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Practical Workflow for SAP
Effective Business Processes using
SAP’s WebFlow Engine
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6 Workflow Administration

The administrator plays a key role in the success of the workflow and on publishing this success to the stakeholders. Although very little time needs to be spent on these duties, awareness of these duties is important and they must be taken seriously. If a problem does arise, the administrator will need to resolve it quickly and confidently.

6.1 Introduction

Feedback from user groups has consistently shown that administration for SAP’s WebFlow Engine is far less time consuming than for third party software that attempts to integrate with the mySAP.com components. This not only affects the day-to-day running but also ease of upgrade and the overall stability of the system. This is without doubt due to the fact that SAP’s WebFlow Engine, rather than trying to influence the system from the outside, lies at the heart of the system. Similarly, the release cycle of the mySAP.com components exactly matches that of the engine so that the engine, the business applications and the workflow templates stay in step with each other during development, rather than having to be coaxed back into shape at the company’s site during upgrade.

Nevertheless, there is no getting round this simple rule of thumb: If you use a system, you need a system administrator. If you use a workflow, you need a workflow administrator.

Tip For workflows using web functionality, assistance may also be required from the Web server/ITS administrator to resolve errors and monitor performance.

Once a workflow is activated, experience has shown that any problems with any part of the business process are likely to be blamed on the workflow, whether or not this is justified. This is a very natural reaction on the part of people involved with the business process, as the workflow:

- Controls their view of the business process
- Controls their access to the business process
- Controls the flow of the business process between them and other users
- Automatically performs parts of the business process that they are not able or not expecting to have to perform manually
Great benefits can be achieved when a process that is critical, essential or high volume is automated. As a workflow administrator one of your tasks may be to develop and execute reports to:

- Prove that benefits have been achieved
- Justify workflow implementation and support costs
- Prove the business case for changing the business process and/or the workflow design
- Prove that changes in the workflow have had the desired effect
- Prove that users are performing tasks efficiently and promptly

### 6.2 Reporting on Workflows

There are many reports provided as standard with WebFlow, and many more that can be created with tools such as Workflow Information System (WIS), or Business Information Warehouse (BW). If there is no standard report available in the system, you can of course create your own. Refer to chapter 13, Custom Programs, for more details on custom reporting.

You should find the reports listed here a useful starting point, but look around for other reports. Often where standard workflow templates have been built around particular transactions or data, special workflow reports exist for them.

All standard reports provide access to see the work item display, the workflow log using the option, and common reporting functions such as sort, filtering, change layout, etc. When selecting a workflow instance, most reports show the major steps executed so far and their agents, and the major object instances used so far. Most standard reports include selection criteria to restrict the list to a particular task, task group, component, selection period (today, last week, last month, last year, all) as well as by active and/or completed instances.

When you are assessing workflows it is useful to know what the different workflow and work item statuses mean. A complete list is shown in chapter 13, Custom Programs, but here are the statuses that you are most likely to see:

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<td>Usually applies to work items. The work item has been created and is activated but has not been executed yet. E.g. It is sitting in a user’s inbox but they have not opened it yet.</td>
</tr>
</tbody>
</table>

Table 6.1 The Most Significant Work Item Statuses
6.2.1 Reporting on Workflow Progress

Usually the most interesting question for anyone involved in a business process is "what's the current status of the workflow".

Useful reports for finding this include:

- **Workflows for Object**
  Choose Runtime Tools • Workflows for Object (transaction SWI6). This report shows all workflow instances linked to a particular object instance, such as a particular purchase order. Note that to use this report in releases prior to 6.10, the business object must have interface IFFIND implemented.

  **Tip** This is one of the most useful reports for general tracking, not just by the administrator but also by all other users of the workflow.

- **Workflows for Object Type**
  Choose Runtime Tools • Workflows for Object Type (transaction SWI14). This report shows all work items and workflow instances for all object instances of a business object type. E.g. Workflows related to all purchase orders.

