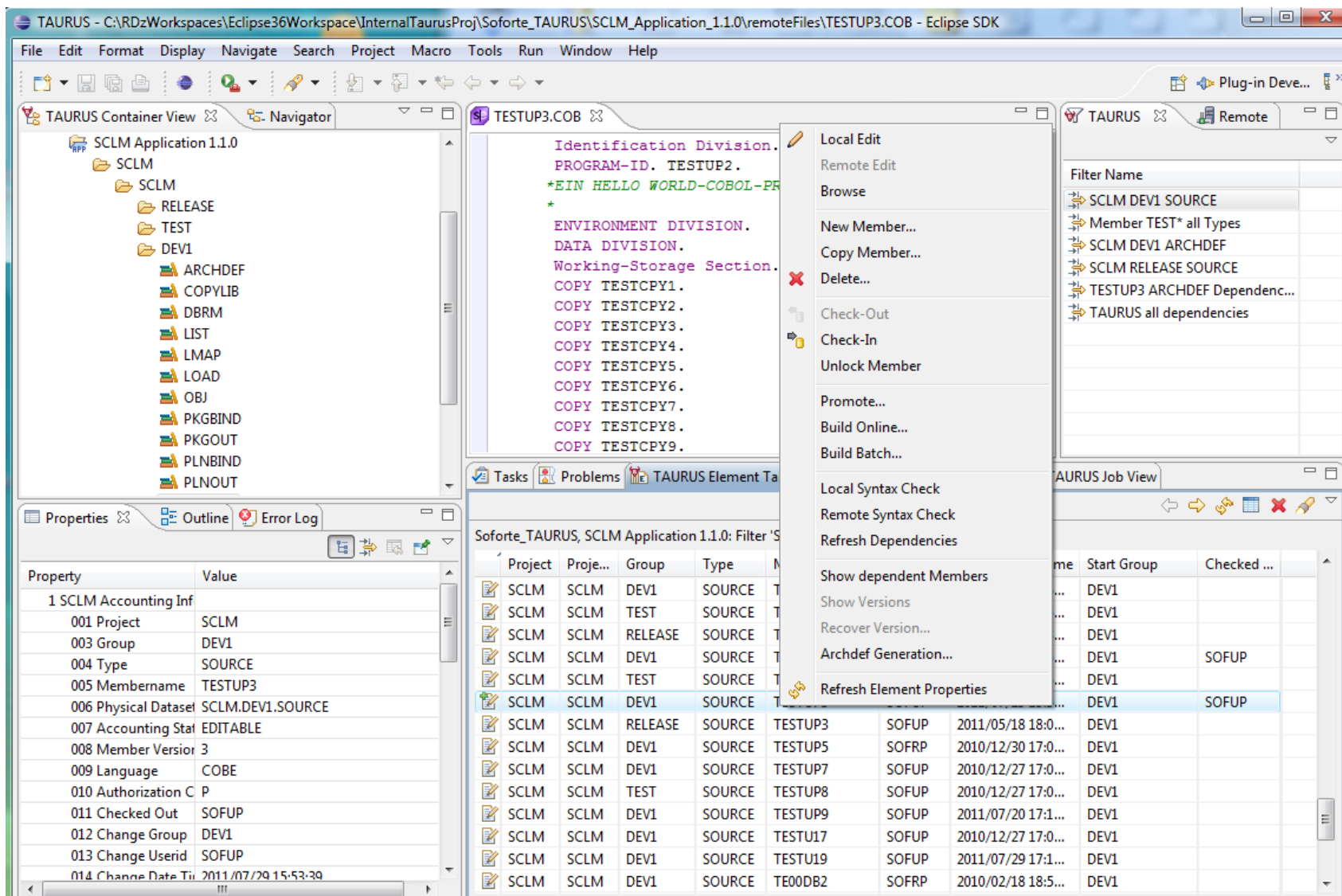
Screenshot of the SCLMCONF.taurus configuration tool. The tree view shows the following structure:

- platform:/resource/InternalTaurusProj/Soforte_TAUROS/SCLM_Application
 - Document Root
 - TAURUS Configuration
 - Application Options 1.1
 - Error View
 - ID Definitions
 - Action Descriptors
 - Container Types
 - Container Type CONTProj
 - Container Type CONTProjDef
 - Container Type CONTGroup
 - Contains ContainerType -> CONTType
 - Has Property #1 -> PROPProj
 - Has Property #2 -> PROPProjdef
 - Has Property #3 -> PROPGROUP
 - Has Filter #1 -> FILTMemFilter
 - Container Type CONTType
 - Element Types
 - Elementlist Structures
 - File Descriptors
 - Filter Types
 - Filter Type FILTMemFilter - Default FilterType
 - Filter Type FILTDependenciesFilter
 - Properties
 - Tool Descriptors
 - Tool Descriptor TOOL_Plugin_TestPlugin
 - Category REX tools
 - Category Integrated tools
 - Category Container retrieval tools
 - Category Value retrieval tools
 - Category I/O dialogs

