

Customization Tools: Approval Procedures

SAP Business One
Release 9.0



Welcome to the topic on approval procedures in SAP Business One.

Objectives



Objective:

- Describe the business process flow when an approval procedure is used
- Set up an approval process in SAP Business One

After completing this topic, you will be able describe the business process flow when an approval procedure is used, and set up a new approval process in SAP Business One.

Business Scenario



- In order to control spiraling expense claims, the company now requires all expenses over a certain limit to be approved by the accounting department.
- **Solution:** Use an approval procedure. If the value of the expense document exceeds the limit, the approval procedure will block the document until it is approved.

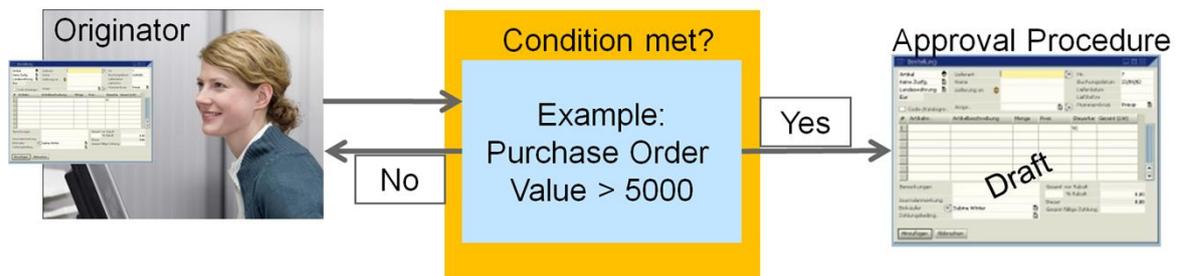


In the business scenario shown here, there is a requirement to approve expenses over a certain limit. These expenses should be approved by the accounting department.

You can use an approval procedure whenever the work procedure requires an approval *before* a user can generate certain documents, for example, purchase orders.

If the value of the expense document exceeds the limit, the approval procedure will block the document until it is approved.

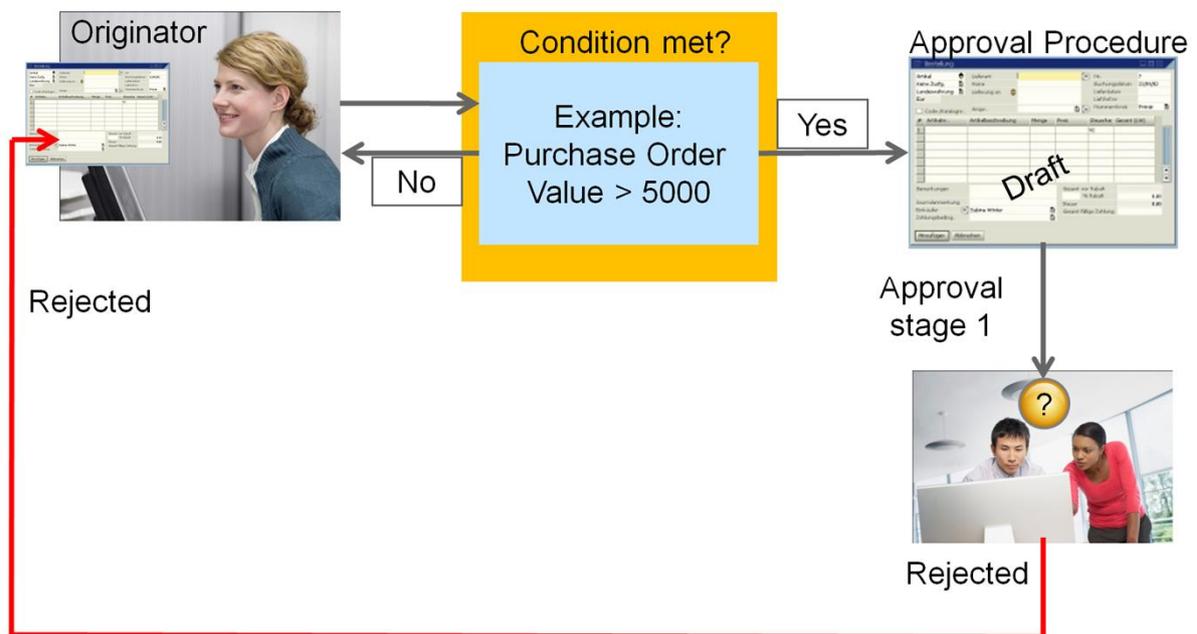
Approval Procedure in SAP Business One



Let us look at the workflow for an approval procedure:

- The person who creates the document is the originator.
- When the originator adds a document to the system, the system checks if there are any approval conditions.
- If the document meets the condition for an approval, the originator is notified that the document requires approval.
- The system saves the document as a draft, allowing the user to continue working on other documents.

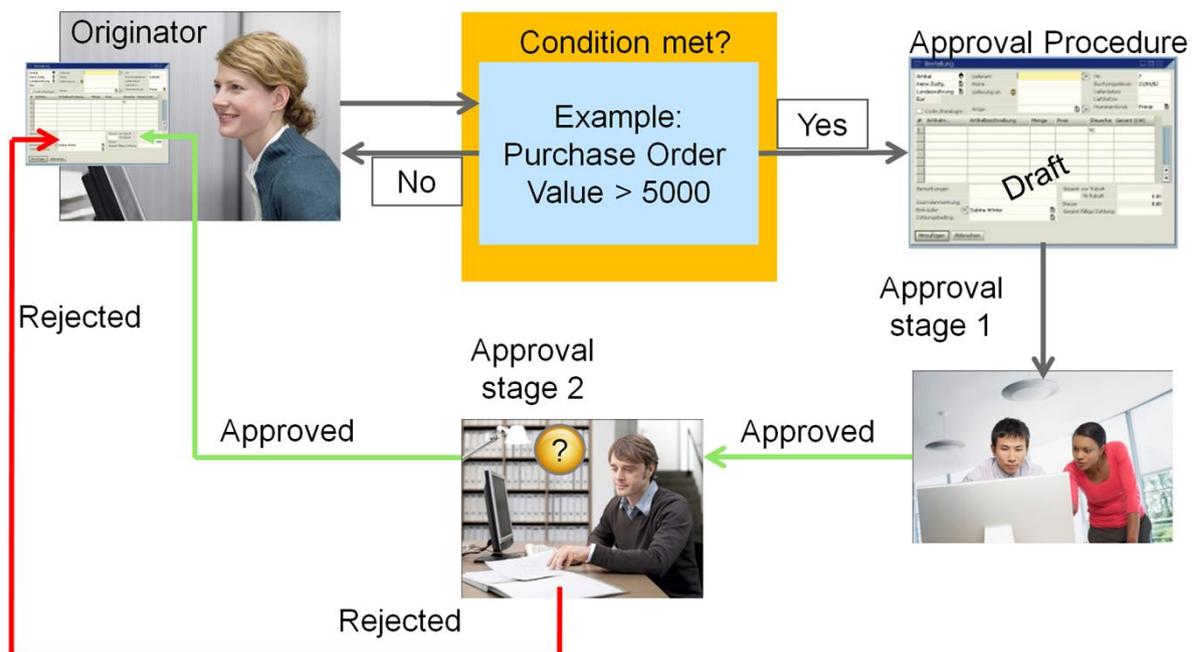
Approval Procedure in SAP Business One



The approval process is launched:

- Immediately an internal request is sent to the first approval stage. This request appears in the *Messages/Alerts Overview* window and the approver can view the document. If the mobile application is integrated, approvals can be done from a mobile phone.
- If the approver rejects the document, an internal message goes back to the originator with a link to the rejected document.
- The originator can generate an amended document, and if the approval condition is no longer met, the document can be added to the system. If the approval condition is still met, another approval procedure will start.