### Table 6.1 The Most Significant Work Item Statuses (cont.)

<table>
<thead>
<tr>
<th>Technical Status</th>
<th>Meaning</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>SELECTED</strong></td>
<td>Appears in the work item display as <strong>IN PROCESS</strong>. Usually applies to work items. The work item has been opened or reserved by a user but has not yet been executed.</td>
</tr>
<tr>
<td><strong>COMMITTED</strong></td>
<td>Appears in the work item display as <strong>EXECUTED</strong>. Usually applies to work items. The work item has been executed, but is waiting for the user to manually confirm the end of processing. E.g. via a <strong>Set to Done</strong> option.</td>
</tr>
<tr>
<td><strong>COMPLETED</strong></td>
<td>The workflow or work item is completed. No further changes can be made once completed.</td>
</tr>
</tbody>
</table>

6.2.2 Reporting on Workflow Performance

When you are reporting on workflow performance you need to look at both the frequency of work items/workflow instances as well as the time taken to realistically assess the behavior of the workflow over time.

Every workflow instance and work item records creation time, start time (when the work item was first opened) and end time (when the work item was completed). If deadline monitoring is used, the work item also records the relevant deadline times.
The best standard report to give a consolidated view of this is Work items by processing duration (transaction SWI2_DURA). However, this is one area where it is very useful to create your own custom report via WIS, BW or if neither of these is available, by writing your own program.

When evaluating performance time it is important to consider not just total elapsed time, but also the wait and process times. For instance, the workflow may have taken five days from start to finish, but four days may have been spent just waiting for the first agent to act. If you need to speed the process further, you need to know whether you should focus your efforts on improving the workflow design or improving user behavior.

Wait times can result from a number of factors such as:

- Agent was sick, taking a course, in a meeting, or on vacation, and there was no substitute
- Agent was not aware of the work item (perhaps they check their inbox infrequently)
- Agent wasn’t sure how to execute the work item
- Agent needed to consult with others before completing the work item

You should never assume that a long wait time means that the user is acting inappropriately, but always investigate the cause of the delay.

If you have deadlines on your work items, more detailed analyses can be made, for instance by using the standard report Work items with Monitored Deadlines (transaction SWI2_DEAD).

If you want to know the number of work items processed per period, use report Work items by task (transaction SWI2_FREQ).

### 6.2.3 Work Items by Processing Duration

Choose Reporting · Work Item Analysis · Work Items by Processing Duration.

This report gives information on the processing duration of work items of the specified type or for the specified tasks that ended in the period, sorted by task. Provided there are appropriate work items, the current period is compared with a prior period of the same length. The variances and differences are shown.
The process duration of all work items for one task is displayed as standard with threshold values (10% threshold, 50% threshold, 90% threshold). The threshold values should be interpreted as follows: The process duration for the x% threshold means that x% of all work items for this task were processed within this period or a shorter period. You can switch mode to show the wait time (i.e., wasted time), processing time, or total time, which is often more useful than the threshold times. You can also look at times for particular work items. For example, if most work items were completed in seconds but a few work items took several days, you might want to look at the work item, find who was the agent and discuss with them why the task took so long.

6.2.4 Work Items with Monitored Deadlines

Choose Reporting · Work Item Analysis · Work Items with Monitored Deadlines (transaction SWI2_DEAD).

This report shows work items that are subject to deadline monitoring. This report is especially useful for seeing whether deadlines are being met or exceeded, as all missed deadlines are shown, whether or not the work item has now been completed. For each missed deadline, the current status of the work item is shown. Since the missed deadlines are shown grouped by task, you can quickly see whether any tasks are repeat offenders. This may indicate that the deadline time is unrealistic, or that further training, on-line help, etc. is needed.

6.2.5 Work Items per Task

Choose Reporting · Work Item Analysis · Work Items per Task (transaction SWI2_FREQ).

This report shows the number of work items created in the specified period. The list is sorted according to task.

6.2.6 Reporting on Agent Behavior

Apart from monitoring how quickly agents act on their work items, it is worthwhile evaluating the workload on your agents, especially if the agents complain that they are receiving too many work items. You can analyze both past workload, i.e., what the agent has been processing over a given time period, and future workload, i.e., what they currently have in their inbox that has not yet been processed.

To call workload analysis, choose Reporting · Workload Analysis (transaction SWI5).
**Workload Analysis for the Past**

This report is particularly useful for assessing workload over particular time periods, such as end of month, or end of financial year. To determine the past workload, select the option *Completed since* on the selection screen *Workload analysis*. The report lists work items completed before the specified date.\(^1\) Only completed dialog work items are shown, and the work items must have an actual agent who is a user assigned directly or indirectly to the organizational object specified in the selection criteria.

