

NYHETER OCH TIPS I DI STUDIO

SAS XPERIENCE 9 MARS 2016

TORD BINNING, PRINCIPAL TECHNICAL CONSULTANT



AGENDA SAS XPERIENCE 9 MARS 2016

- Nyheter
- Innan man börjar utveckla
- Tips

NYHETER I SAS DI STUDIO



NYHETER | VERSIONER AV DI STUDIO

SAS 9.2	SAS 9.3	SAS 9.4
4.21	4.3	4.7
4.2	4.4	4.8
	4.5	4.9
	4.6	4.901

NYHETER HIGHLIGHTS I NYA VERSIONER

SAS 9.3	
4.3	<ul style="list-style-type: none">• Integrerad versionshantering• Nytt fönster för att söka i metadata• Nya transformationer för SQL Set
4.4	<ul style="list-style-type: none">• Sex nya SQL transformationer• Ny gruppering av SQL transformationer
4.5	<ul style="list-style-type: none">• Support för Hadoop
4.6	<ul style="list-style-type: none">• Integration med DataFlux Business Data Network (Data Linage)










NYHETER NYTT FÖNSTER FÖR ATT SÖKA I METADATA

The screenshot displays the SAS Search dialog box. The 'Folder' section shows the search path as '/Data Mart Development' with a 'Browse...' button. The 'Name' section has an empty text field and a 'Contains' dropdown menu. The 'Types' section has 'Select All' checked and 'Table' selected in the list. The results table on the right shows four entries:

Name	Type	Folder Location	Description	Date Modified	
DIFT Test Table - ORDER_ITEM	Table	/Data Mart Development/DIFT Demo		Oct 14, 2015 2:01:52 PM	Oc
DIFT Test Table - ORDERS	Table	/Data Mart Development/DIFT Demo		Oct 14, 2015 2:01:52 PM	Oc
DIFT Test Target - Order Fact Table	Table	/Data Mart Development/DIFT Demo		Oct 14, 2015 2:01:52 PM	Oc
DIFT Test Target - Ranked Order Fact	Table	/Data Mart Development/DIFT Demo		Oct 14, 2015 2:01:52 PM	Oc

NYHETER SQL TRANSFORMATIONER

Transformations

- + Access
- + Analysis
- + Archived
- + Change Data Capture
- + Control
- + Data
- + Data Quality
- + Hadoop
- + High-Performance Analytics
- + Output
- + Publish
- + SPD Server Dynamic Cluster
- SQL
 -  Create Table
 -  Delete
 -  Execute
 -  Extract
 -  Insert Rows
 -  Join
 -  Merge
 -  Set Operators
 -  Update

NYHETER HIGHLIGHTS

DI Studio	SAS 9.4
4.7	<ul style="list-style-type: none">• Nya transformationer för webservice (SOAP, REST)• Nytt verktyg för deployment via Command-Line• (Copy and Paste för delar av flödet)
4.8	<ul style="list-style-type: none">• Villkorsstyrd exekvering (Conditional Start / End)• Ny webbklient SAS Job Monitor för att se Run-Time Statistics
4.9	<ul style="list-style-type: none">• Ny transformation för High Performance Analytics• Ny transformation för Enterprise Decision Management
4.901	<ul style="list-style-type: none">• Nya transformationer för att köra parallellt (Fork, Fork End, Wait for Completion)• Förbättringar för deployment via Command-Line• Förbättringar avseende Loop transformation

NYHETER JOB MONITOR

SAS® Environment Manager Recent Alerts: (There have been no alerts in the last 2 hours.)

Dashboard Resources Analyze Administration Manage

Monitoring Center

← Last 30 Days Edit Range

Job Name: (all job types) (all platforms) (all states) User ID:

Job Name	Job Type	Platform	Status	% Complete	Start Time	End Time	Run Time	⚠	20 Run Mean
Copy of ExpressionExhoJob.dif	DM Process Job	d76664.na SAS.com	Completed	100	8/27/13 1:55:31 PM	8/27/13 1:55:33 PM	2.045s	⚠	2.036s
Copy of ExpressionExhoJob.dif	DM Process Job	d76664.na SAS.com	Completed	100	8/27/13 11:36:55 AM	8/27/13 11:36:57 AM	2.04s		2.036s
Copy of ExpressionExhoJob.dif	DM Process Job	d76664.na SAS.com	Completed	100	8/27/13 11:24:24 AM	8/27/13 11:24:26 AM	2.036s		
ExpressionExhoJob.dif	DM Process Job	d76664.na SAS.com	Completed	100	8/27/13 11:21:04 AM	8/27/13 11:21:06 AM	2.043s		2.093s
ExpressionExhoJob.dif	DM Process Job	d76664.na SAS.com	Completed	100	8/27/13 11:07:14 AM	8/27/13 11:07:16 AM	2.034s		2.071s
ExpressionExhoJob.dif	DM Process Job	d76664.na SAS.com	Completed	100	8/27/13 10:44:09 AM	8/27/13 10:44:11 AM	2.034s		2.083s
ExpressionExhoJob.dif	DM Process Job	d76664.na SAS.com	Completed	100	8/27/13 10:28:05 AM	8/27/13 10:28:07 AM	2.029s		2.11s
ExpressionExhoJob.dif	DM Process Job	d76664.na SAS.com	Completed	100	8/27/13 10:27:50 AM	8/27/13 10:27:52 AM	2.044s		2.176s
ExpressionExhoJob.dif	DM Process Job	d76664.na SAS.com	Completed	100	8/27/13 10:24:17 AM	8/27/13 10:24:19 AM	2.176s		

