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Document content will help you understand and configure SRM process controlled workflow.
Understand and Configure SRM Process Controlled Workflow

**Workflow Framework**

SRM provides you with an option to decide whether you want to use Process Controlled Workflow or Application Controlled Workflow via customizing.

As of SRM 7.0 or higher the process controlled workflow framework is set as default and you always have an option to switch to application controlled workflow via customizing shown below.

Application controlled workflow will be selected in a scenario where lot of development and time was invested in setting up workflow using the application controlled workflow framework say in SRM 5.0 and an upgrade was done to SRM 7.0 higher release.
Process controlled workflow setting

The Process controlled workflow configuration is split into 3 sections as shown above, and I recommend you follow the sequence starting with Technical settings first, then BRF and finally Business Process Configuration.

Technical Settings: This section will cover the entire technical related configuration and most configurations are done by the system itself. This includes examples like creation of workflow RFC, workflow admin user etc.

BRF: This section covers the settings done to configure the start conditions for the workflow and the logic to determine your workflow agents.

Business Process Configuration: This section covers the configuration to setup different levels of approval, approval type, who is the workflow agent and the decision type.
Understand and Configure SRM Process Controlled Workflow

Technical Configuration
Customize SAP Business Workflow Automatically

Configuration have to done in the provided IMG sequence starting off with the automatic configuration via IMG node Customize SAP Business Workflow Automatically.
Initiate the Automatic Workflow customizing using the "Perform Automatic customizing button".

Make sure "Maintain Runtime Environment" is green as shown above. With this step executed system would create workflow RFC, the workflow admin user, generalize tasks and also schedule few jobs / reports.
The admin user created is WF-BATCH which is used by the system for workflow execution. You need to manually add SAP_ALL profile to this user as shown above.

Next step is to verify if workflow works in your system by using the "Start Verification Workflow button".

![Screenshot of workflow verification]

![Information dialog box showing verification workflow started]
Understand and Configure SRM Process Controlled Workflow

Once this button is clicked you should get popup stating verification has started.

Go to inbox to execute the test work item created.
Select "Execute background step immediately" and you will get two mails.

If you receive two mails in your inbox as shown above then workflow verification is complete and the technical configuration is correct and workflow is working fine.

In case the two mails are not generated you may have to recheck all the previous settings.
Check event Trigger Configuration

In this customizing activity check if Main SRM Approval Process Template (WS 40000014) can be started with an event. By default it is active.
Understand and Configure SRM Process Controlled Workflow

Enter the main workflow template **WS40000014** (also called as unified template) into the Workflow field and press enter.

Choose Goto -> Basic Data
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Check if the entry is present and its active (green).
If it is deactivated then active the same using the below steps.
Check Event Type Linkage

In this customizing activity check event type linkage for unified template WS40000014.

Check if the following entry is present. If the entry does not exist choose New Entries and create it according to the below settings.

1) Object category: **ABAP class**
   Object type: /SAPSRM/CL_WF_PDO
   Event: READY_FOR_WORKFLOW
   Receiver type: WS 40000014 (main workflow)
   Type linkage active: **Checkbox selected**
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2)
Object category: **ABAP class**
Object type: /SAPSRM/CL_WF_PDO
Event: READY_FOR_RELEASE
Receiver type: SRMPROCESS_RESTART
Type linkage active: **Checkbox selected**

**Generalize Tasks**

In this activity, we need set all tasks of task groups **TG 40000003** and **TG 40000007** as **GENERAL**. This is performed because any user in the system can process tasks to complete a workflow step or activity.

Example could be a task execution to change the document status from created to approved.
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Select Task Group as the task type and enter task group 40000003 and execute. This group holds a set of tasks for different SRM business objects.

Select all the lines and choose Generalize. Make sure all entries are green.
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Generalize Task group 40000007. This task group holds a set of task to approve, revise, reject for any business object in SRM. Also can be called as workflow type

Repeat the above steps to generalize Task group 40000007 and make sure all entries are green
Check Task Generalization

This activity is to check if the tasks in task groups **TG 40000003** and **TG 40000007** are generalized or not.
Enter the task group 40000003 and choose Display.
To perform a random check double click on any of the tasks listed.

