

Process Chain in Supply Chain Management (SCM-)



Applies to:

SCM 4.1 onwards

Summary

This article provides details of the process chain of SCM, Tips and Tricks of usage of process chain.

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Author Bio



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Process Chain in SCM

Functionality of Business information warehouse (BI/BW) function has been extended to include several SCM Applications in SCM 4.1 version.

It allows you to setup chains of background jobs.

Definition of Process Chain

A process chain is a sequence of *processes* that are scheduled to wait in the background for an event. Some of these processes trigger a separate event that can start other processes.

A **process** is a procedure inside or external to an SAP SCM system with a defined beginning and end condition.

A distinction is made between a start process, an application process and a collection process.

SCM Component supported by Process Chain

Following components of the SCM supports the Process Chain

- SCM Alert Monitor
- SCM Version Copy
- SCM-APO Demand Planning
- SCM-APO Supply Network Planning
- SCM-APO Capable-to-Match Planning
- SCM-APO Production Planning/Detailed scheduling

Usage of the Process Chain

“Out Side In” usages

- Automate the complex schedules in SCM with the help of the event-controlled processing
- Visualize the processes by using network graphics
- Centrally control and monitor the processes.

“In Side Out” usages

Inside Out usages is also known as Fundamental principles

- Openness : Any process schedule with a defined beginning and end enables openness with regard to the type of process that can be integrated into a process chain.

The principle of openness is applied to the theory behind process chains, in that both user-defined programs and processes can be implemented.

In addition, you can include process chains in other process chains, so-called meta chains. In doing so you have the option of integrating process chains from the SCM system, in which the meta chain is found, or from other SCM systems.

- **Security:** Process chain is having very high level of schedule security which is based on the background job management.

Processes are scheduled before your run and can be monitored with the standard batch monitor

Background events start subsequent processes

Short dumps and terminations are recognized and handled respectively

- **Flexibility :**

The subsequent process must get all the information it needs for a correct run from its predecessors.

This allows new process types to be integrated without the existing types having to be adjusted.

- **Responsibility:**

Predecessor process is not responsible to start the correct successors and provide them with necessary information

The successor processes are only responsible to run correctly and gather the necessary information

- **Programming model:**

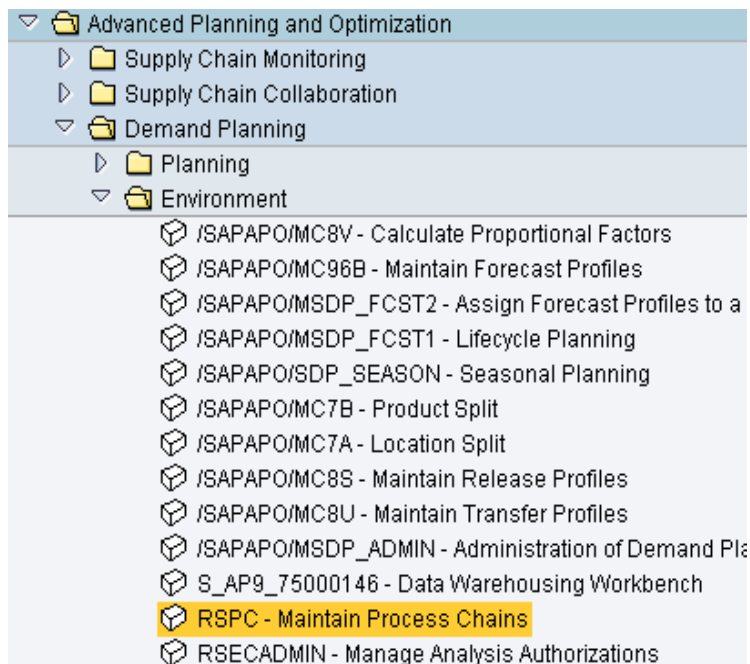
Communication between processes: Check the status info of the predecessor process.

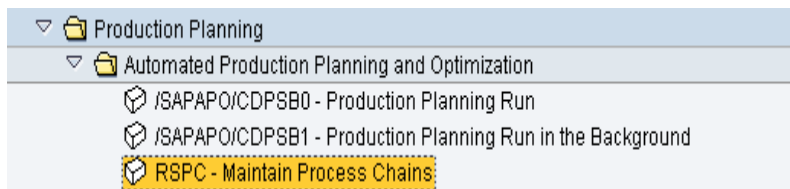
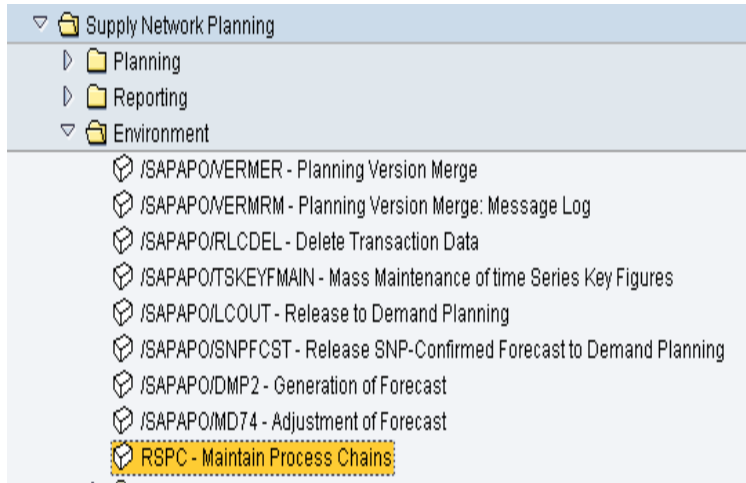
Loose coupling of the processes to guarantees extensibility (ability to implement your own process using ABAP OO)