What's New in SAS Data Integration Studio 4.9

Introduction

General User Tasks

- Getting Started
- Importing, Exporting, and Copying Metadata
- Working with Tables
- Working with External Files
- Creating Jobs
- Managing Jobs
 - About Managing Jobs
 - Submitting a Job for Immediate Execution
 - Meeting Prerequisites for Collecting Job Statistics
 - Reviewing a Successful Job
 - Diagnosing and Correcting an Unsuccessful Job
 - Adding a Transformation to an Existing Job
 - Understanding the Job Has Changed Warning
 - Understanding the Crossed Versions in a Job

Displaying Run-Time Statistics in SAS Job Monitor

Overview

SAS Job Monitor is an optional component of SAS Environment Manager. SAS Environment Manager is a web-based monitoring solution for a SAS environment. SAS Job Monitor reads job logs at specified locations and displays run-time statistics from the logs. If your site has met the prerequisites in the following section, and you can access the SAS Environment Manager, then you can select **Analyze** ➔ **SAS Job Monitor** to display run-time statistics for SAS Data Integration Studio data jobs.

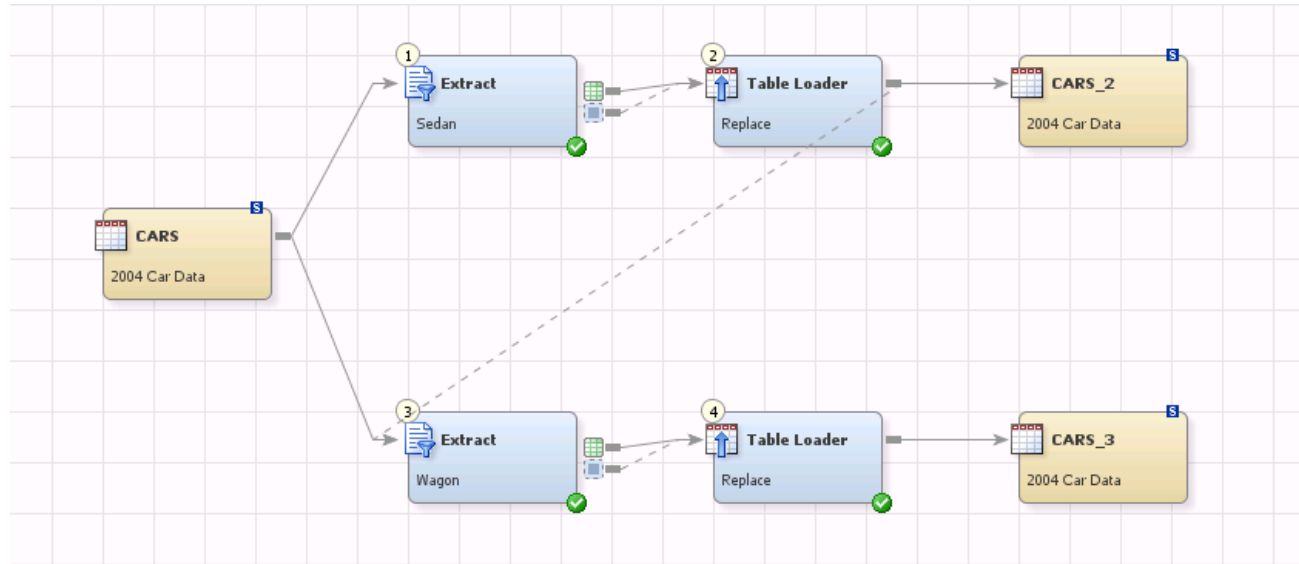
Prerequisites for Monitoring Jobs in SAS Job Monitor

Your site must license SAS Environment Manager and SAS Job Monitor.

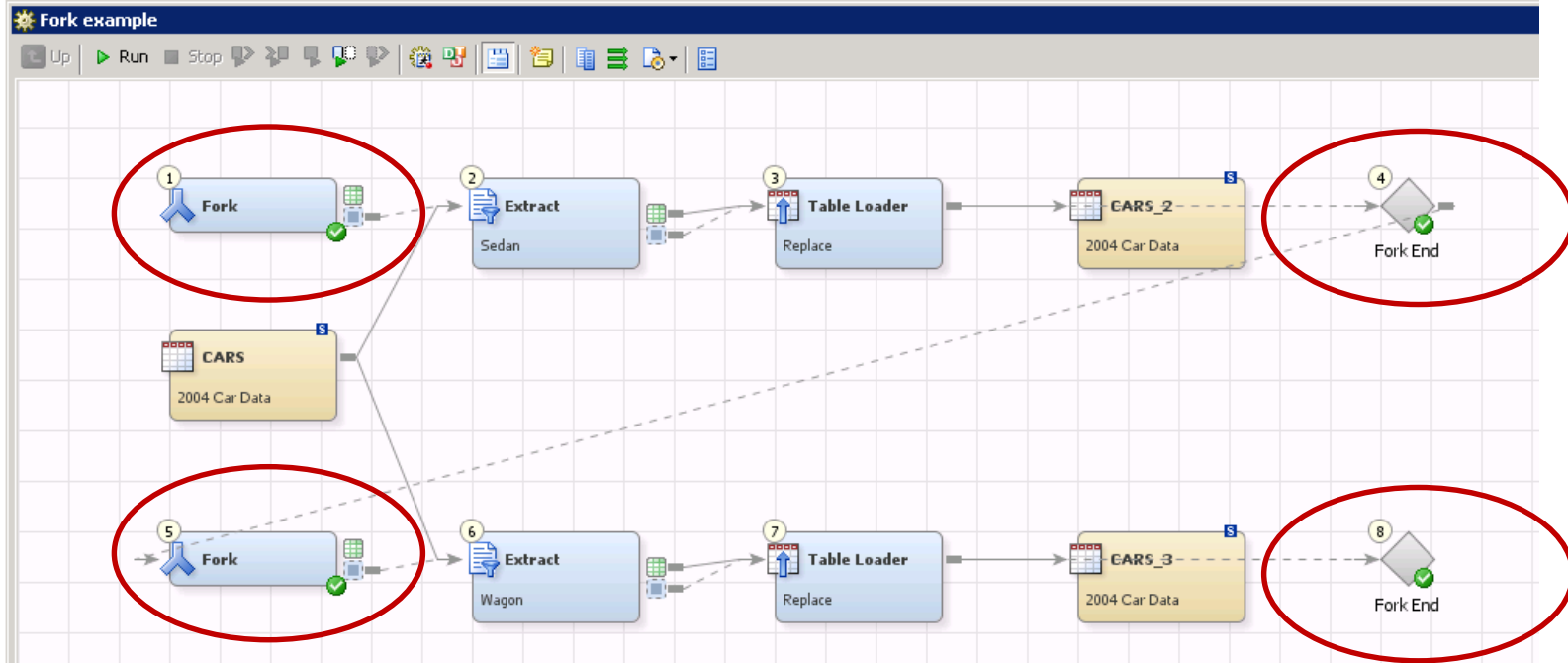
Both Run-time Statistics and Table Statistics must be turned on for those SAS Data Integration Studio jobs that you want to monitor in SAS Job Monitor. For more information about this task, see [Meeting Prerequisites for Collecting Job Statistics](#).