The Properties table at the bottom shows the following data:

Property	Value
Essential	
Seq No	3
Target ID	Property (String) PROPGROUP
Misc	
Sort Direction	Ascending
Optional	
Category	
Label	Group

TAURUS Modeling Result: SCLM Sample



The screenshot displays the TAURUS Eclipse IDE interface. The main editor shows COBOL source code for 'TESTUP3.COB'. A context menu is open over the code, listing actions such as 'Local Edit', 'Remote Edit', 'Browse', 'New Member...', 'Copy Member...', 'Delete...', 'Check-Out', 'Check-In', 'Unlock Member', 'Promote...', 'Build Online...', 'Build Batch...', 'Local Syntax Check', 'Remote Syntax Check', 'Refresh Dependencies', 'Show dependent Members', 'Show Versions', 'Recover Version...', 'Archdef Generation...', and 'Refresh Element Properties'.

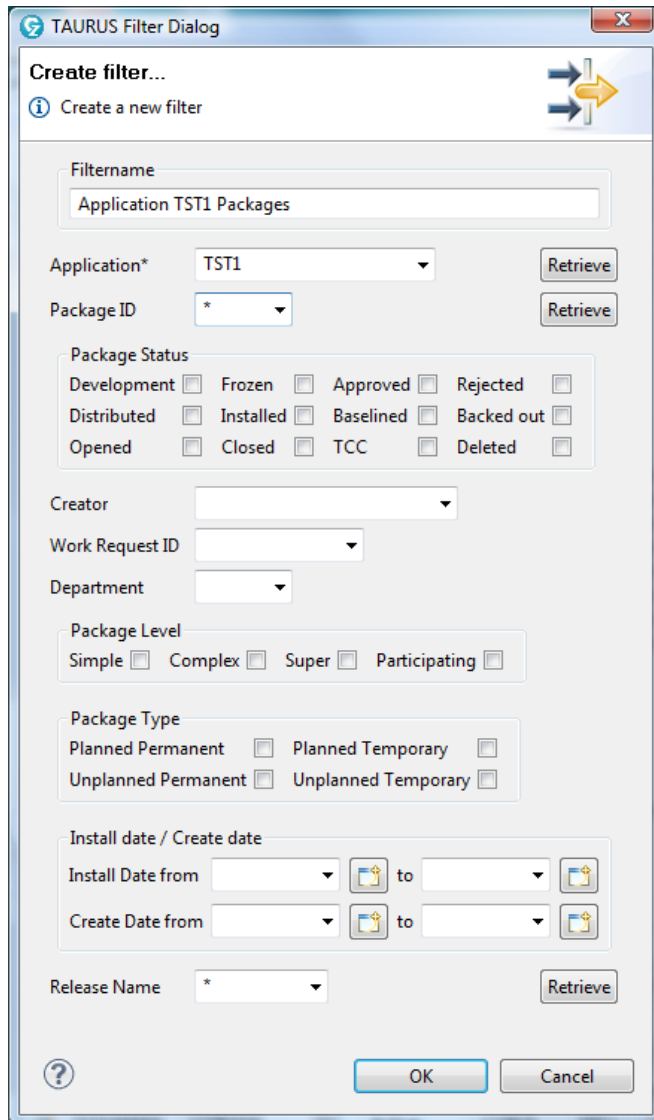
The left sidebar shows the 'TAURUS Container View' with a tree structure for 'SCLM Application 1.1.0' containing folders like 'SCLM', 'RELEASE', 'TEST', 'DEV1' and various libraries like 'ARCHDEF', 'COPYLIB', 'DBRM', etc.

The bottom-left pane shows the 'Properties' view for 'Soforte_TAURUS, SCLM Application 1.1.0: Filter 'S'. It lists properties such as 'Project', 'Group', 'Type', and 'Member Name'.

The bottom-right pane shows the 'TAURUS Job View' table, which lists job execution details.