Process Chain Maintenance

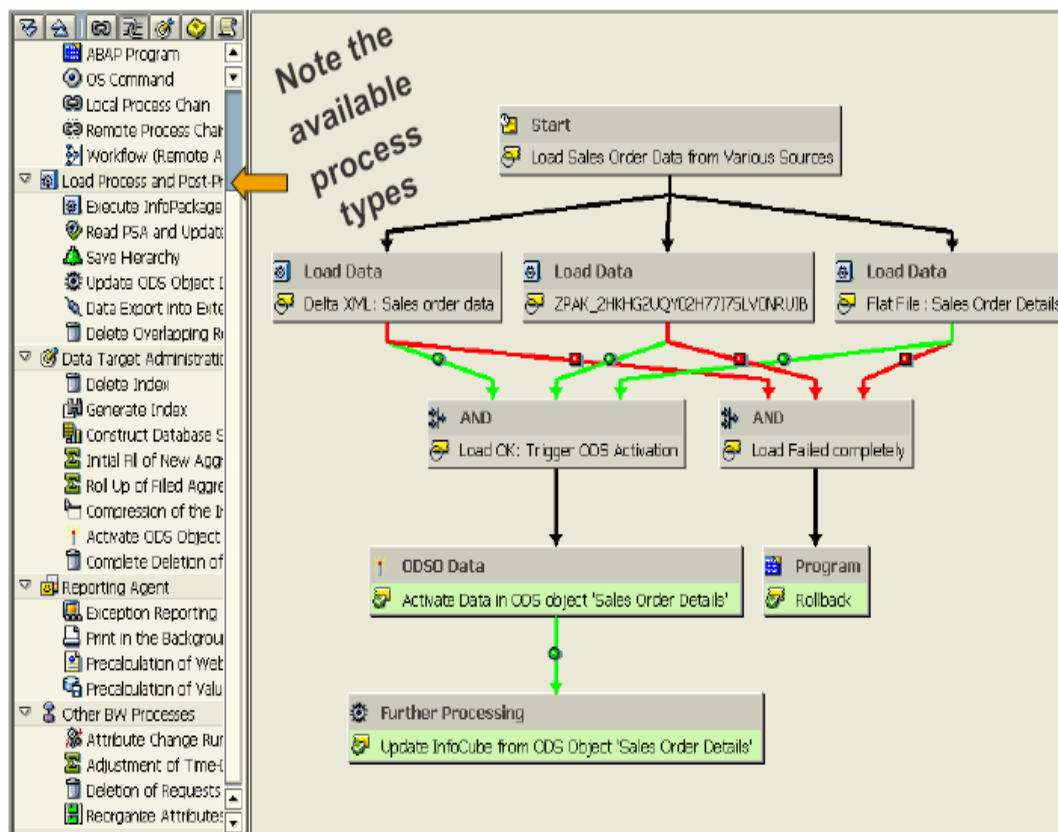
Use the Transaction RSPC – Maintain Process Chain.

You can access this transaction in following menu path





You can call up process chain maintenance centrally from the Administrator Workbench using *Process Chain Maintenance* in the toolbar. Use the corresponding pushbutton to access process chain management from the maintenance dialogs.



Structure of the Process

A process chain consists of a start process, individual application processes and the collection processes.

Start Process

Define the start of your process chain with the start process. All other chain processes are scheduled to wait for an event. The background control options are available to directly schedule the start process. You can start the start process immediately, that is when activating the process chain, for a specified time, or after a particular event. When you activate the process chain, the start process is scheduled in the background as defined in your selections

You can also trigger the start of a process chain via a meta chain. A meta chain is when a process chain, to which you set this start condition, is fixed to another process chain. The process chain is started directly by this meta chain.

The start process has the following special features:

- Only the start process can be scheduled without a predecessor process.
- The start process can not be a successor to another process.
- Only one start process is allowed for each process chain.
- One start process can only be used in an individual process chain.

Application Processes

Application Processes are the actual processes. Application processes are processes that are to be automated in the process chain maintenance.

Processes related to SCM are as follows:

Demand Planning

Supply Network Planning

Production Planning and Detailed Scheduling (PP/DS)

Collection Processes

Collection Processes are treated differently by the process chain maintenance. They allow several chain strings to be combined to form one individual string. In this way, they replace multi-field scheduling of the actual work processes.

The following collection processes are available in the process chain maintenance:

- And Process (Last)

This process does not start before all events of the predecessor processes, that is including the **last** event, that it has waited for, have been successfully triggered.

Use this collection process when you want to combine processes and when further processing is dependent on all these predecessors.

- Or Process (Every)

The application process starts **every time** a predecessor process event has been successfully triggered.

collection process when you want to avoid multi-scheduling the actual application process.

- XOR Process (First)

The application process starts when the **first** event in one of the predecessor processes has been successfully triggered .

Use this collection process when you want to process processes in parallel and schedule further independent processes after these ones.