Approval Procedure in SAP Business One



If the document is approved at the first approval stage, the approval process continues:

- An approval request is sent to the next approval stage (if applicable).
- If the document is *approved* at the final approval stage, an internal message goes back to the originator with a link to the draft document. The originator can now add the document.

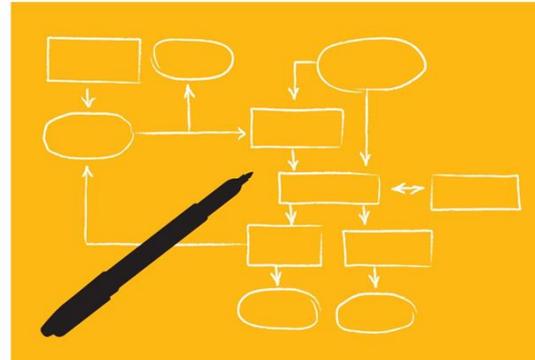
This is an example of a fairly straightforward approval procedure. In real life, approval procedures can be more complex, requiring multiple conditions to be checked, and more layers of approval.

Setup

Administration > System Initialization > General Settings.

To define an approval procedure:

1. Activate approval procedures in the General Settings (BP tab)
2. Define one or more Approval Stages
3. Create an Approval Template



To set up an approval procedure, you need to:

1. Activate the approval process in the system. To do this, choose *Administration > System Initialization > General Settings*. Choose the *BP* tab and select the *Activate Approval Procedures* checkbox.
2. Define one or more approval stages.
3. Create an approval template.

Setup – Approval Stages

#	Authorizer	Department
1	Fred Buyer	Purchase
2		

- Each stage is a list of approvers at one approval level
- All approvers must first be defined as users in SAP Business One

#	Authorizer	Department
1	Merlina Francis	Purchase
2	James Chan	Purchase
3		

You can define more than one authorizer for a stage, and set the minimum number of required approvals before the process moves to the next level

An approval stage is a list of users who can approve the document at the *same* approval level.

All approvers must first be defined as users in SAP Business One.

In our scenario, we have two purchasing users who can approve a purchasing document before it goes for final approval to the purchasing manager, but we only need an approval from one of them.

Therefore two authorizing users have been defined for the first stage, but only one approval is required to allow the process to move on to the next stage. Either user can approve it. This allows the approval process to move on in case of holidays and staff absences.

At the second (and final stage) we have defined one approver – the purchasing manager who is the final approver. Note that this can be a bottleneck if the purchasing manager is absent, therefore ideally you would include another user at this stage.

Setup – Approval Templates

- Approval template models the business requirements to implement an approval process
- Combines four elements:
 - Originators of the documents
 - Names of approvers for each stage
 - Documents subject to approval
 - Conditions for approval



An approval template models the business requirements to implement an approval process. The approval template combines four elements that define the process: originators of the documents, the names of the approvers at each stage, the documents subject to approval, and the document conditions that require and approval. Therefore you must define the approval stages first before you can include them in the approval template.

You can define an approval template that relates to a specific document type, or you can define a template that can apply to multiple document types with similar conditions for approval.

Approval Templates - Originators

Originators Tab:

- In the template, specify the users who create documents that need approval
- Only users specified here are subject to approval process
- User cannot modify template if selected as an originator in the template

	User	Department
1	Alex Torras	General
2	Bob Shone	Production
3	Carlos Andres	Logistic
4	Mary Heske	Logistic
5	Jim Boswick	Sales
6		

On the *Originators* tab, select the users who create the documents that need approval. All originators must be first defined as users in SAP Business One.

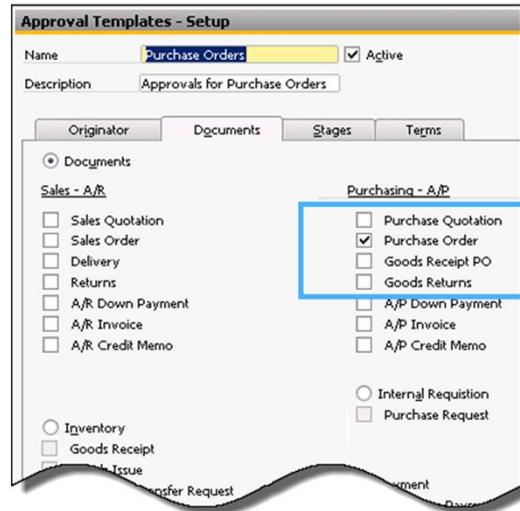
Only users specified here are subject to an approval process.