In SAS Job Monitor, an administrator must use the **Tools** ➔ **Configure Server** option to register the location of the job logs for SAS Data Integration Studio. For more information about this task, see the topic "Configure Batch Jobs for Monitoring" in the Help for SAS Job Monitor.

NYHETER FORK



NYHETER FORK



General User Tasks

- Getting Started
- Importing, Exporting, and Copying Metadata
- Working with Tables
- Working with External Files
- Creating Jobs
- Managing Jobs
- Restarting Jobs From Checkpoints
- Managing the Status of Jobs and Transformations
- Deploying Jobs
 - About Deploying Jobs
 - About Deploying Jobs for Scheduling
 - Prerequisites for Deploying a Job for Scheduling
 - Deploying Jobs for Scheduling
 - Using a Command Line to Deploy Jobs
 - Redeploying Jobs for Scheduling
 - Using Scheduling to Handle Complex Process Flows
 - Using Deploy for Scheduling to Execute Jobs on a Remote Host

Using a Command Line to Deploy Jobs

Problem

You want to deploy jobs in batch mode.

Solution

You can use the command-line deployment tool. This tool enables you run an Ant script to deploy many jobs at once through a simple command-line interface. You can create a manifest file containing one or more paths and pass that file into the deployment script along with the appropriate parameters. Use other software to schedule the job for execution. For more information, see *Scheduling in SAS*.

Perform the following tasks:

- [Review the Prerequisites](#)
- [Prepare for Windows Deployment](#)
- [Prepare for Other Operating System Deployments](#)
- [Prepare the Manifest](#)
- [Run the Script](#)

INNAN MAN BÖRJAR UTVECKLA



INNAN SAS XPERIENCE 9 MARS 2016

- Dokumentera tänkta kategorier av användare
 - Vilken metadata de behöver komma åt
 - Vad skall de kunna göra(Skapa DI-jobb, spk-paket, flöden, etc)
- Skapa folderstruktur som stödjer
 - Tänkt framtida utveckling
 - Delvis deployment av avgränsade paket
 - Tänkta behörighets grupper
 - Gäller biblioteksstruktur på disk samt AD-grupper
- Versionshantering
 - Hur skall nya krav/förändringa dokumenteras
 - Hur skall implementationen av de nya kraven kunna följas i metadata
 - Hur skall processen för deployment se ut

INNAN EXEMPEL ANVÄNDARKATEGORI

- Användargrupp: UG DI Developer
 - Skall ha åtkomst till samtliga foldrar med:
 - libname
 - Källfiler
 - Tabeller
 - Jobb
 - Flöden
 - deployade objekt
 - Skall kunna
 - Skapa/ändra metadataobjekt libname, källfiler, tabeller, jobb via checkin/out
 - Kunna deploya jobb i foundation
 - Skapa flöden för en gemensam användare

- SAS Folder
 - DDS
 - DDS_Load
 - Common
 - Source system 1
 - Common **
 - 01_Indata
 - Tables & files
 - Product 1 **
 - 01_Indata
 - Tables & files
 - 02_Extract
 - LoadJobs
 - Tables
 - 03_Clean
 - LoadJobs
 - Tables
 - 04_StageDDS
 - LoadJobs