Process Type

Process Types can be maintained via transaction RSPC → Settings → Process Types

Do not change standard process types

Display View "Possible Process Types": Details

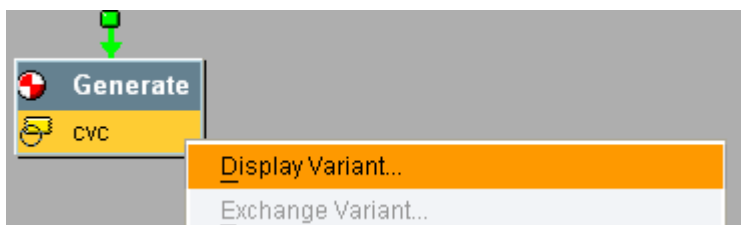
Process Type: SCM_DP001

Possible Process Types	
Short description	Generate
Long description	Generate Characteristic Combination
ObjectName	/SAPAPO/SDP_PC_SCM_DP001
Object Type	ABAP OO Class
Possible Events	Process ends "successful" or "incorrect"
<input checked="" type="checkbox"/> Repeatable	
<input type="checkbox"/> Repairable	
ID	
<input type="checkbox"/> Internal Name	
<input type="checkbox"/> Own Mail	
Process Category	60
Two-digit no.	1
Documentation Type	Free Text
Docu. Object	/SAPAPO/SDP_PC_SCM_DP001
<input type="checkbox"/> Only in BW Clients	
Component	

Processes variant

Process variant is same as the program variant.

Variant mainly used for to Configure the Hierarchy and Attribute Change run, Execute the specific hierarchy and attribute change run



Process Maintenance: Generate Characteristic Combination

The screenshot shows the SAP Process Maintenance interface for 'Generate Characteristic Combination'. At the top, there is a toolbar with icons for edit, save, delete, print, and refresh. Below the toolbar, the 'Variant' field is set to 'CVC' and is highlighted in yellow. The 'Last Changed By' field is 'ANJALI' and the 'Changed On' field is '29.03.2007' at '11:50:15'. Below this, there is a 'Contents' section with a table:

Contents	
Program variant	CVC
Short descriptn	cvc

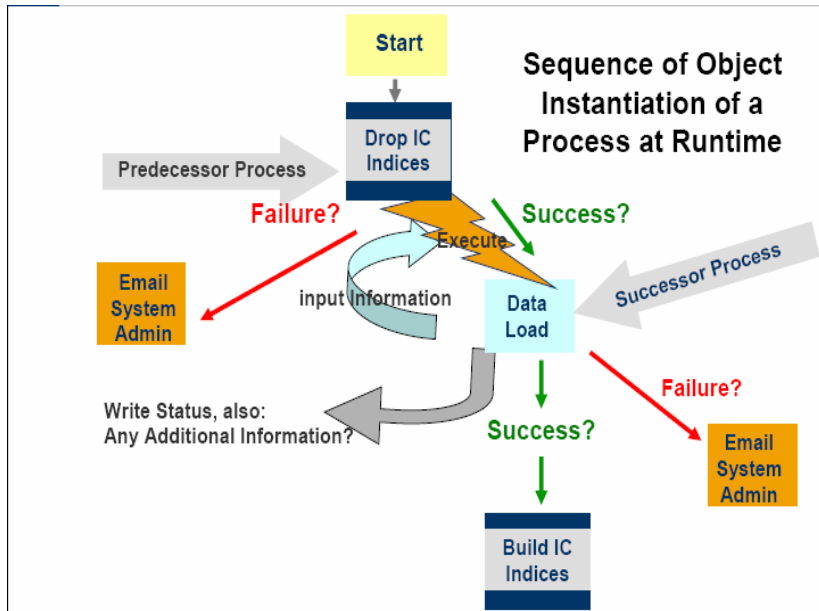
Context for Processes

- Maintain process variant
- Exchange process variants
- Display all jobs with the process chain
- Specify that a message is sent to recipient when a process is completed
- Delay the start of a process for a specified length of time
- Remove a process from the chain

Flow for object Instantiation

While defining process chain, first step of it always start process shown in the diagram below as start.

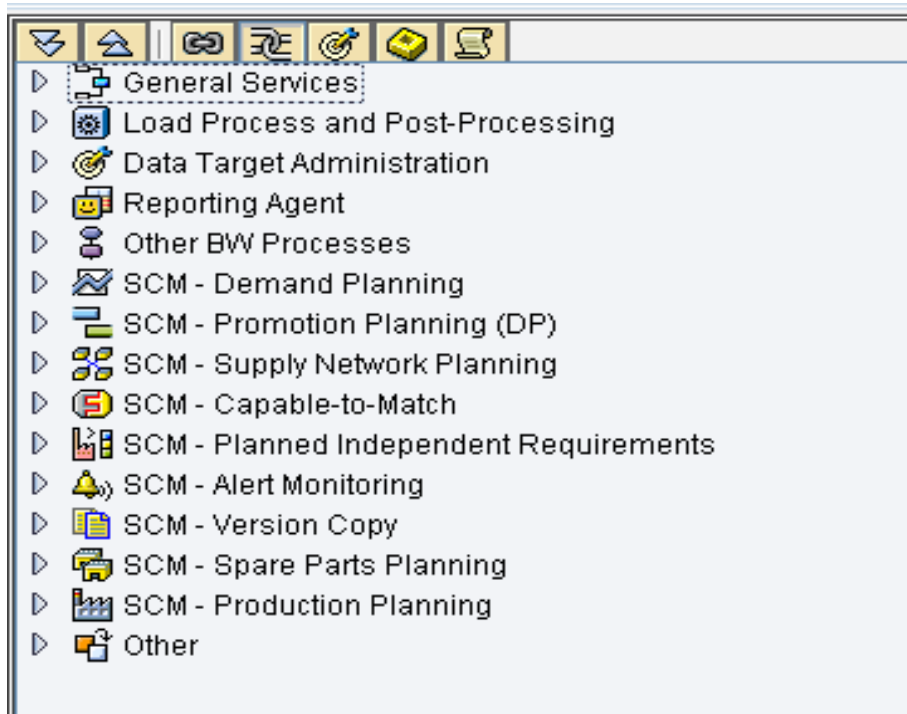
Second one is your application process. Depend on your status of the application process “fail” or “success” you can define your next process.