The system prevents a user from modifying a template if they are selected as an originator in the template.

Approval Templates - Documents

Documents Tab:

- Select the document types for approval
- Sales and purchasing document types can be selected in one template; however, the approvers need to be identical
- If you need different approvers, use separate templates
- Cannot mix marketing documents with inventory or payment document types in same template



In the *Documents* tab, you select the document types for approval. The approval process will apply to every document type that is selected here.

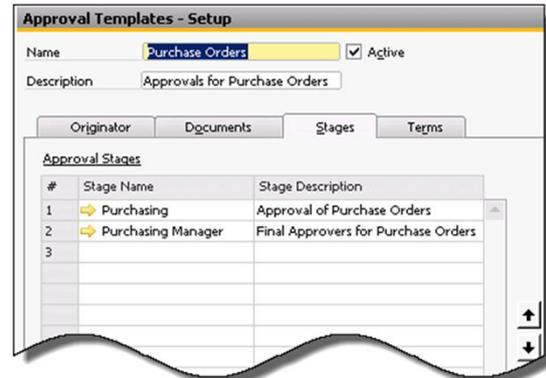
Both sales and purchasing document types can be selected in one template; however, when you add stages to the template the named approvers will be identical for all the documents. Therefore if you need different approvers for sales and purchasing documents, use separate approval templates so you can include different approvers in each template.

The system will not allow you to select sales and purchasing document types with inventory or payment document types in the same template. You will need to create additional templates for these document types.

Approval Templates - Stages

Stages Tab:

- Include the predefined approval stages
- The sequence of the stages in the template is the order for a multi-level approval process



In the *Stages* tab, you include one or more of the predefined stages in the template.

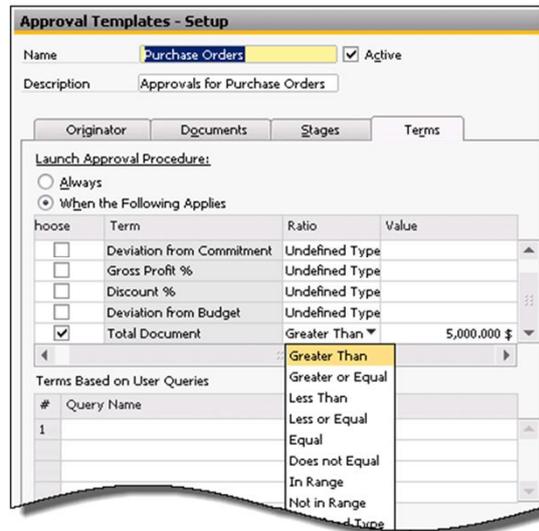
The sequence that the stages are listed in the template becomes the order for a multi-level approval process.

You can rearrange the sequence using the up and down arrows.

Approval Templates - Terms

Terms:

- Always (no terms)
- Predefined terms (vary according to selected document types)
- User queries



In the *Terms* tab, you set the conditions for the approval. You have three options:

- You can choose to apply no terms or conditions to the selected document types. The selected document types will *always* be subject to approval.
- You can choose a predefined term. The predefined terms available in the template depend on the document types selected, but they cover common situations, such as a quantity or a total that exceeds a stated amount. In this example, we have specified the condition that the document total must be over 5000.
- You can choose to add your own conditions using a user query. This allows you to model more complex approval processes.