Project	Proje...	Group	Type	M	me	Start Group	Checked ...
SCLM	SCLM	DEV1	SOURCE	T	...	DEV1	
SCLM	SCLM	TEST	SOURCE	T	...	DEV1	
SCLM	SCLM	RELEASE	SOURCE	T	...	DEV1	
SCLM	SCLM	DEV1	SOURCE	T	...	DEV1	SOFUP
SCLM	SCLM	DEV1	SOURCE	T	...	DEV1	SOFUP
SCLM	SCLM	RELEASE	SOURCE	TESTUP3	SOFUP	2011/05/18 18:0...	DEV1
SCLM	SCLM	DEV1	SOURCE	TESTUP5	SOFUP	2010/12/30 17:0...	DEV1
SCLM	SCLM	DEV1	SOURCE	TESTUP7	SOFUP	2010/12/27 17:0...	DEV1
SCLM	SCLM	TEST	SOURCE	TESTUP8	SOFUP	2010/12/27 17:0...	DEV1
SCLM	SCLM	DEV1	SOURCE	TESTUP9	SOFUP	2011/07/20 17:1...	DEV1
SCLM	SCLM	DEV1	SOURCE	TESTU17	SOFUP	2010/12/27 17:0...	DEV1
SCLM	SCLM	DEV1	SOURCE	TESTU19	SOFUP	2011/07/29 17:1...	DEV1
SCLM	SCLM	DEV1	SOURCE	TE00DB2	SOFUP	2010/02/18 18:5...	DEV1

TAURUS Modeling Result – Dialog Samples



TAURUS Filter Dialog

Create filter...
Create a new filter

Filtername
Application TST1 Packages

Application* TST1 Retrieve

Package ID * Retrieve

Package Status

Development Frozen Approved Rejected

Distributed Installed Baselined Backed out

Opened Closed TCC Deleted

Creator

Work Request ID

Department

Package Level

Simple Complex Super Participating

Package Type

Planned Permanent Planned Temporary

Unplanned Permanent Unplanned Temporary

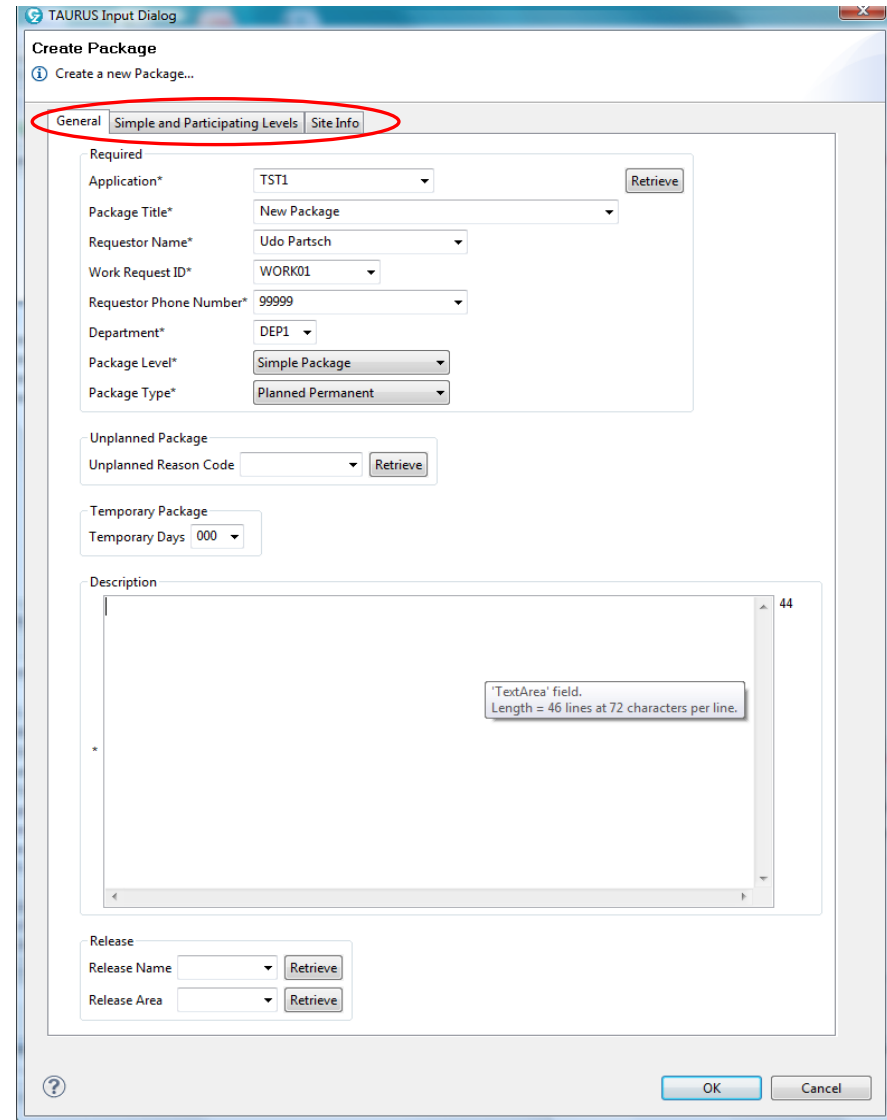
Install date / Create date

Install Date from to

Create Date from to

Release Name * Retrieve

OK Cancel



TAURUS Input Dialog

Create Package

Create a new Package...