Process Types available in SCM 5.0

Following components of the SCM supports the Process Chain

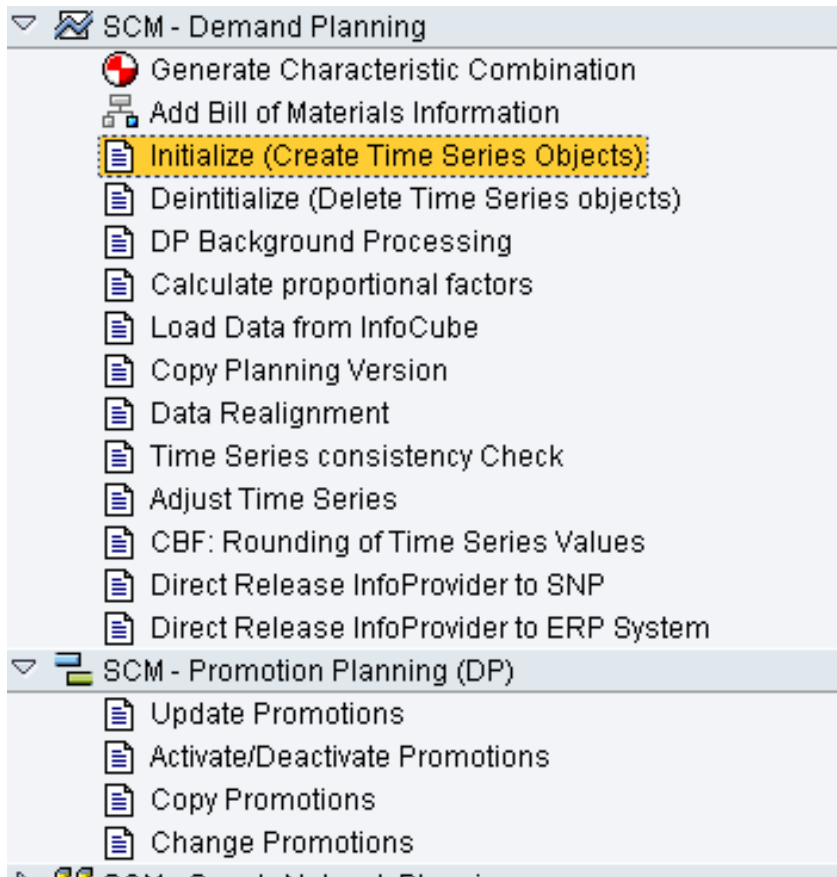
- SCM Alert Monitor
- SCM Version Copy
- SCM-APO Demand Planning
- SCM-APO Supply Network Planning
- SCM-APO Capable-to-Match Planning
- SCM-APO Production Planning/Detailed scheduling



Application Process type for Demand Planning

- Generate Characteristic Value combinations
- Add Bill of material information
- Initialize Planning Area (Create time series objects)
- Deinitialize Planning Area (Delete time series objects)
- DP background processing
 - Execute a forecast
 - Execute macros
 - Release from DP to SNP
 - Release to ERP
- Calculate Proportional Factors
- Load data from Infocube
- Copy Planning Version
- Data realignment
- Time Series Consistency Check
- Adjust time Series
- Characteristics-Based Forecasting : Rounding of Time Series Values
- Direct release from an InfoProvider to SNP
- Direct release from an InfoProvider to R/3 ERP system
- SCM Promotion Planning
 - Update Promotions