Using Predefined Terms

- Select an operator (greater than, less than, equal, etc.) and enter value
- Select range (In range, Not in range) and enter range from low to high, separate by hyphen

	Predefined Term	Ratio	Value
<input checked="" type="checkbox"/>	Total	Greater than	5000
<input checked="" type="checkbox"/>	Quantity	In range	5-200

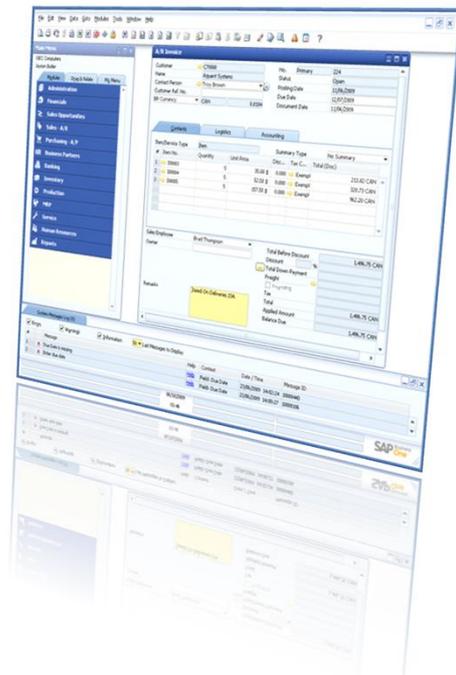
Multiple conditions evaluated using "or" logic
Approval process will apply if just one of the predefined terms is met.

When using a predefined term, you can select an operator such as "greater than" or "equal", and enter a value for comparison.

You can also select "In range" or "Not in range" as the ratio, and enter two values for the range, from low to high, separated by a hyphen.

Note that an approval procedure will apply if just *one* of the predefined terms is met. In the example shown here, that means if the total amount of the document is greater than 5000, *or* the quantity is between 5 and 200.

Demo: Approval Procedures



In this demo, you will see how to create an approval procedure based on predefined terms.

Using Queries

Terms:

- Can use queries in approval procedure terms instead of predefined terms
- Predefined terms can be combined with a query – evaluated using OR logic
- Use a query if all multiple conditions must be met (AND operator)

Approval Templates - Setup

Name: Sales Orders Active
Description: Sales Order Approvals

Originator Documents Stages Terms

Launch Approval Procedure:
 Always
 When the Following Applies

#	Term	Ratio	Value
<input type="checkbox"/>	Deviation from Credit Limit	Undefined Type	
<input type="checkbox"/>	Deviation from Commitment	Undefined Type	
<input checked="" type="checkbox"/>	Gross Profit %	Less Than	35,000
<input checked="" type="checkbox"/>	Discount %	Greater Than	10,000
<input type="checkbox"/>	Deviation from Budget	Undefined Type	

Terms Based on User Queries

#	Query Name
1	Balance > 10000
2	

You can use queries as the terms for an approval procedure. This allows you to develop customized approval scenarios.

You can use a query instead of the predefined terms, or you can combine predefined terms with a query.

Be aware that the approval process will start if just one of the conditions is met. In other words, the conditions are evaluated using OR logic.

If you need multiple conditions to be met, use a query instead of predefined terms and write the query conditions linked with the AND operator.

Queries for Approval Procedures

- Query must use SELECT DISTINCT 'True'
- Example: Approval for sales orders when customer account balance is > 10000 AND order document total > 2500

```
SELECT distinct 'TRUE'  
FROM ORDR T0 INNER JOIN OCRD T1  
ON T0.[CardCode] = T1.[CardCode]  
WHERE  
T1.CardCode = ${ORDR.CardCode} and  
T1.Balance > 10000 and  
cast(${ORDR.DocTotal} as numeric) > 2500
```

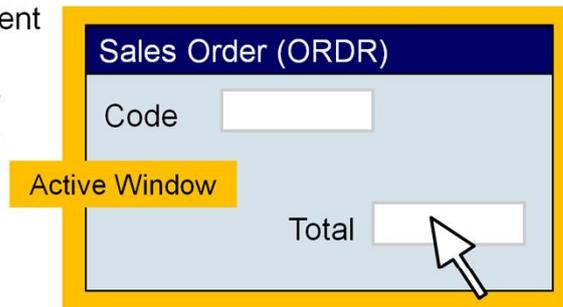
The diagram illustrates two SAP data entry screens. The top screen, titled 'Sales Order (ORDR)', has a dark blue header and contains two input fields: 'Code' and 'Total'. The bottom screen, titled 'Business Partner Master Data (OCRD)', has a blue header and contains one input field: 'Balance'. A mouse cursor is positioned over the 'Total' field in the ORDR screen.