Check whether the selected task is a general task. Until these tasks are generalized the users in the system cannot execute these tasks to complete a workflow step. Perform the above steps for task group 40000007.
Understand and Configure SRM Process Controlled Workflow

Check Task Consistency

In this customizing activity we check if all the tasks are consistent.

Click here
Understand and Configure SRM Process Controlled Workflow

Enter the package value “/SAPSWM/WF_CFG” and make sure to check extended check checkbox. Execute the consistency check.

Check the log if all tasks are green.
Copy BRF Objects

In this customizing activity the Business Rule Framework (BRF objects) is copied from 000 clients to your current client. This step is performed so that you can directly use these objects in your workflow configuration or use them as reference to create your own objects.
Understand and Configure SRM Process Controlled Workflow

Enter Application class **SRM_WF**, make sure **simulation checkbox** is unchecked, Import Status **A** and **Copy** is selected as Operation.

Execute the report to initiate the transport.
Check the log.

Also check if you can view BRF objects which are copied from Client 000 using Tcode: BRF. These objects are SAP standard provided and can be used for your business process if suitable or use them as reference to create your own objects.
Understand and Configure SRM Process Controlled Workflow

Understanding the different steps involved.

**Application layer** is where SC is created and once the workflow is started, the work item is sent to agent's inbox. This work item is completed either by approving, rejecting or completion of the item.

**Business workflow** layer hold all the standard workflow templates and task groups. No changes are to be done here as its standard delivered.

**Process Level definition**: For each business objects (SC, RFx etc) Process Level definition holds different process schemas and each of these schemas will hold multiple process levels.

Scheme is a collection or a set of process levels, where each process level will be one level of approval. For example if you have 5 levels of approval required for shopping cart object then the schema will hold 5 different process level.

You can have different schemas for each business object in a scenario where approval process is totally different in two departments in your company or have different schemas for each geographical regions of your company. Number of process schemas and process levels are totally based on your business requirement.

**Business Rule Framework (BRF)** layer holds all the events and expression used to determine process schemas and process levels. Every event is always associated with one or more expressions.

Expressions are objects where the actual logic or start conditions are written. Usually valuations are done to business object fields in an expression.

Let's see how workflow starts and ends based on the above figure.
Understand and Configure SRM Process Controlled Workflow

User creates for example a shopping cart and we consider creation of shopping cart an event in application layer.

When an event occurs for any business object the control moves to the unified workflow template WS40000044 and this template controls your entire workflow.

This template will now move the control to determination of which process schema has to be selected for business object SC.

Every business object is assigned to an evaluation ID (also called as event in BRF layer). Control moves to this Event to determine schema

Each event is associated with one or more expressions, hence the control now moves to expressions. Once the expression is executed the result passed back will be the process schema to be used.

The control now moves to the process schema which was determined in step 5. As mentioned before this schema will hold multiple process levels.

Each process level will be executed one after the other in a sequence.

Every process level is assigned to an evaluation ID (also called as event in BRF layer). Control moves to this Event to determine if this process level is to be executed or no.

Each event is associated with one or more expressions, hence the control now moves to expressions. Once the expression is executed the outcome is whether the process level has to be executed or skipped.

If the process level is to be executed, then system will determine the following from the process level definition :

- Task (approval of SC)
- Responsible agent
- What type of approval (approval or completion?)
- Decision type (full document or partial document)

Based on the approval type template WS40000017 or WS40000016 will selected and corresponding work item is sent to the responsible agent.

The responsible agent will login to SRM and complete the workflow by approving, rejecting or completion in the application layer.

Based on the explanation above section we can relate and perform the actual configuration.

BRF Configuration

In this customizing activity we create events, expression and groups that we need to configure the business workflow.
Understand and Configure SRM Process Controlled Workflow

Create Groups

![Diagram of Business Workflow]

We can either use the existing groups or create your own groups.