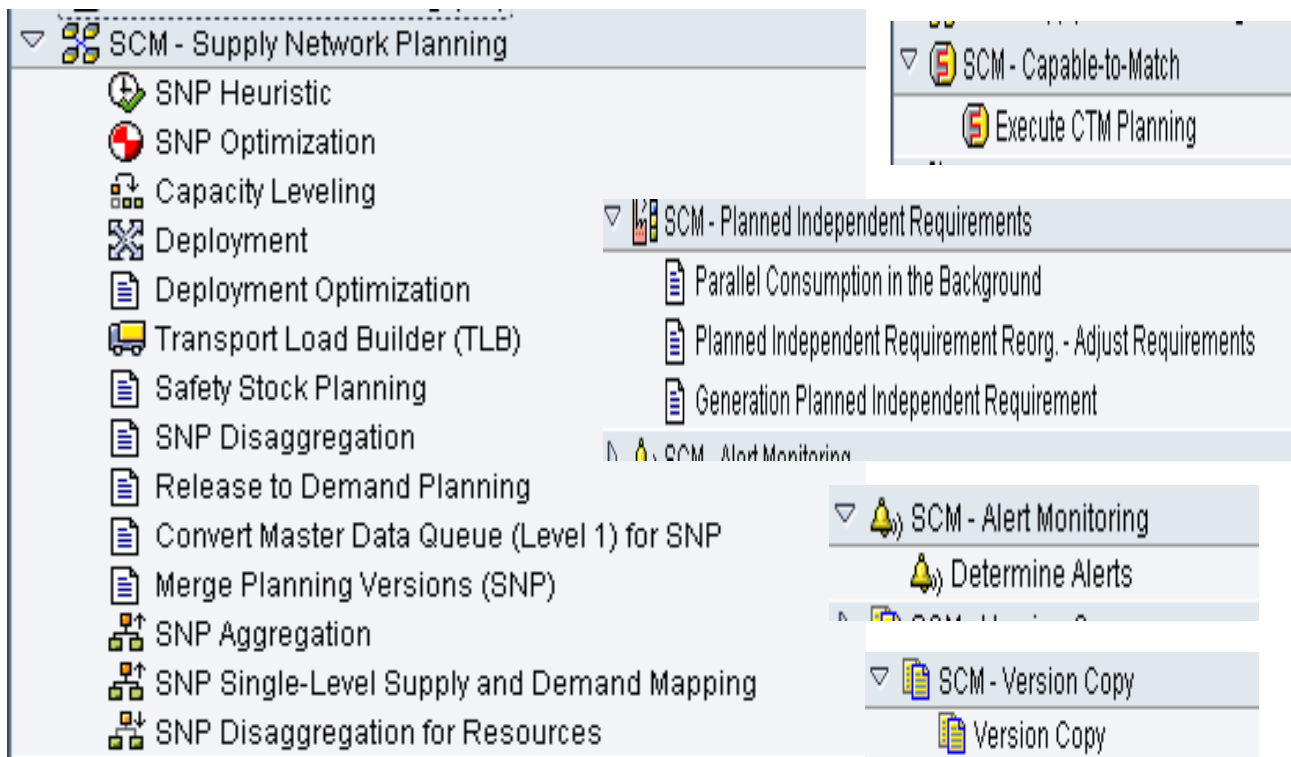
- Activate/Deactivate Promotions
- Copy Promotions
- Change Promotions



Application Process Type for Supply Network Planning

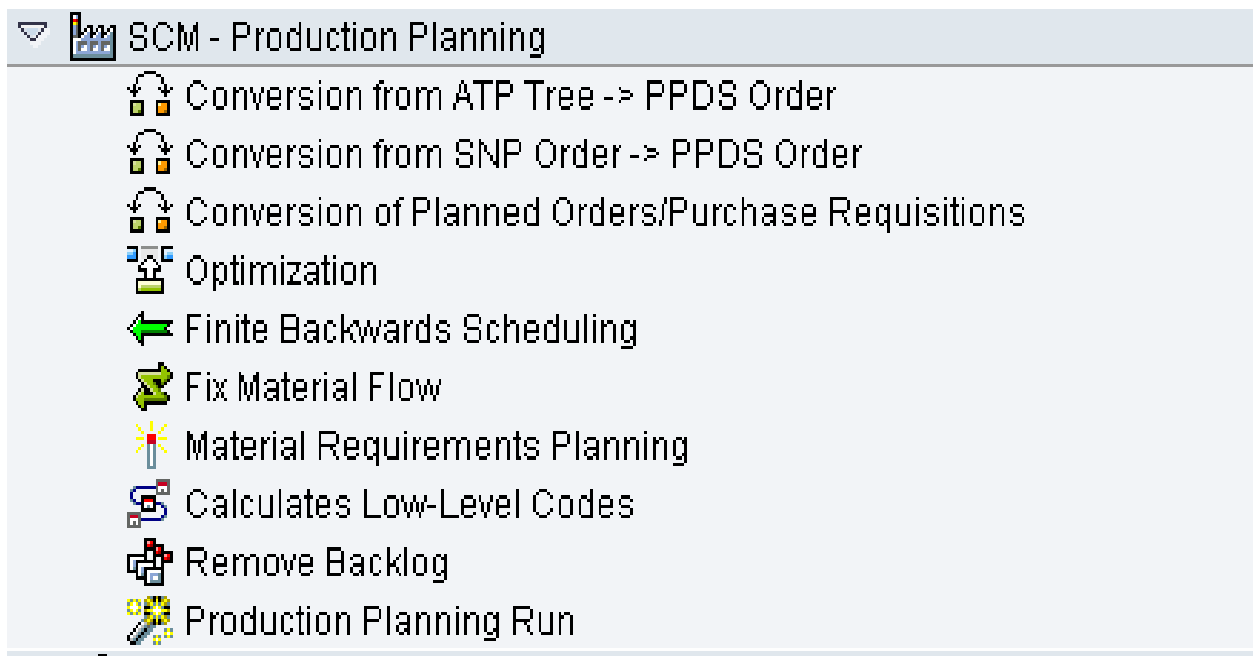
- SNP Heuristics
- SNP Optimization
- Capacity leveling
- Deployment
- Deployment Optimization
- Transport Load Builder (TLB)
- Safety Stock Planning
- SNP Disaggregation
- Release to Demand Planning
- Parallel consumption in the Background
- Planned independent Requirement Reorganization – Adjust Requirements
- Generation of Planned Independent Requirements