General Simple and Participating Levels Site Info

Required

Application* TST1 Retrieve

Package Title* New Package

Requestor Name* Udo Partsch

Work Request ID* WORK01

Requestor Phone Number* 99999

Department* DEP1

Package Level* Simple Package

Package Type* Planned Permanent

Unplanned Package

Unplanned Reason Code Retrieve

Temporary Package

Temporary Days 000

Description

44

TextArea field.
Length = 46 lines at 72 characters per line.

Release

Release Name Retrieve

Release Area Retrieve

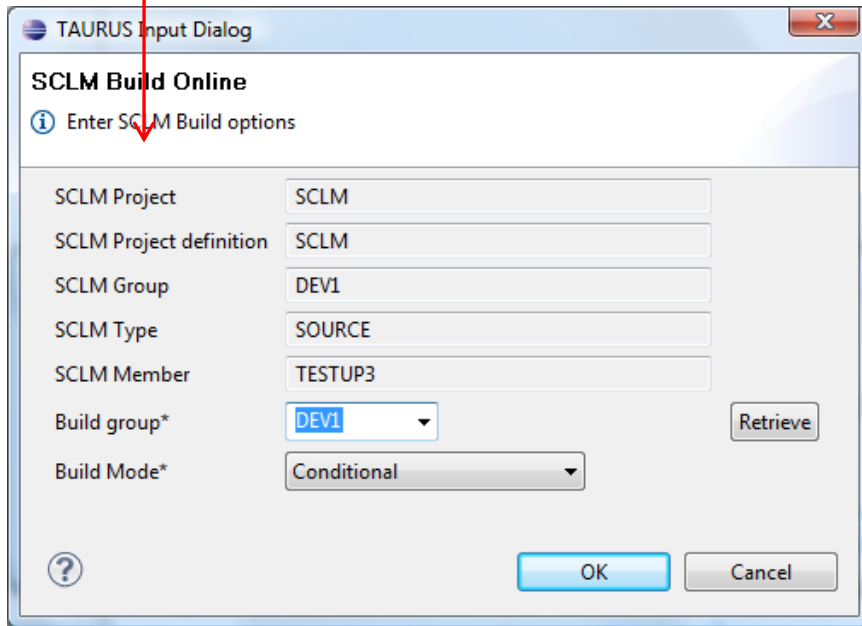
OK Cancel

Taurus Modeling Sample: SCLM Build Action

- **(1) Define a property for each dialog field**

Model
Result

Model
Definition



TAURUS Input Dialog

SCLM Build Online

Enter SCLM Build options

SCLM Project: SCLM

SCLM Project definition: SCLM

SCLM Group: DEV1

SCLM Type: SOURCE

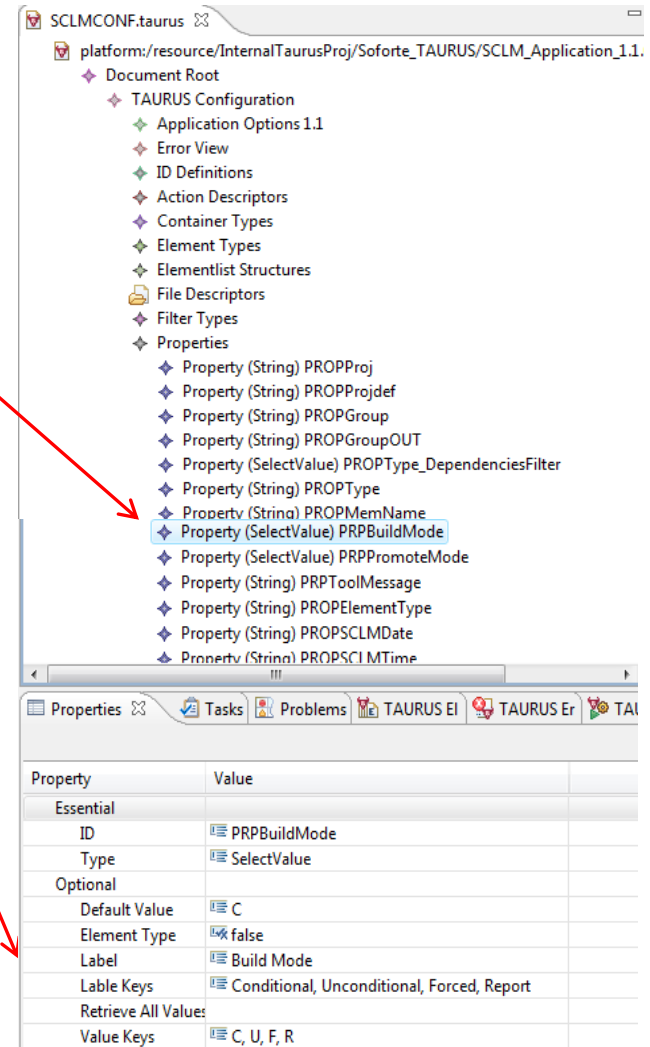
SCLM Member: TESTUP3

Build group*: DEV1

Build Mode*: Conditional

Retrieve

OK Cancel



SCLMCONF.taurus

platform:/resource/InternalTaurusProj/Soforte_TAUROS/SCLM_Application_1.1.

- Document Root
 - TAURUS Configuration
 - Application Options 1.1
 - Error View
 - ID Definitions
 - Action Descriptors
 - Container Types
 - Element Types
 - Elementlist Structures
 - File Descriptors
 - Filter Types
 - Properties
 - Property (String) PROPProj
 - Property (String) PROPProjdef
 - Property (String) PROPGroup
 - Property (String) PROPGroupOUT
 - Property (SelectValue) PROPTYPE_DependenciesFilter
 - Property (String) PROPTYPE
 - Property (String) PROPMemName
 - Property (SelectValue) PRPBuildMode**
 - Property (SelectValue) PRPPromoteMode
 - Property (String) PRPToolMessage
 - Property (String) PROPElementType
 - Property (String) PROPSCLMDate
 - Property (String) PROPSCLMTime

Property	Value
Essential	
ID	PRPBuildMode
Type	SelectValue
Optional	