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 - LoadJobs



- DDS
 - Tables
- Common
 - DDS
 - LoadJobs
 - StageDDS
 - Tables

INNAN EXEMPEL FOLDERSTRUKTUR

- SAS Folder

- DDS**

- DDS_Load

- Common**

- Source system 1

- Common **

- 01_Indata

- Tables & files

- Product 1 **

- 01_Indata

- Tables & files

- 02_Extract

- LoadJobs

- Tables

- 03_Clean

- LoadJobs

- Tables

- 04_StageDDS

- LoadJobs

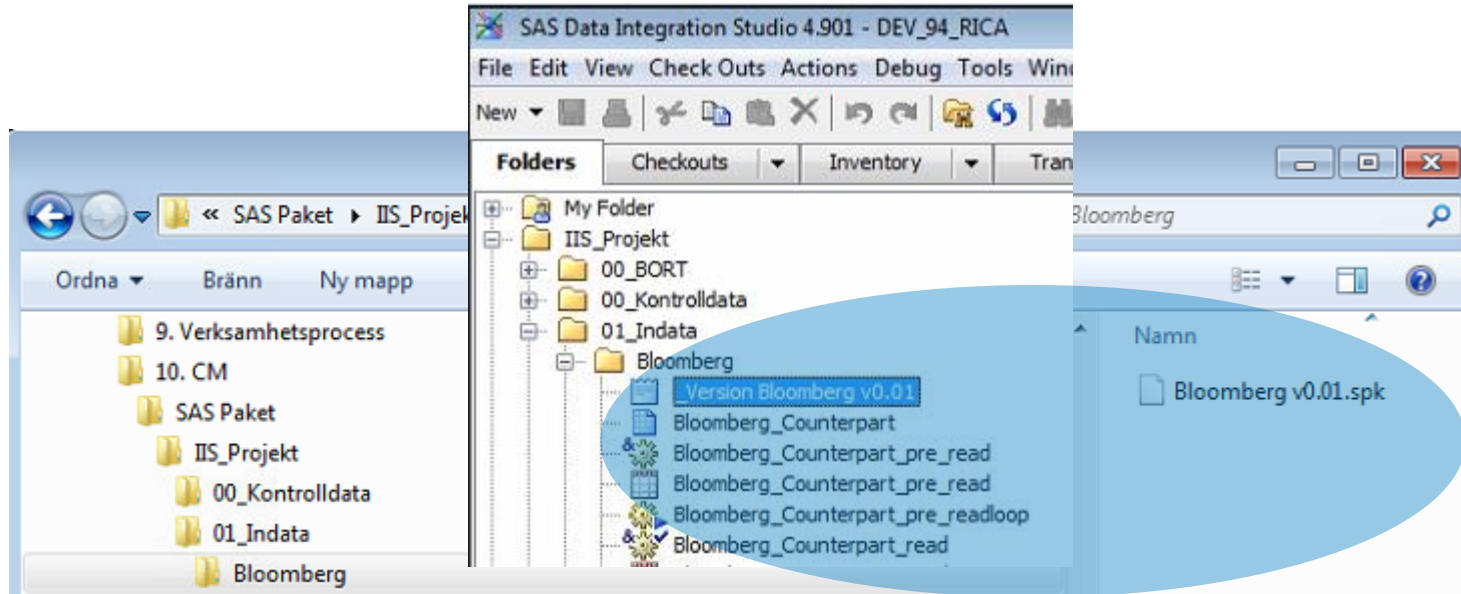
** Foldern används för att skapa

paket med egen:

- Versionshantering
- Historiknot
- Spk-fil

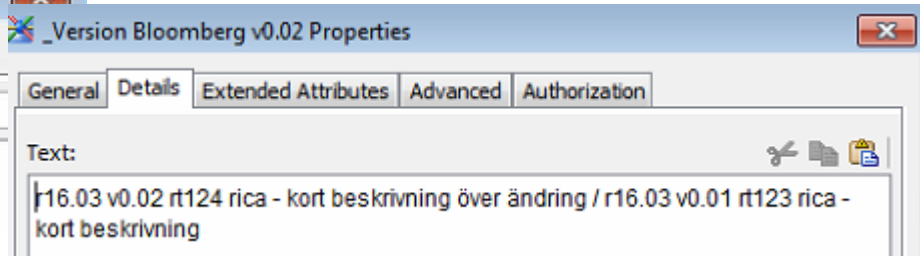
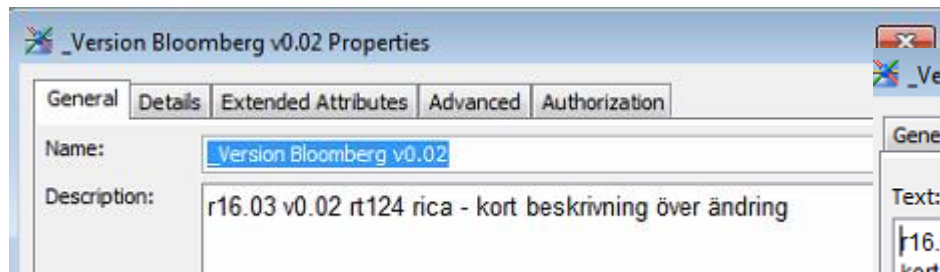
VERSIONER EXEMPEL VERSIONSHANTERING

- Använd metadataobjektet "Note" för dokumentera alla ändringar av ett paket



VERSIONER FÖR ATT CHECKA IN ÄNDRADE OBJEKT

- Checka ut noten.
- Kopiera notens Description till Details för historik
- Uppdatera Name och Description



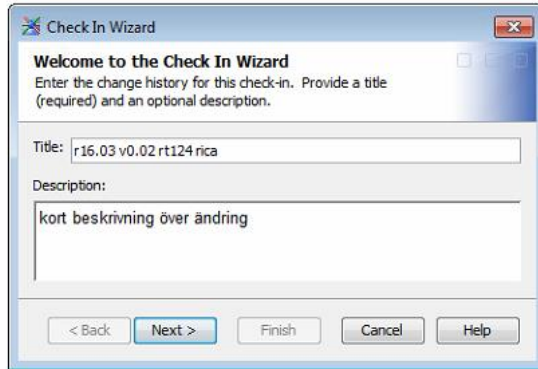
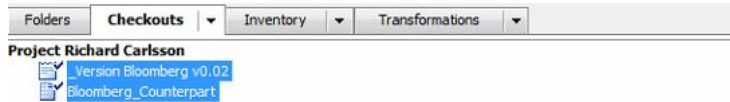
VERSIONER FÖR ATT CHECKA IN ÄNDRADE OBJEKT