- Convert Master Data Queue for SNP
- Merge Planning Versions (SNP)
- SNP Aggregation
- Single level Supply and Demand Mapping
- Resource Disaggregation
- SCM Capable to Match (CTM)
 - Execute CTM Planning
- SCM Planned Independent Requirements
 - Parallel Consumption in the background
 - Planned Independent Requirements Reorganization
 - Generation of Planned Independent Requirements
- SCM Alert Monitoring
 - Alert Determination in the background
- SCM Version Copy
 - Version Copy



Application Process Type for PP/DS

- Planning Run
- Remove Backlog
- Low Level Codes
- MRP
- Fixed Pegging
- Finite DS Planning
- Optimization
- Order Conversion
- Conversion SNP – PPDS
- Conversion ATP-PPDS



Special Types of Application Processes

- Starter – process that exists to initiate process chain execution
- ABAP program
- Another process chain
- Customer built process
- Operating system command
 - Access to OS commands like 'dir' (list contents of application server file system)

Note: There is only an call “out” to OS, only Standard-Out is given back to SCM/BW

Different Views in the Transaction



Planning view: Build and change process chains

- Grey: unplanned processes
- Green: planned processes
- Yellow: planned but unknown processes
- Red: multiple planned processes



Check view: Check for errors in design

- Green: Error-free processes
- Yellow: Process with warnings
- Red: Process with errors

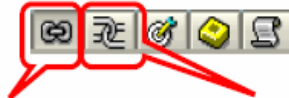


Log view: Monitoring of process chains

- Grey: Not yet run
- Green: Finished without error
- Yellow: running
- Red: broken or failed

Different Object trees

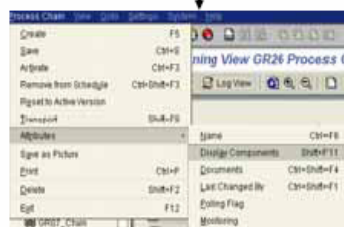
For easy administration on process chains different object trees can be displayed.




Process Chains
Available process chains (display components)



Process Types
Available process types



Creation and assignment of display components via menu or via button 

Process types can be created via Settings – Process Types

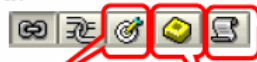
Further information included in section „Implementing a process“

For easy administration on process chains different object trees can be displayed.

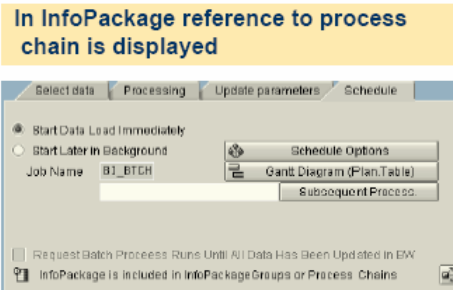
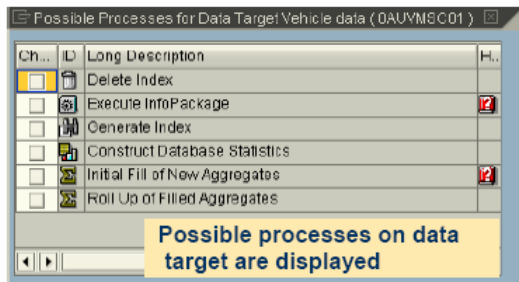
InfoAreas
Search in
InfoProvider tree



Log
Display the log
tree

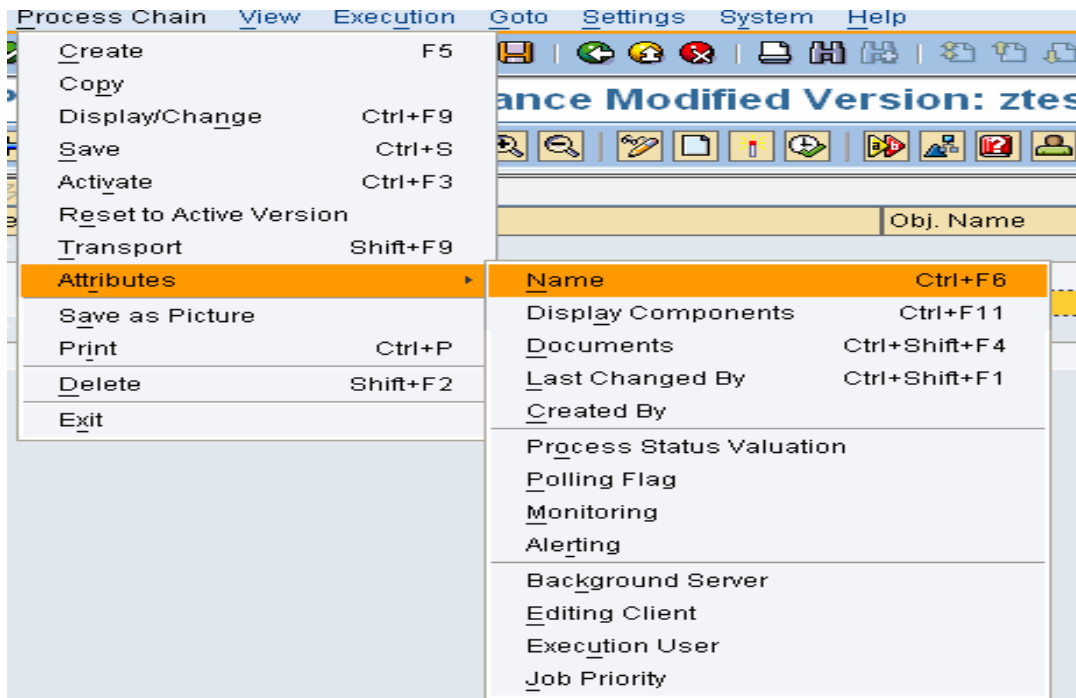






InfoSources
Search in
InfoSources tree
for InfoPackages



Process Chain Attributes

You can display technical attributes, display or create documents for a process chain, and specify how process chains are to react at execution