You can also opt to see further statistics on the number of work items completed by employees linked to an organizational unit, agent, task or completion date.

**Workload Analysis for the Future**

This report is particularly useful for reporting on the type and frequency of tasks being sent to an agent.

To determine the future workload select the option *To be processed by*. The selection produces a list of work items that must be processed by the members of the organizational object by the date entered.

> **Tip** When no date is specified, a user’s workload is the contents of their workflow inbox. Work items in error will not be shown.

The list of work items is grouped according to actual agents and tasks. At the end of the list, the work items and tasks for which no actual user exists are displayed under the header *Not reserved by an agent*.

**6.2.7 Identifying and Justifying Potential Improvements**

Consider not just the workflow but also the process as a whole. While much can be done in the workflow to help improve the business process, simple considerations such as checking that all agents have received workflow training, or sending e-mail notifications to agents of outstanding work items, or an intranet based FAQ list, can be used to improve the process without needing to change the workflow itself.

The most useful tools for justifying potential improvements are the error overview and performance reports.

\(^1\) In countries where reporting on individuals is not permitted, the system should be configured to prevent the display of user IDs.
The error overview can be used to show which errors are recurring frequently. In particular, frequent failures in determining agents can lead to more robust rules for agent determination, or to tightening of procedures for agent maintenance by human resources and security personnel.

Workflow performance reports show tasks that have long wait and process times. This can lead to changes to the process such as:

- Improving the online help
- Making the most important details for the decision more prominent when displaying and executing the work item
- Improving training and checking that all agents have received training
- Sending e-mail notifications of outstanding work items to the agent
- Setting up substitutes
- Improving the escalation process by notifying someone when an agent has not performed a task in time, or by automatically redirecting work items to a new agent after a deadline has passed

It is a good idea to give agents and others involved or affected by the process an opportunity to provide suggestions for improving the workflow, for example, via a Web-based suggestion box. If many agents are asking for similar improvements, that in itself may be sufficient justification for changing the workflow.

6.3 Error Resolution

When a process that is critical, essential or high volume fails, the organization suffers. Prompt error resolution is vital if confidence in both the business process and the workflow are to be maintained.

You may know the saying: "If you fail to plan, you plan to fail". As a workflow administrator, the worst mistake you can make is to fail to plan for failures.

The most likely time for failures to occur is immediately after the workflow is activated, or after changes to the workflow are activated. This is also the most critical time for building confidence in the workflow and the business process. You need to make sure that as a workflow administrator you know how important the process is, who will be impacted by the failure (so you can reassure them that the problem is being handled), what to do and who to contact to make sure any errors are resolved quickly and confidently.

This is particularly true of the very first workflow activated in your organization!
There are three parts to any error resolution process:

1. Diagnosing the problem
2. Fixing the problem
3. Preventing the problem from happening again

A considerable number of tools are provided to help you diagnose errors. These tools range from simple reports to detailed technical traces to complex graphical displays. These error diagnosis tools are heavily used by workflow developers testing their workflows, and as needed by workflow administrators diagnosing errors. Due to the large number and variety of tools, diagnosis is a separate topic in itself that will be covered in chapter 14, *Advanced Diagnostics*. If workflow administration is new to you, you may want to get some assistance from your workflow developers in diagnosing errors. Watching a developer solve a workflow problem can be a very effective way to learn how to diagnose workflow errors.

However, when a workflow developer diagnoses a problem, they usually just abandon the failed workflow instance, make some changes and start a new workflow instance. In a production environment, you do not usually have the luxury of ignoring failed workflow instances. You actually have to fix the problem. So in this chapter the focus is on how to resolve the error once you have diagnosed it, i.e. how do you fix it, and stop it from happening again.

The possible runtime problems can be grouped into the following categories:

- **Agent determination errors**
  - i.e. the wrong agent or no agent was found for a dialog work item.

- **Buffering errors**
  - These usually manifest themselves as an inability to access work items despite the maintenance of the agent determination and security being up to date.

- **Work item errors**
  - These are usually caused by an incorrectly modeled workflow or rushed transport. For example, the workflow does not take into account incomplete data extracted from legacy systems, or exceptions in object methods are not trapped.