Default Value	C
Element Type	false
Label	Build Mode
Label Keys	Conditional, Unconditional, Forced, Report
Retrieve All Values	
Value Keys	C, U, F, R

Taurus Modeling Sample: SCLM Build Action

- **(2) Define the dialog and associate the dialog fields**

Model
Result

Model
Definition

TAURUS Input Dialog

SCLM Build Online

Enter SCLM Build options

SCLM Project: SCLM

SCLM Project definition: SCLM

SCLM Group: DEV1

SCLM Type: SOURCE

SCLM Member: TESTUP3

Build group*: DEV1

Build Mode*: Conditional

Retrieve

OK Cancel

SCLMCONF.taurus

- TAURUS Configuration
 - Application Options 1.1
 - Error View
 - ID Definitions
 - Action Descriptors
 - Container Types
 - Element Types
 - Elementlist Structures
 - File Descriptors
 - Filter Types
 - Properties
 - Tool Descriptors
 - Tool Descriptor TOOL_Plugin_TestPlugin
 - Category REX tools
 - Category Integrated tools
 - Category Container retrieval tools
 - Category Value retrieval tools
 - Category I/O dialogs
 - Tool Descriptor TOOL_UI_InputArchgenOptions
 - Tool Descriptor TOOL_UI_InputBuildOptionsOnline
 - Input Parameter #1 -> PROProj
 - Input Parameter #2 -> PROPProjdef
 - Input Parameter #3 -> PROPGROUP
 - Input Parameter #4 -> PROPTYPE
 - Input Parameter #5 -> PROPMemName
 - Input Parameter #6 -> PROPStartGrp
 - Input Parameter #7 -> PRPBuildMode

Properties

Property	Value
Essential	
Parameter From	User_Input
Seq No	7
Target ID File	
Target ID Parm	Property (SelectValue) PRPBuildMode
Type	Property (SelectValue) PRPBuildMode
Optional	Property (SelectValue) PRPPromoteMode
Default Value	Property (String) PROPDB2CollId
Static Value	Property (String) PROPDB2Owner
UI	Property (String) PROPDB2System
Label	Build Mode

Taurus Modeling Sample: SCLM Build Action

- (3) Define the REXX tool which calls the SCLM Build and associate the dialog fields as input parameters.