- Uppdatera versionsnumret i notens namn
- Ange description: <Rel.> <Vers.> <Ref.> <User> - <beskrivning>
- Exempel: r16.03 v0.01 rt123 rica – en kort beskrivning av ändringen



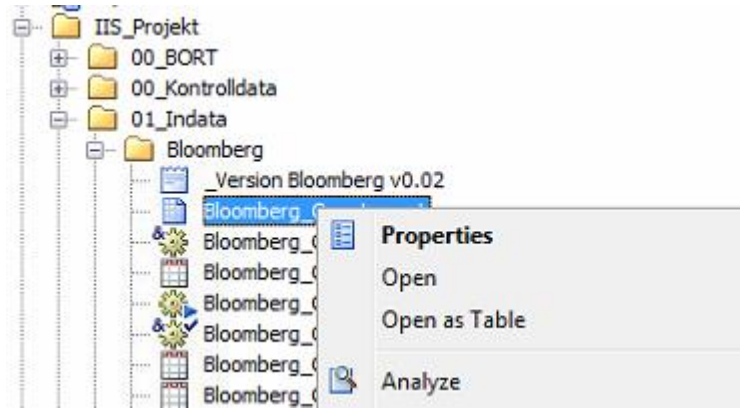
VERSIONER FÖR ATT CHECKA IN ÄNDRADE OBJEKT

- Checka in ändrade objekt tillsammans med not.
- Title: <Rel.> <Vers.> <Ref.> <User>
- Description: <beskrivning>



VERSIONER EXEMPEL VERSIONSHANTERING

- Välj History för att se all historik över när ett objekt ändrats.



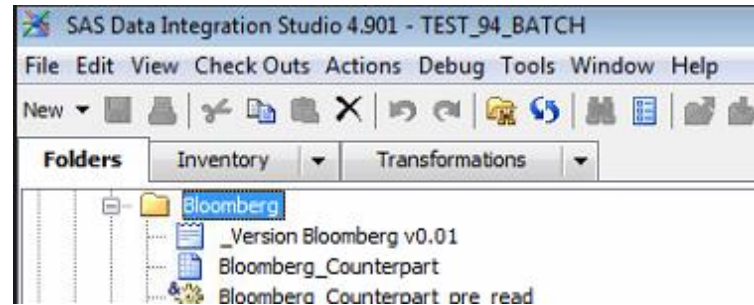
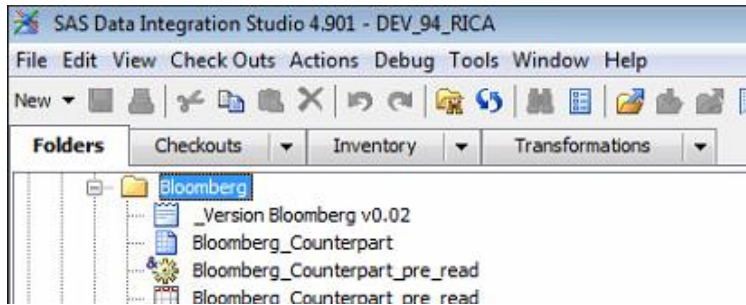
History for: Bloomberg_Counterpart (Read-Only)

History: 2 items

Ver...	Title	Description	User	Date/Time	Action
2	16.03 v0.02 rt124 rica	kort beskrivning över ändring	rica	2016-feb-16 14:37:19	Checked in
1	Bloomberg_Counterpart			2015-okt-16 14:48:06	Created

VERSIONER EXEMPEL VERSIONSHANTERING

- Med hjälp av noten kan man snabbt se version i olika miljöer, i exempel nedan är det olika versioner i DEV och TEST.



INNAN STANDARDER

- Skapa en **utvecklingshandbok** med vilka standarder som skall följas
 - Vilka olika steg skall finnas från källdata/källfiler till datamart
 - Exempel: Source -> Extract -> Clean -> Stage - > DDS
 - Riktlinjer om vad utvecklaren skall tänka på då di-jobb skapas
 - Vilka namnstandarder skall vi följa
 - Namn och längd på variabler
 - Små bokstäver – indata?
 - Speciella variabelnamn _lu – variabel som skall användas för lookup.
 - Beakta att namn på olika objekt styr sorteringsordningen i inventory
 - Vad gäller då vi skall skapa nya transformationer
 - Process / dokumentation / kommunikation
 - Hur översätter vi värden i källsystem till värden i datalagret
 - Styrtabeller? / Vad skall ske om värde saknas
 - Generella direktiv för felhantering

INNAN TÄNK PARALLELLISERING FRÅN BÖRJAN

- Om samma DDS-tabell skall laddas från olika jobb
 - Se till att dessa kan gå parallellt
 - Genom att använda del av namnet på flödet till att skapa olika libname på extract, clean, stage så kan laddningsjobben gå oberoende av varandra.
- En del av ett jobb kan köras parallellt mha
 - Loop objektet och initial extract med mod-funktionen för att dela upp i lika stora delar
 - Nya fork-transformationerna

NÅGRA TIPS



TIPS GENERERA DOKUMENTATION

The screenshot displays the SAS Data Integration Studio 4.9 interface. The top menu bar includes File, Edit, View, Check Outs, Actions, Debug, Tools, Window, and Help. The 'Tools' menu is open, and the 'Reports' option is highlighted with a red circle. Other menu items include Search..., Code Editor, Hadoop Monitoring, Comparison Results, Import COBOL Copybook..., Import User Defined Functions..., Import SAS Code, Redeploy Jobs for Scheduling, Manage Permission Tables..., Standardize Columns..., Modify Job/Transform Options, Redeploy Jobs to Stored Processes, and Options... The left sidebar shows a folder tree with 'My Folder', 'Data Mart Development', and 'DIFT Demo'. The main workspace shows a data flow diagram with five numbered steps: 1. Join, 2. Table Loader, 3. DIFT Test Target - Orde..., 4. Sort, and 5. List Data. Each step has a green checkmark indicating it is successful.