![Change View "BRF: Groups": Overview]

To understand why we need groups lets refer to the below example
**Understand and Configure SRM Process Controlled Workflow**

**3BC_SETS** is a standard delivered group which is the main group for all business objects.

**3CONF** – is the main group for business object confirmation.

**3CONF_SCHEME** - is the group which holds all the events and expressions to determine the process schema for confirmation.

**3CONF_LEVEL** – is the group which holds all the events and expressions to determine the process levels for confirmation.

If you check the above screenshot similar structure is exists for all the SRM business objects under 3BC_SETS.
The same groups are shown in a structural format in **Tcode: BRF**

Now moving our focus to Group for process level and schema you will see all the assigned events and expressions to determine the levels and schemas for business object confirmation.

**Note:** we use only events and expressions for SRM workflow and we don’t use Actions and Rule Sets.
Understand and Configure SRM Process Controlled Workflow

To create your own groups follow the steps shown below

Make sure the Application Class is selected as SRM_WF
In this IMG activity you can create or check the existing expressions or use tcode: BRF. Expressions are used to determine whether or not a certain approval level is required. The result of an expression can be compared with a concrete value. Generally, expressions evaluate document fields.

To view an existing expression just double click on the desired expression and you can view the details of this expression in the right panel.
Every expression will have a Name, result Type (example Boolean) and based on the type of expression fields will vary. Example shown here is an expression of type Formula Interpreter hence you see an area to write the formula.
To create a new expression just right click on the expression area.
Understand and Configure SRM Process Controlled Workflow

Provide the expression with a name and you also have to choose an expression type like if it’s a constant or Formula interpreter.

I created an expression of type constant, here I have mention result type will be a STRING (when expression is executed it will return a string as result) and the constant value.

You may also have to specify Result Type, Specify Length, FM name based on the type of expression.
Create Events

In this IMG activity you can create or check the existing events or use Tcode: BRF.
To view an existing event just double click on the desired event and you can view the details in the right panel.
Understand and Configure SRM Process Controlled Workflow

Each event is assigned to one or more expressions as shown above. Make sure One Instance Mode and Multiple Instance Modes fields are selected.
To create a new event just right click on the expression area.
Understand and Configure SRM Process Controlled Workflow

Provide the event with a name and you also have to choose the event type as 0EVENT.

Save the event and double click on the new event so that in the next screen you can assign the expression to this event.
Choose the desired expression to be assigned to this event.

The event you create finally should look similar to above example.
Understand and Configure SRM Process Controlled Workflow

Business Process Configuration

This IMG activity is used to configure your business workflow processes using the events and expressions we created in previous steps.

Activate Sample BC Sets

Using this IMG activity you can activate the standard delivered process levels for each business objects for an easy start of workflow implementation. I recommend doing this step as this could act as a base or reference to configure workflow levels.
Understand and Configure SRM Process Controlled Workflow

You can also use Tcode: SCPR20

Perform a search with /SAPSRM/* in BC set field to choose the desired BC sets.

For all business objects you can select the BC Set as /SAPSRM/TH_BO_600_001_SP04
Understand and Configure SRM Process Controlled Workflow

Use the Activate BC set button
Understand and Configure SRM Process Controlled Workflow

Do no change any settings here, just continue.

Use the log button to check for any errors.
Log for activation shows the ones with status ok, warning and error.

Define Process Levels
Understand and Configure SRM Process Controlled Workflow

In this IMG activity you will configure the different process schemas and process levels you need.

Select the business object you want to work with and double click on Process Schema Evaluation.
Understand and Configure SRM Process Controlled Workflow

This is the evaluation Id (event) that will determine which process schema is to be used.
As an example if we look at the event we see two expressions are used for schema determination.
One of the expressions is of type truth table and based on the execution this expression will give one of the schemas highlighted as result.

Coming back to process level definition IMG node, double click on the Process Schema definition to see the list of schemas.
As mentioned in the expression one of Schema name is returned in the Process Schema Evaluation step. We have 6 levels of approval levels in this schema shown as example. System will execute each of these process levels in a sequence from 100 to 600.
As a safe option you can have level 999 as automatic approval done by the system if process levels 100 to 600 returns false and hence not executed.