Attributes	Description
 <i>Rename</i>	You can change the name of the process chain.
<i>Display Components</i> 	Display components are the evaluation criterion in the process chain maintenance
<i>Documents</i> 	You can create and display documents for a process chain.
<i>Last Changed By</i> 	Displays the technical attributes of the process chain: <ul style="list-style-type: none"> ✓ . When it was last changed and who by ✓ . When it was last activated and who by ✓ . Object directory entry
<i>Evaluation of Process Status</i>	If you set this indicator, all the incorrect processes in this chain and in the overall status of the run are evaluated as successful; if you have scheduled a successor process <i>upon error</i> or <i>always</i> .
<i>Polling Indicator</i>	With the polling indicator you determine whether the main process needs to be kept until the actual process has ended.
<i>Monitoring</i>	By default CCMS switches on the automatic process chain monitoring.
<i>Alerting</i>	You can send alerts using alert management when errors occur in a process chain
<i>Background Server</i>	You can specify here on which server or server group all of the jobs of a chain are scheduled. If you do not make an entry, the background management distributes the jobs between the available servers.
<i>Processing Client</i>	If you do not maintain this attribute, you can display, edit, schedule or execute the process chain in all clients

<p><i>Execution User</i></p>	<p>In the standard setting a BI background user executes the process chain (BWREMOTE).</p> <p>You can change the default setting so that you can see the user that executes the process chain and therefore the processes, in the <i>Job Overview</i>.</p> <p>You can select the current dialog user who schedules the process chain job, or specify a different user.</p> <p>The BI background user has all the necessary authorizations to execute all BI process types. Other users must assign themselves these authorizations so that authorization errors do not occur during processing.</p>
<p><i>Job Priority</i></p>	<p>You use this attribute to set the job priority for all of the jobs in a process chain.</p>

Tips & Tricks

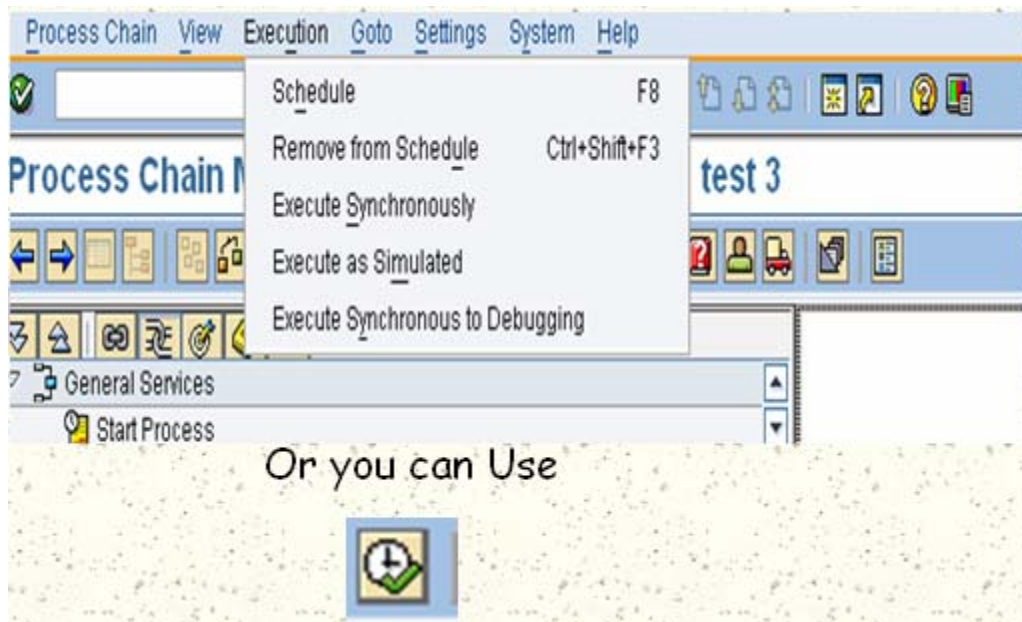
Process can send e-mail

Write a message and fill in recipient and type. Info saved within process variant.