- **Event linkage errors**
  - These are usually caused by changes in the application customizing or incorrectly modeled workflows. Symptoms are that the workflow didn’t start at all because the triggering event was not raised or failed to start the workflow, or the workflow hangs in the middle of the process waiting on a terminating event that never happens.
As you can see, the majority of errors are preventable by good workflow design and thorough testing (e.g. are the exceptions trapped?). However, despite the best efforts of developers, some errors will always occur unexpectedly, because of time pressures, inexperience, or changes made by personnel who don’t understand their impact on workflow.

Make sure that people involved in the business process are aware that problems need to be reported promptly. Anecdotal evidence that a process has failed is often very hard to match with the offending work item. So encourage people to report object keys (e.g. if the work item was based on a financial document, give the company code/document number/fiscal year of the document), and dates the process started or when they first noticed the problem. As stated earlier, processes that have been put into workflows are nearly always critical, essential or high-volume. So if an error does occur you need to act promptly and fix it fast!

### 6.4 General Techniques for Resolving Runtime Errors

**Reading Tip** Although the information in this chapter is invaluable for a workflow administrator, if you are not yet at the stage of delivering workflows in your production environment you may find this section dry reading. You will also find that some of the error analysis assumes knowledge which is not described in detail until later in this book. For this reason you might want to skip forward now to section 6.8 and return later when you need more detailed support.

In this section you will find the basic settings used to assist error monitoring, as well as some generic techniques for finding and diagnosing work items or workflows that are in error.

Many of the more specific techniques need you to be aware of some basic techniques. In particular you should know:

- How to access and read a workflow log
- How to access, read and change a work item

#### 6.4.1 Basic Settings for Error Monitoring

There are a few workflow runtime environment settings that are particularly important for runtime error monitoring. Most are mentioned in chapter 3, *Configuring the System*, but you can refer to the IMG for more details.
The most important configuration setting determines who is a workflow administrator so that erroneous work items can be proactively dispatched to the administrator’s inbox. If you are a workflow administrator, you must check your inbox regularly.

6.4.2 Finding and Fixing Work Items

The best report for reviewing the status of workflows is the Work Item Selection report (transaction SW11 or Utilities • ?Work Item Selection). It lets you select and display work items of all types according to various criteria. In particular, you can use this function for "lost" work items that do not appear in the expected inbox. Once you have found your work item this report also gives you a number of options for fixing work items in trouble. This report is also useful if you want to get a quick overview of certain types of work items, for instance to examine background work items (enter work item type B) to check that they are all completing promptly. You can select work items either by criteria such as type, status, task/task group ID, date/time created.

Tip The task ID must be appropriate to the work item type selected. Work item type W represents tasks (ID TSxxxxxxx). Work item type F represents workflows (ID WSxxxxxxx).

By default the selection criterion is set to show all work items that have occurred in the last hour.

When specifying intervals, ensure that the second entry is later than the first. For example, do not use intervals such as “from 13:05:00 to 00:00:00”, instead use “from 13:05:00 to 23:59:59”.

You can also select a single work item by its ID number.

Tip If you enter an ID as a selection criterion, the system ignores all other selection criteria.

Setting the Output Options flag adds the columns: workflow definition number, workflow definition version, workflow administrator and executed by.

From the resulting list of work items you can navigate to the work item display if the entry is not type F, or the workflow log if the entry is type F.
To fix work items in trouble, a number of options are available under **Edit • Work item** or through the administration reports, which are available in the administration menu. These include:

- **Restart after error/Execute without check**
  With these you can execute a work item. If the work item is in error, use **Restart after Error**. If the work item has no valid agent and you still need to execute it, use **Execute without check**. This option allows you to execute work items unhindered by access restrictions, so authorization to use this option should only be given to the workflow administrator in a production environment.

- **Complete manually**
  With these you can complete a work item without re-executing it.

- **Replace manually**
  If a work item has been reserved by a particular agent, you can use this to unreserve it, i.e. to allow all recipients to see the work item in their inboxes.

**Tip** If you are restarting a work item after error, make sure you restart using the administration report **restart after error** (transaction SWPR) to ensure that both the work item and the top level workflow are restarted. You should always check that the workflow has restarted correctly in case an error occurs (it could even be a new error) before the workflow has a chance to continue.