Each process levels will have the following details:

**Level type**

Approval type when you can document to be approved or rejected

- Approval with completion can be used when you need a purchaser or assistant to complete your RFX or SC.
- Automatic is used when you need automatic approval done by the system itself.
Evaluation ID (event)

Each process level is assigned to an evaluation ID (event). This event will be assigned to an expression to determine if this level has to be executed or not. An example is shown below.
Event is assigned to an expression

If the formula mentioned in the expression is true or false a Boolean value 1 or 0 is returned. 0 as return value will not execute the process level and if 1 is return value then process level is executed.
Responsible Resolver Name and Resolver parameter

If the process level is to be executed then the responsible agent is determined using this parameter. As an example we have chosen RR_ROLE and as a result the work item will be sent to all users maintained in the organization structure with the specified role in Resolver parameter field shown below.
Understand and Configure SRM Process Controlled Workflow

As another example If you use Resolver name as RR_MANAGER then work item will be sent to the line manager (selected from the organization structure) of the user creating the shopping cart. Here we don’t have to enter a value for resolver parameter as shown below.

Task ID

Task ID has to be selected based on business object. Here the example is task to approve or reject a Shopping cart.
Decision Type

Decision type selected will reflect how the approval should be performed.

**Type 1 Decision for Entire Document** – Entire document has to be approved or rejected at header level by a single agent. (Header level)

**Type 2 Item-Based Decision for Entire Document** – The approval to be performed by a single agent and has option to approve or reject individual items (Item level)

**Type 3 Overall Decision for Partial Document** – The approval to be performed by different agents and each agent has to only approve or rejects the entire document for items they are responsible for. (Header Level)

**Type 4 Item-Based Decision for Partial Document** – The approval to be performed by different agents and each agent has option to approve or reject individual items for which they are responsible for. (Item level)

**Note:**
Shopping cart supports all the types.
Contract and Purchase Orders supports Type 1 and 2.
All the other business objects support only Type 1.
Define Recipient of Notifications (Optional)

In this IMG activity you define all the recipients who has to receive notification when approval, rejection, change or deletion occurs to an business object.
Understand and Configure SRM Process Controlled Workflow

You can define the scenario and the user who has to get the notification.

Based on the scenario the users will receive notification if the corresponding checkbox for approval, rejection, changes to document or deletion to document is set as shown above,

**Define Recipient of Notifications (Optional)**

![Process-Controlled Workflow Diagram](image-url)
Deadline monitoring is a workflow runtime system function that monitors the start and end deadlines for the processing of selected work items in an approval process.

The following deadlines are already configured in the workflow templates WS40000016 (Approval Workflow) and WS40000017 (Completion Workflow):

- Latest Start Date/Time
- Requested End Date/Time
- Latest End Date/Time
- BADI is also available /SAPSRM/BD_WF_DEADLINES
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Badi for Reviewer and Agent determination (Optional)

In this IMG activities you specify the Badi filter that helps you determine the responsible agent or reviewer to be assigned to a workflow item.

<table>
<thead>
<tr>
<th>Reviewer Rule</th>
<th>Text</th>
</tr>
</thead>
<tbody>
<tr>
<td>RV_EMPLOYEE</td>
<td>Specify Employee as Reviewer</td>
</tr>
<tr>
<td>RV_REPORTING_LINE_UNIT</td>
<td>Get all Employees of Specified Department as Reviewers</td>
</tr>
<tr>
<td>RV_ROLE</td>
<td>Get all Users of Specified Role as Reviewers</td>
</tr>
<tr>
<td>RV_SOURCE_DOCUMENT_RESPONSIBLES</td>
<td>Get Source-Document Responsible as Reviewers</td>
</tr>
</tbody>
</table>
You can use these predefined BAdI to determine and assign responsible agents to workflow items. You can either use existing Agents determination or creating implementation enhancement by creating new agents.

This completes the necessary steps to configure SRM Process controlled workflow.