When you use a query in an approval procedure, the query must use the SELECT DISTINCT 'TRUE' clause, so that the result is a TRUE statement if the conditions of the query are met. A TRUE statement will trigger an approval procedure; a FALSE statement will not.

An example is shown above, where two conditions must be met for an approval - the customer account balance is over 10,000 and the order total is higher than 2500. The query will select from the sales order table ORDR and the business partner master data OCRD.

Queries for the Active Window

- Query must reference document in active window
- To refer to a field in the active window, you must include a \$ sign in front of the field



```
SELECT distinct 'TRUE'  
FROM ORDR T0 INNER JOIN OCRD T1  
ON T0.[CardCode] = T1.[CardCode]  
WHERE  
T1.CardCode = $[ORDR.CardCode] and  
T1.Balance > 10000 and  
cast($[ORDR.DocTotal] as numeric) > 2500
```

This query only works for sales orders (table ORDR)

When you write a query for an approval procedure, you will need to reference the current document in the *active* window. The active window is the one the originator is working in. This is in contrast to standard queries where you select information from the database.

To refer to a field in the active window, you must include a \$ sign in front of the field.

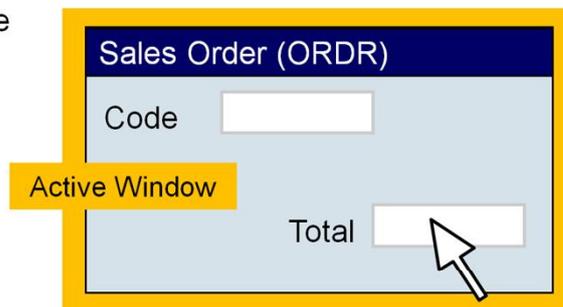
In the query shown here, a \$ sign is used with the CardCode and DocTotal fields in the active sales document.

The \$ sign is not needed for fields that are stored in the database, such as the balance field from the master data record.

Note that you can only use this query for sales orders, since the table and field name used here are unique to the sales order table ORDR.

Queries for Multiple Document Types

- If multiple document types are selected in the approval template, the query must use the item number syntax:
\$[\$Item.Column.0]



```
SELECT distinct 'TRUE'  
FROM OCRD T0  
WHERE  
T0.CardCode = $[$4.0.0] and  
T0.Balance > 10000 and  
$[$29.0.number] > 2500
```

This query works for all sales and purchasing document types since it refers to a field using the item number

If you use a query in an approval template with multiple document types selected, you must write the query using the *item and column number* syntax. This syntax allows you to use the same query across multiple document types.

To find the item and column number for a field, choose *View > System Information* and move your mouse over the field in the active document.

The item number for a field is common across all document types that have the same structure, such as sales and purchasing documents. In these documents, the item and column numbers are the same, but the table names are different. In the example shown here, the item number for CardCode is 4 and the item number for DocTotal is 29.

To use the item number syntax, add a second \$ sign in front of the item number, within the brackets, to indicate that the item syntax is used. The column number is *always* 0 in approval procedure queries, since the query can only refer to fields in the header of a document.

The item number query syntax returns a string value. Therefore if you need the result in a different format, you need to specify the format in the last part of the syntax:

- If set to 0, the field is retrieved as a string. This is the default.
- If set to number, the field is retrieved as a number and can be used in calculations.
- If set to currency, only the currency symbol is retrieved from a field that contains both an amount and the currency symbol.
- If set to date, the field is retrieved as a date field for date calculations.