### 6.4.3 Working with the Work Item Display

You can enter the work item display from most workflow reports, including work item selection. The work item display shows detailed information about the work item and also lets you fix certain problems.

In particular in the standard display (see figure 6.1) you can:

- **Forward**, i.e. send the work item to another agent
- **Replace manually**
  If a work item has been reserved by a particular agent, you can use this to unreserve it, i.e. to allow all recipients to see the work item in their inboxes
- **Reject the work item** (the workflow follows the reject path that has been defined in the workflow builder)
- **Change deadlines**
- **Add attachments**. For example, you might want to explain why it was necessary to execute a work item without agent check for the benefit of future audits.
You can choose between a standard and a technical work item display. The standard view is aimed primarily at end users. The technical display has some extra options for developers and administrators. You can pre-set which display variant you want to use in your personal workflow settings, or use the menu options, e.g. Goto › Technical Work Item Display to move from the standard display to the technical display.

**Standard View**

The standard work item display (shown in figure 6.1) shows the information about dialog work items concisely. It contains details about deadlines, statuses, agents, attachments and linked objects for a work item. It is worth familiarizing yourself with all the features available in the work item display. If the work item execution has failed, the Messages (Display Last Message) function will display the error message or return codes for executed work items.

All objects that are related to the work item, including the formal process objects and the ad hoc attachments, are displayed in the list of available objects on the tab page Available objects. Of particular interest are:

**Figure 6.1** Work Item Display Standard View

The standard work item display (shown in figure 6.1) shows the information about dialog work items concisely. It contains details about deadlines, statuses, agents, attachments and linked objects for a work item. It is worth familiarizing yourself with all the features available in the work item display. If the work item execution has failed, the Messages (Display Last Message) function will display the error message or return codes for executed work items.

All objects that are related to the work item, including the formal process objects and the ad hoc attachments, are displayed in the list of available objects on the tab page Available objects. Of particular interest are:
The object currently being processed (container element _WI_Object_ID of the task container)

The object added for grouping purposes (container element _WI_Group_ID of the task container)

You can display each object referenced in the work item container with its default attribute. If no default attribute was defined for the object type, the key fields of the object are displayed. The default method of each object can be executed upon request.

Tip: Most objects set the Display method as the default method. So when you want to check on the details of the object, for example to help diagnose an error, you usually do not have to worry about finding the transaction needed to view it.

You can extend and process the list of objects, i.e. create, display and remove them. The main purpose of this is to make extra information available to the agents of the subsequent steps in the workflow, such as why you have forwarded this work item. When you are trying to resolve agent determination problems or just trying to find who has a particular work item Goto · Agent · ... is the most useful work item function. You can see the different categories of agents. An icon is used to highlight the users that have the work item in their inboxes.

Technical View

All information from the displayed work item is shown in the technical work item display. The technical work item display is particularly aimed at workflow administrators.

The following specifications are displayed depending on the work item type:

► Work item ID and type
► Work item status
► Actual agent of a dialog work item (after it has been executed)

Additionally, attachments and mails are displayed for the work item. If an error message was generated when the method was executed, you can display this by choosing Message or Extras · Display return value.

You can find the current dates/times as well as the deadlines that are monitored by the runtime system (requested and latest start and end deadlines).
A highlighted monitored deadline shows that it has been missed. If the symbol is displayed as well, an escalation action was triggered by the deadline background job.

As well as the functions available in the standard view of the work item display, there are additional functions available via the technical view (*Goto Technical work item display*).

You can go to the definition of the instance linkage for terminating events or wait step work item by choosing *Extras Instance linkage*. There you can see which event (identified using an object type and event name) is expected by which object (identified using an object reference). This is useful if the work item has been executed but is waiting on a terminating event, as this function lets you see exactly what terminating event and event values are expected.

Choose *Extras Container* to display the content of the work item container.

The *Edit Change* option lets you:

▶ Change the work item container (e.g. if binding errors caused the wrong data or incomplete data to be passed)
▶ Logically delete the work item (i.e. mark it as cancelled, no longer required)
▶ Manually complete the work item without re-executing it
▶ Lock/Unlock the work item to prevent someone from executing it or to give them access to it.