TIPS GENERERA DOKUMENTATION

The screenshot shows a Windows File Explorer window titled "Documentation". The address bar indicates the path: Computer > Local Disk (C:) > Temp > Documentation. The search bar contains "Search Documentation". The menu bar includes File, Edit, View, Tools, and Help. The toolbar shows Organize, Open, Print, and New folder. The left sidebar shows Favorites, Libraries, Computer, Local Disk (C:), Data (D:), PageFile (E:), and Network. The main pane displays a list of files with columns for Name, Date modified, Type, and Size. The file "index.html" is highlighted with a red circle.

Name ^	Date modified	Type	Size
allobjects.html	3/2/2016 3:23 AM	HTML Document	8 KB
column.gif	3/2/2016 3:23 AM	GIF image	1 KB
cube.gif	3/2/2016 3:23 AM	GIF image	1 KB
index.gif	3/2/2016 3:23 AM	GIF image	1 KB
index.html	3/2/2016 3:23 AM	HTML Document	1 KB
informationmap.gif	3/2/2016 3:23 AM	GIF image	1 KB
jfjob.gif	3/2/2016 3:23 AM	GIF image	1 KB
job.gif	3/2/2016 3:23 AM	GIF image	1 KB
jobs.html	3/2/2016 3:23 AM	HTML Document	6 KB
libraries.html	3/2/2016 3:23 AM	HTML Document	14 KB
library.gif	3/2/2016 3:23 AM	GIF image	1 KB
logo.gif	3/2/2016 3:23 AM	GIF image	2 KB

TIPS GENERERA DOKUMENTATION

Items by storage Search

Items by type

Repositories

- [Foundation](#)
- [Kari Work Repository](#)
- [Ole Work Repository](#)

Jobs

- [DIFT Test Job - OrderFact Table Plus](#)

Libraries

- [DIFT Test Source Library](#)
- [DIFT Test Target Library](#)
- [STP Samples](#)

Tables

- [DIFT Test Table - ORDER_ITEM](#)
- [DIFT Test Table - ORDERS](#)

All Objects

- [CostPrice_Per_Unit](#) (Column)
- [CostPrice_Per_Unit](#) (Column)
- [CostPrice_Per_Unit](#) (Column)
- [Customer_ID](#) (Column)
- [Customer_ID](#) (Column)
- [Customer_ID](#) (Column)
- [Customer_ID](#) (Column)
- [Delivery_Date](#) (Column)
- [Delivery_Date](#) (Column)
- [Delivery_Date](#) (Column)
- [DIFT Test Job - OrderFact Table Plus](#) (Job)
- [DIFT Test Source Library](#) (Library)

SAS Data Integration Studio generated documentation

SAS Data Integration Studio generated documentation

This documentation has been compiled for Metadata Server [sasbap.demo.sas.com](#) by user [Bruno@SASBAP](#).
Date of compilation: **March 2, 2016 3:22:54 AM EST**
Storage location: [C:\Temp\Documentation/](#)

Libraries

The Libraries section contains 3 entries. Click [here](#) to change to the detail view.

Tables

The Tables section contains 5 entries. Click [here](#) to change to the detail view.

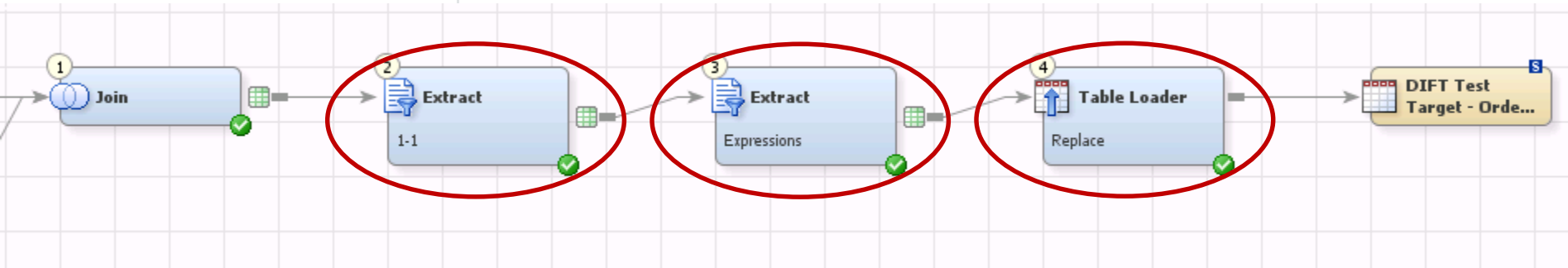
Jobs

The Jobs section contains 1 entries. Click [here](#) to change to the detail view.

Repositories

The Repositories section contains 3 entries. Click [here](#) to change to the detail view.