Variant	Last Changed By	Changed On	At	Time
CVCJOBFAILED	ANJALI	03.05.2007		10:46:39

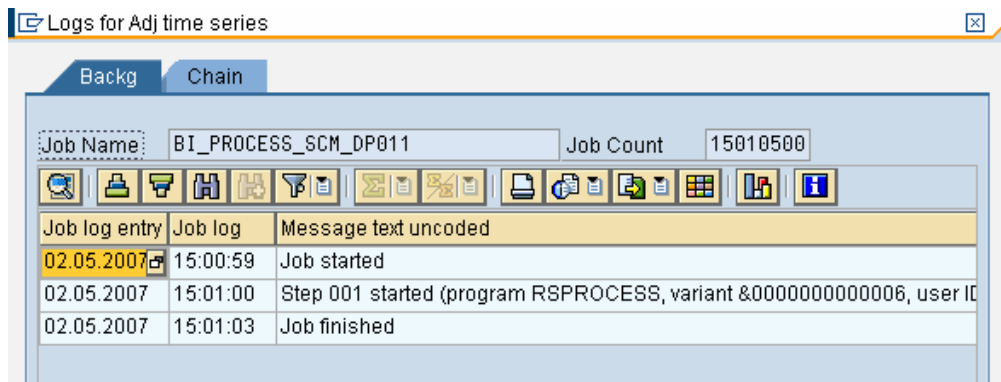
Schedule the Process Chain

Schedule the process chain the background. It is similar to background job scheduling.



Monitoring Features of the Log View

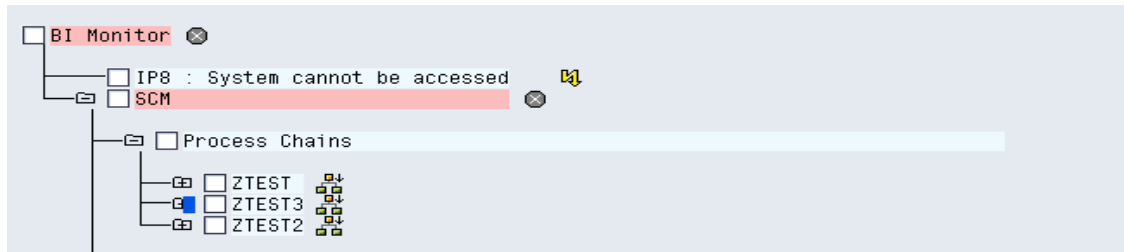
Log View: Double Click on Process to Launch Job Log Viewer. The Log view is the tool for monitoring the process chain execution



Process Chain Monitoring

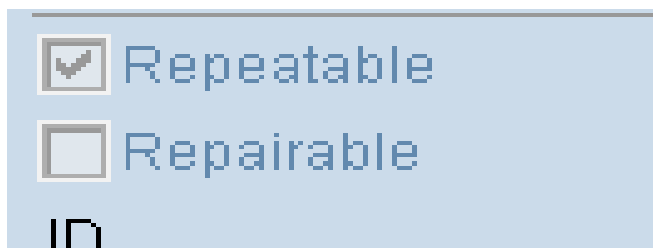
Transaction RZ20

Tools → CCMS → Control/Monitoring → CCMS Monitor Sets → SAP BI Monitors → BI Monitor



Action on failed Process chain

- Repeat : If an instance is failed, you can repeat the process, If you repeat a process the system generates a new instance
This is possible if in the Process Type definition it is defined
- Repair : If an instance is terminated, you can repair the process. This means that you can repeat the process with the same instance.



When a chain gets activated

- it will be copied into active version
- the processes will be planned in batch
 - program RSPROCESS with type and variant
 - with job name BI_PROCESS_<TYPE>
 - waiting for event, except the trigger
 - The trigger is planned as specified in its variant, if "start via meta-chain" it is not planned to batch

Process chain log

- The job count is stored in the log.
- for the log-display via job name and job count

Facts of the Process Chains

- Process chains are transportable
 - Button for writing to a change request when maintaining a process chain in RSPC
 - Process chains available in the transport connection wizard (administrator workbench)
- If a process "dumps", it is treated in the same manner as a failed process

- Graphical display of Process Chain Maintenance requires the 620 SAPGUI and SCM 4.1 / SAP BW 3.0B Frontend GUI
 - Recent front-end patches for both types!
- A special control background job runs to facilitate the execution of the of the other batch jobs of the process chain
- You can not schedule process chain in the background using transaction SM36/SM37
- If you are using third party tool for scheduling the job and want to triggered the process chain the background then develop the Z-program using BAPI

Note your BTC process distribution, and make sure that an extra BTC process is available so the supporting control job can run immediately

Process Chain Transactions

Menu Path to access “RSPC” transaction :

- Advance Planning and Optimization → Demand Planning → Environment → Maintain Process Chain
- Advance Planning and Optimization → Supply Network Planning → Environment → Maintain Process Chain
- Advance Planning and Optimization → Production Planning → Automated Production Planning and Optimization → Maintain Process Chain

You can access the Process chain via transaction RSA1 too!!!



Authorization for Process chain

Following are the objects are related to process chain

- **S_RS_ADMWB :**
 - For the administration processes that are bundled in a process chain
- **S_RS_PC :**
 - To work with process chains
 - To determine whether process chains can be displayed, changed or executed, and whether logs can be deleted
 - Use the process chain name to restrict the authorizations using the application component

Related Content

Please include at least three references to SDN documents or web pages.

SAP Help:

http://help.sap.com/saphelp_nw04/helpdata/en/8f/c08b3baaa59649e10000000a11402f/content.htm

SDN SCM Wiki : <https://wiki.sdn.sap.com/wiki/display/SCM>

<https://www.sdn.sap.com/irj/sdn/wiki?path=/display/SCM/Process%2bChain%2bin%2bSCM>

<https://www.sdn.sap.com/irj/sdn/go/portal/prtroot/docs/library/uuid/8da0cd90-0201-0010-2d9a-abab69f10045>

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