Model Definition

Model Definition

Output Parameter #8 -> PROPElementType
 Output Parameter #9 -> PROPReadyonly
 ISA ISPF Tool REXX TAUSCBDO

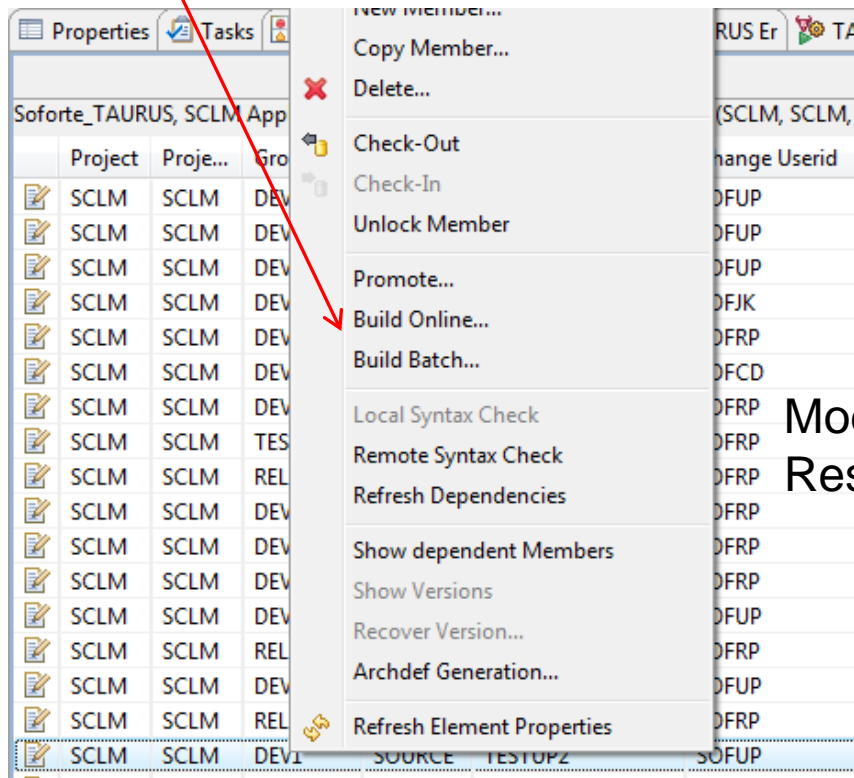
Property	Value
Essential	
In Parm Separator	" "
Invoke Form	REXX
Out Parm Separator	","
Program ID	TAUSCBDO

Filter Types
 Properties
 Tool Descriptors
 Tool Descriptor TOOL_Plugin_TestPlugin
 Category REX tools
 Tool Descriptor TOOL_REX_Archgen
Tool Descriptor TOOL_REX_BuildOnline (TOOL_DEFINED)
 Input Parameter #1 -> PROPProj
 Input Parameter #2 -> PROPProjdef
 Input Parameter #3 -> PROPGroup
 Input Parameter #4 -> PROPTYPE
 Input Parameter #5 -> PROPMemName
 Input Parameter #6 -> PROPStartGrp
 Input Parameter #7 -> PRPBuildMode
 Output Parameter #1 -> PRPToolMessage
 Output Parameter #2 -> FILEBuildMsgs
 Output Parameter #3 -> FILEBuildReport
 Output Parameter #4 -> FILEXmlErrorFeedback
 Output Parameter #1 -> PROPProj
 Output Parameter #2 -> PROPGroup
 Output Parameter #3 -> PROPTYPE
 Output Parameter #4 -> PROPMemName
 Output Parameter #5 -> PROPSCLMMemberChangeDate
 Output Parameter #6 -> PROPSCLMMemberChangeUser
 Output Parameter #7 -> PROPSCLMMemberBMapDate
 Output Parameter #8 -> PROPElementType
 Output Parameter #9 -> PROPReadyonly
 ISA ISPF Tool REXX TAUSCBDO

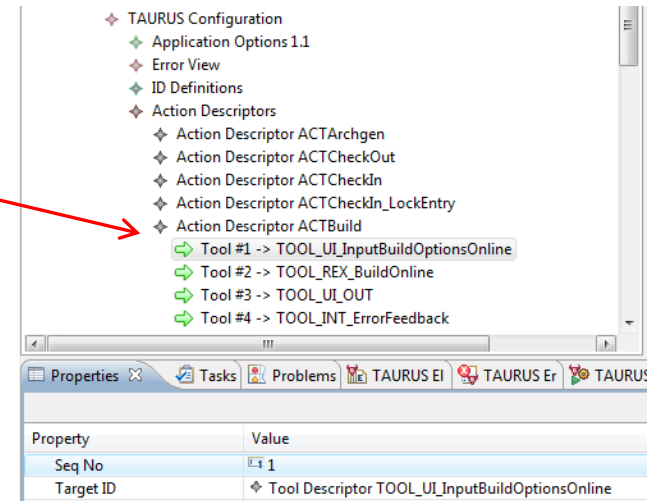
Property	Value
Essential	
ID	TOOL_REX_BuildOnline
Tool Type	MVS
Integrated Tool	
Integrated Tool	NONE
Job Options	
After Job Action	
Run As Job	false
Resource Processing	
Refresh Resource	false
Resource Processing	TOOL_DEFINED