TIPS SAMLA OCH SKYDDA EXPRESSIONS

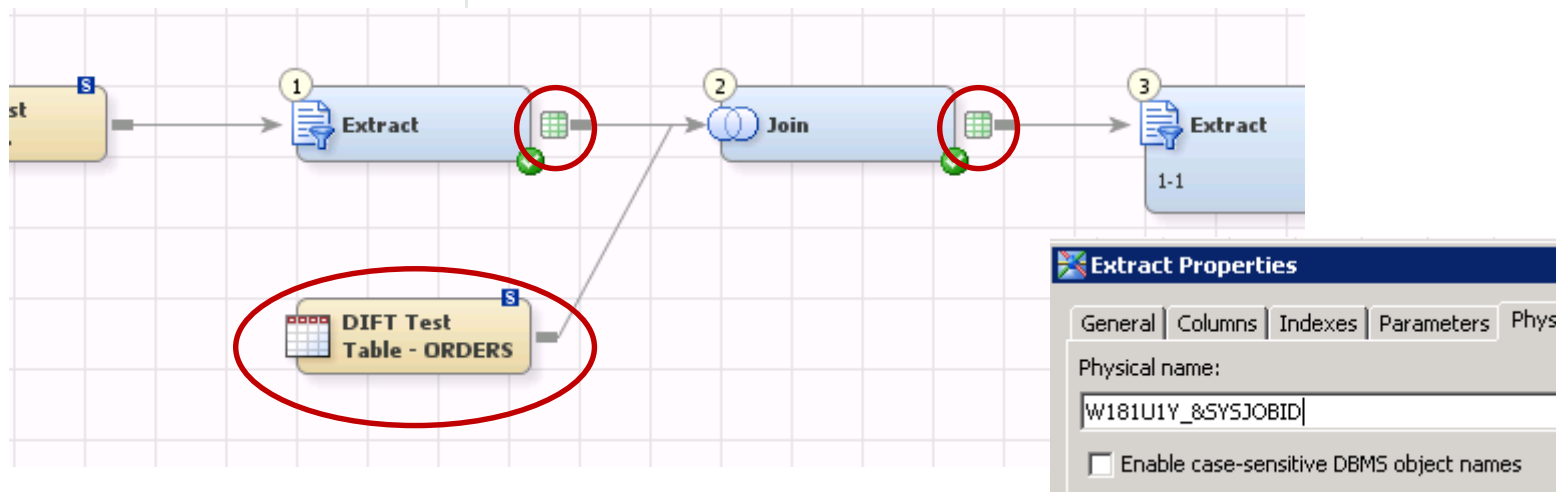


- Samla Expressions i ett fåtal transformationer
 - Detta gör det enkelt att hitta dessa jämfört med att leta i hela jobbet
- Extract 1-1 före samlad mappning med expressions
 - Detta ger möjlighet att enkelt koppla in nya transformationer mellan steg 1 & 2 och samtidigt bibehålla alla expressions

Table Loader utan expressions

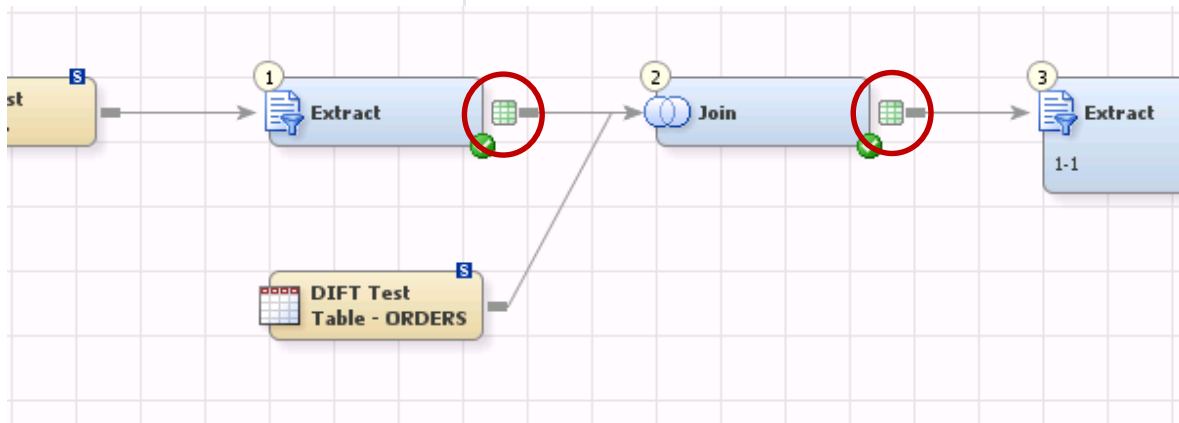
- Om metadataobjektet för måltabellen tappas så tappas inga expressions

TIPS KÖR VISSA SQL:ER DIRECT I DATABASEN



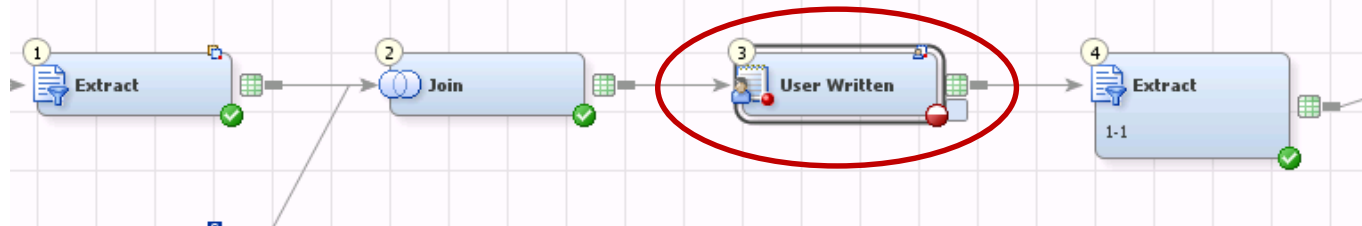
- Beakta att köra join i källdatabasen genom:
 - Skapa workbibliotek i DB som kan användas för worktabeller
 - In och uttabeller i join skall vara DB-tabeller
 - Inga SAS specifika funktioner i join
- NOT: Om detta jobb skall gå samtidigt i flera sessioner använd tex &SYSJOBID som sufix till worktabellnamnet