Testing a Query for Approval Procedures

Tools > Queries > User Queries > Category Name > Query

The screenshot shows the SAP Sales Order window for customer C30000. A query editor is overlaid on the window, displaying the following SQL query:

```
Balance > 10000
SELECT distinct 'TRUE'
FROM ORDR T0 INNER JOIN OCRD T1 ON T0.[C
WHERE
T1.[CardCode] = N'C30000' and
T1.[Balance] > 10000 and 3044 > 2500
```

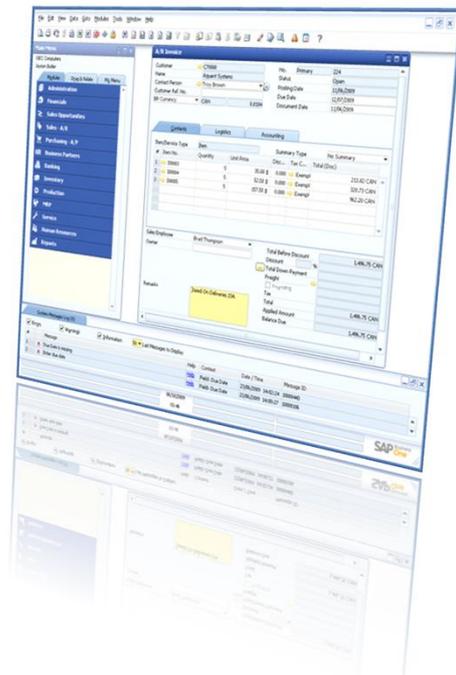
The query editor also shows a result set with one row: # 1 TRUE. A blue circle highlights the result set, and a yellow callout box points to it with the text: "To test query, keep document in the active window and run the query from the Tools menu".

#	Item No.	Quantity	Unit Price	Disc...	Tax C...	Total (LC)
1	100009	3	187.50 \$	0.000	NY	
2	100010	3	750.00 \$	0.000	NY	
3				0.000		

To test query, keep document in the active window and run the query from the Tools menu

To test the syntax of a query that refers to the active window, create a document that meets the conditions. Keep this document in the active window and run the query from the *Tools* menu. The query will return a true or false result.

Demo: Approval Procedures



In this demo, you will see how to create an approval procedure using a query to specify the conditions.

Multiple Approvers in a Stage

Example: minimum number of approvers is 1



Result: document approved and can be added to system

When you specify multiple approvers at the same stage, they have equal authorization level.

You need to consider the effect of multiple approvers at the same stage.

In this example, the minimum required number of approvers is 1.

One of the approvers approves the document. Later on, another approver rejects the same document.

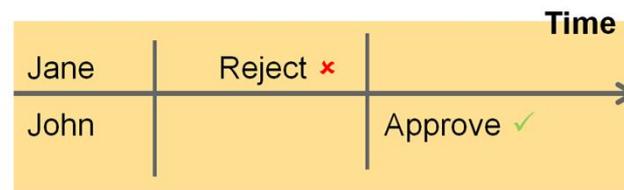
But this rejection has no effect if it happens *after* the first approval. Since only one approval is required, the document is approved and can be added to the system.

Multiple Approvers in a Stage (Cont.)