Taurus Modeling Sample: SCLM Build Action

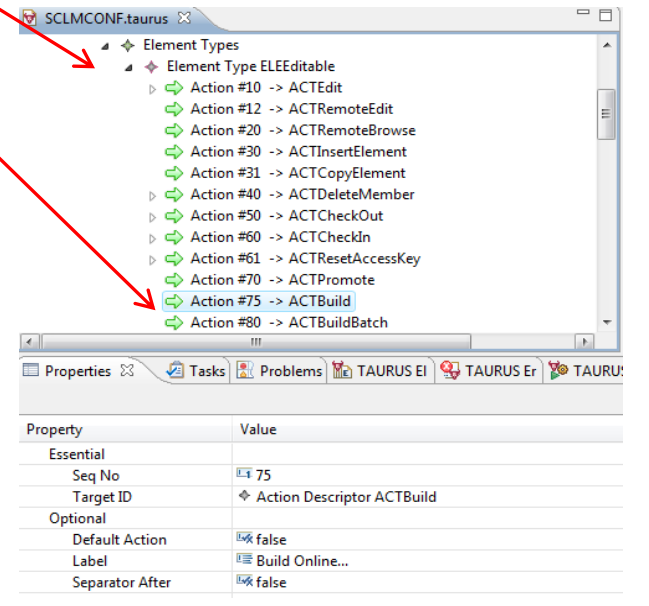
- (4) Define the build action and associate the input dialog, the REXX tool, an output dialog and error feedback support to this action
- (5) Associate the action to the SCLM editable type