TIPS BEHÅLL UNIK DEL AV TABELLNAMN



- Lägg gärna till egen text om så behövs
 - W181U1Y_female
- Behåll den unika delen av namnet
 - Gör att det blir enkelt att finna i logg och kod
 - Förhindrar att två olika objekt med samma tabellnamn, en vy, en tabell, skapar ERROR då de körs i samma session

TIPS MAPPA KOLUMNER I USER WRITTEN FÖR SPÅRBARHET



User Written Properties

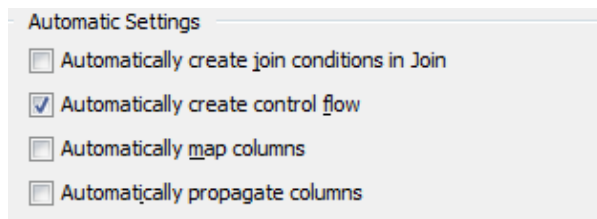
General | Mappings | Options | Table Options | Code | Precode and Postcode | Parameters | Notes | Extended Attributes

Source table: SQL Join (W5NVYWIB) | Target table: User Written (W1EKHNB)

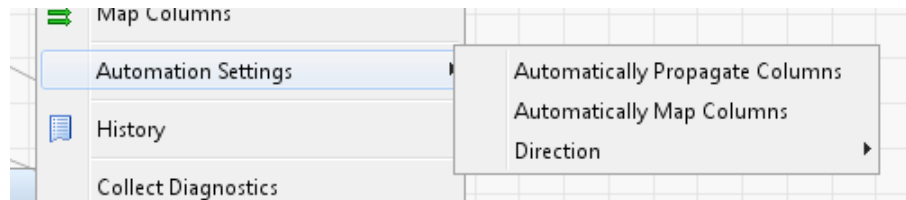
#	Column	Column Description	Table	#	Column	Column Description	Table
1	CostPrice...	Cost Price Per Unit	SQL Join (W5NVY...	1	CostPrice...	Cost Price Per Unit	
2	Customer ...	Customer ID	SQL Join (W5NVY...	2	Customer ...	Customer ID	
3	Delivery_...	Date Order was Del...	SQL Join (W5NVY...	3	Delivery_...	Date Order was Del...	
4	Discount	Discount in percent ...	SQL Join (W5NVY...	4	Discount	Discount in percent ...	
5	Employee...	Employee ID	SQL Join (W5NVY...	5	Employee...	Employee ID	
6	Order_Date	Date Order was pla...	SQL Join (W5NVY...	6	Order_Date	Date Order was pla...	
7	Order_ID	Order ID	SQL Join (W5NVY...	7	Order_ID	Order ID	
8	Order_It...	Order Item Number	SQL Join (W5NVY...	8	Order_It...	Order Item Number	
9	Order_Type	Order Type	SQL Join (W5NVY...	9	Order_Type	Order Type	
10	Product_ID	Product ID	SQL Join (W5NVY...	10	Product_ID	Product ID	
11	Quantity	Quantity Ordered	SQL Join (W5NVY...	11	Quantity	Quantity Ordered	
12	Total_Re...	Total Retail Price fo...	SQL Join (W5NVY...	12	Total_Re...	Total Retail Price fo...	

TIPS SLÅ AV PROPAGATE AUTOMATIC SETTING

Default option för nya jobb



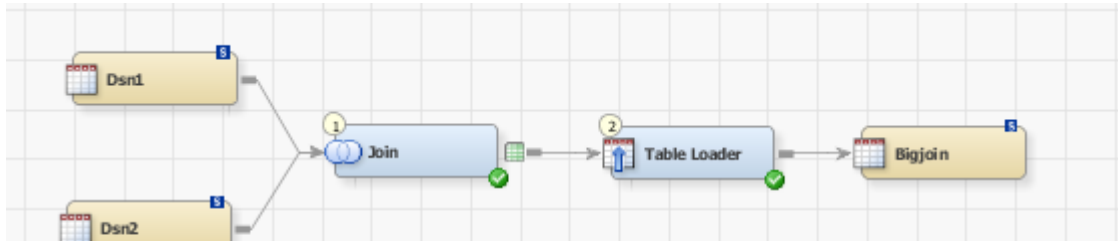
Option för befintligt jobb









Detta förhindrar att en massa kolumner automatiskt läggs in i ditt jobb. Tex vid en join med en tabell med 200 kolumner där du bara vill ha en.

DI STUDIO TIPS PRESTANDA

- Testa Compress för att minimera I/O och Storage



 bigjoin.sas7bdat	2013-11-21 11:04	SAS Data Set
 bigjoin_compressed.sas7bdat	2013-11-20 23:46	SAS Data Set
 dsn1.sas7bdat	2013-11-20 11:00	SAS Data Set
 dsn1_compressed.sas7bdat	2013-11-20 11:04	SAS Data Set
 dsn2.sas7bdat	2013-11-20 13:00	SAS Data Set
 dsn2_compressed.sas7bdat	2013-11-20 23:35	SAS Data Set

11 210 472 KB
523 776 KB
3 800 400 KB
180 736 KB
747 648 KB
35 584 KB

FRÅGOR?



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