Example: minimum number of approvers is 1



Result: document approved and can be added to system



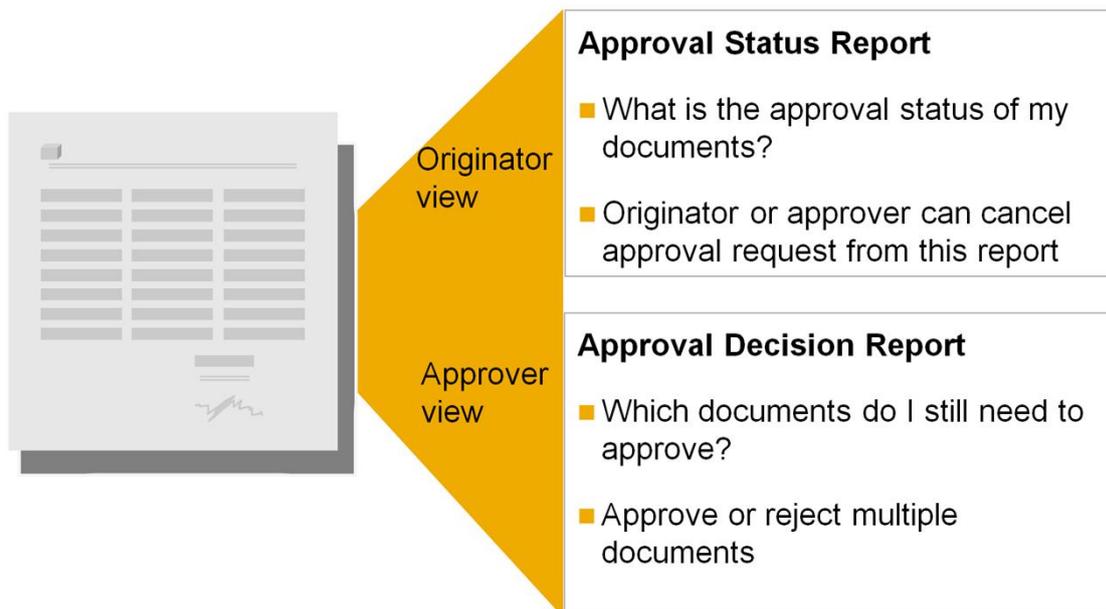
Result: document held pending until another approver responds

In the second scenario, one of the approvers rejects the document. The document is held as *pending* until the other approvers respond.

If all the approvers reject the document, the originator is alerted that the document has been rejected.

But if another approver approves the document, and the minimum number of required approvers is reached, then the document is approved and the originator can add the document to the system.

Approval Procedures: Reports



Imagine you are the originator of a document that needs approval; however you have not had a response back from the approvers. You can see the document's approval status using the *Approval Status Report*.

You, or the approver, can cancel the approval request for the document by selecting the row in the report, and choosing *Cancel* from the *Data* menu.

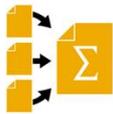
The status in the report can show one of the following values:

- Pending – The document is waiting for approval.
- Approved – The document is approved and converted from a draft to a regular document.
- Rejected – The document was not approved and remains a draft.
- Cancelled – An approval procedure was cancelled from the Approval Status Report. In this case, the draft document cannot be converted to a regular document. This status is also reflected in the document itself.

If you are an approver, you can use the *Approval Decision Report* to see all documents that require your approval.

Using this report you can directly approve or reject multiple documents at the same time.

Key Points



Key points from this topic:

- To set up an approval procedure, activate approval procedures, define approval stages and create approval templates
- To create a multi-level approval procedure, combine multiple predefined stages in the approval template.
- You can set conditions for an approval procedure:
 - Always
 - Predefined conditions
 - User query
- Queries used in approval procedures must return a true or false result
- To reference fields in the active window, include a \$ sign in query
- To use a query with multiple document types with the same structure, use the item number syntax and add an additional \$ sign

Here are some key points to take away from this course. Please take a minute to review these key points:

- To set up an approval procedure, you first activate approval procedures in the General Settings, then define approval stages and create approval templates.
- To create a multi-level approval procedure, combine multiple predefined stages in the approval template.
- You can set conditions for an approval procedure:
 - If you choose “always”, the procedure will start for every document type selected in the template.
 - You can select a predefined condition, or,
 - Add your own user query containing the conditions.
- When you use a query in an approval template, you must write the query to return a true or false result.
- If the query only needs to reference a specific document type, you can use the table and field name syntax. To reference fields in the active window, include a \$ sign in front of the square brackets.
- If the query needs to work with multiple document types with the same structure, use the item and column number syntax and include an additional \$ sign within the square brackets.

Thanks!

You have completed the topic for
Approval Procedures.
Thank you for your time!

You have completed the topic for approval procedures. Thank you for your time!

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