Model Definition

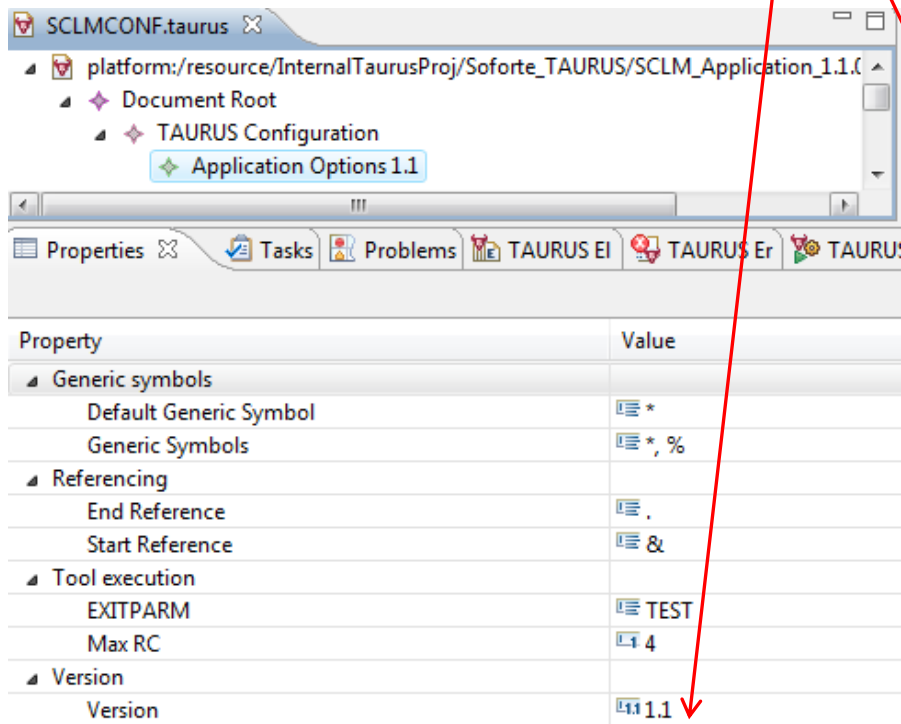


Model Result



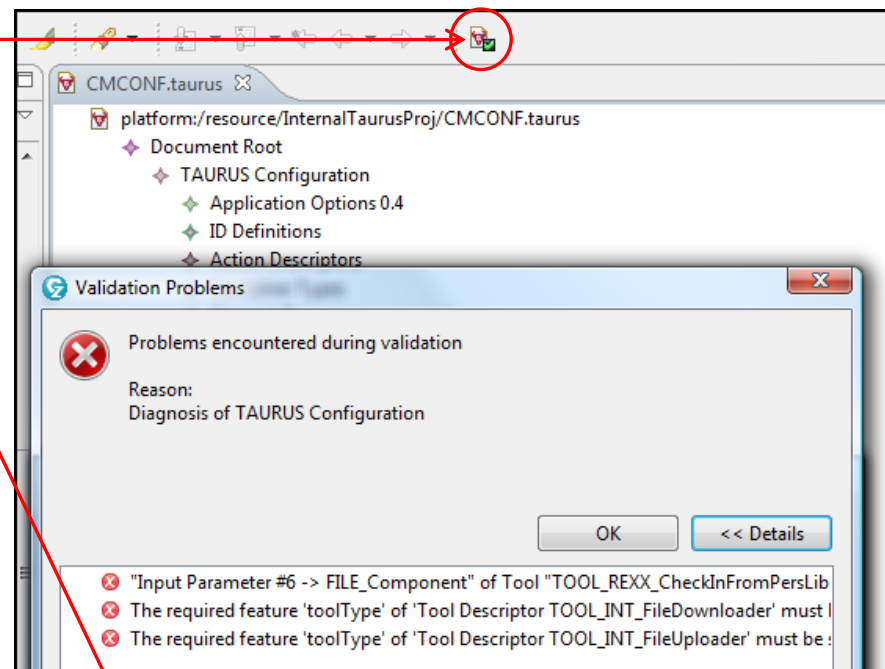
Taurus Modeling Sample: SCLM Build Action

- (6) validate your model (consistency check)
- (7) Store the model in a PDS or USS and test your customization
- (8) Promote the new model to all client users only by changing the version number (**no client installation process necessary**)



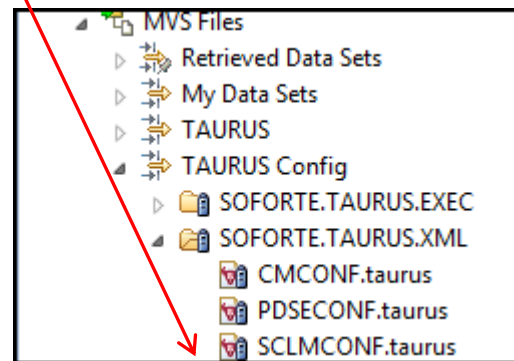
The screenshot shows the SCLMCONF.taurus configuration window. The tree view on the left shows the hierarchy: platform:/resource/InternalTaurusProj/Soforte_TAURUS/SCLM_Application_1.1.0 > Document Root > TAURUS Configuration > Application Options 1.1. The Properties pane at the bottom shows the following configuration:

Property	Value
Generic symbols	
Default Generic Symbol	*
Generic Symbols	*, %
Referencing	
End Reference	.
Start Reference	&
Tool execution	
EXITPARM	TEST
Max RC	4
Version	
Version	1.1



The screenshot shows a 'Validation Problems' dialog box with a red 'X' icon. The text inside reads: 'Problems encountered during validation' and 'Reason: Diagnosis of TAURUS Configuration'. There are 'OK' and '<< Details' buttons. Below the dialog, three error messages are visible:

- ✗ "Input Parameter #6 -> FILE_Component" of Tool "TOOL_REXX_CheckInFromPersLib
- ✗ The required feature 'toolType' of 'Tool Descriptor TOOL_INT_FileDownloader' must be
- ✗ The required feature 'toolType' of 'Tool Descriptor TOOL_INT_FileUploader' must be



The screenshot shows a tree view of MVS Files. The structure is as follows:

- MVS Files
 - Retrieved Data Sets
 - My Data Sets
 - TAURUS
 - TAURUS Config
 - SOFORTE.TAURUS.EXEC
 - SOFORTE.TAURUS.XML
 - CMCONF.taurus
 - PDSECONF.taurus
 - SCLMCONF.taurus

- **High Performance Host Communication**
- **Mainframe utilities available out of the box**
 - MVS Explorer
 - JES JOB Explorer
- **Reduces hurdle for Host tool implementation**
 - The financial hurdle for Eclipse tool implementations is reduced significantly
- **Reduces risk for Eclipse Implementation**
 - Complete and deep integration becomes affordable
 - Predefined models for different development processes
 - Integration with all kinds of tools like RAA, RTC, SCLM, ChangeMan, Endeavor, ...
 - High functionality and quality of UI increase developer acceptability and productivity
- **Reduces Maintenance Effort**
 - TAURUS model is managed centrally on z/OS
 - Allows much faster deployment of changed or new functions

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