In the following work item types, you can display additional details by choosing *Goto Type specific data*:

▶ For *work queue work items*, the objects and tasks contained in the work queue are listed.

<table>
<thead>
<tr>
<th>Current Date/Time</th>
<th>Meaning</th>
</tr>
</thead>
<tbody>
<tr>
<td>Creation date</td>
<td>Date when the work item was created by the WebFlow Engine with the status READY or WAITING (if a requested start was used).</td>
</tr>
<tr>
<td>Start date/time</td>
<td>Date and time when the status of the work item changes from READY to SELECTED or STARTED for the first time, e.g. when a recipient executes the work item.</td>
</tr>
<tr>
<td>End date/time</td>
<td>Date and time when the status of the work item changes to COMPLETED or CANCELLED.</td>
</tr>
<tr>
<td>Requested start</td>
<td>Date when the WebFlow Engine changed the status of the work item from WAITING to READY (if a requested start deadline was used).</td>
</tr>
</tbody>
</table>

**Table 6.2 Work Item Timestamps**
For *wait step work items*, the system specifies how many events are expected and how many events have already been received.

### 6.4.4 How to Work with the Work Item Container Display

The contents of the container for the relevant work item are displayed in an overall view. You can see the current, runtime-specific data on the specific work item. If you are looking at a dialog or background work item, the container belongs only to that work item. If you are looking at a workflow work item, the container belongs to the whole workflow instance.

The container holds:
- System fields relevant to the workflow
- ABAP Dictionary based container elements
- Object based container elements, i.e. object references

Object references are always prefixed with the logical system ID. This is followed by the ID of the object type and the concatenated key of the object.

If you need to change an object reference, always use the input help on the object reference field. This enables you to fill in the object key correctly, works out the appropriate system/client references for you, and checks that the object exists.

### 6.4.5 Working with the Workflow Log

At runtime, a workflow has its own work item (of type F) that represents the workflow instance. You can use work item selection and similar reports to find the workflow work item for your workflow. However, the work item display will only show you limited information about the workflow instance. The best way to look at the workflow instance is via the workflow log.

The workflow log formats all the information created or collected during the execution of the business process (i.e. the workflow instance) in one place, as shown in chapter 4, *Work Item Delivery*. The standard view (shown in figure 6.2) is intended for agents and process owners who want to get an overview of the steps processed so far. The technical view (see figure 6.5) is intended for developers and workflow administrators.
Standard View

Only data for the most significant step types is shown in the standard view. In the workflow definition, you can exclude steps with the above step types from being displayed in the workflow log if you wish. If you want to see the complete log you should switch to the technical view of the log ( ).

The workflow log contains the following tab pages:

- **Workflow Chronicle** (What was processed when?)
  
  The tab page *Workflow Chronicle* shows a hierarchical display of all steps in the workflow that have been processed so far, or are currently able to be processed. If the workflow has a subworkflow structure, the subworkflows are also displayed.

  The Details function ( symbol) lists the following information about each step in the lower part of the screen:
  
  - Who carried out what detailed actions for these work items and with what results
  - When this action was carried out
  - The objects involved
The Agents function (symbol) displays the selected/possible/excluded agents of a step.

- **Workflow Agents** (Who processed what?)
  The tab page *Workflow Agents* (figure 6.3) shows the agents involved in the workflow up to now. The following is displayed for each agent:
  - What action was carried out in what step
  - When this action was carried out
  - The objects involved

![Figure 6.3 Agent log](image_url)

- **Workflow Objects** (What was processed?)
  The tab page *Workflow Objects* lists the objects related to the workflow or addressed up to now in the execution of the workflow. This view shows what objects were created and processed, and how. These objects include:
  - The main object of the workflow
  - Any attachments and objects added in individual steps of the workflow
  The following is displayed for each object:
  - Who carried out what detailed action for what task
  - When this action was carried out
In addition you can navigate to the graphical workflow log (figure 6.4), which displays the workflow steps already processed (✔️) in a graphical representation of the workflow definition.

**Figure 6.4** Graphical Workflow Log

The main benefit of the graphical workflow log is that you can see at a glance which ‘route’ a workflow instance has taken and which activities are processed in parallel to your own within a business process. Unlike the text version of the workflow log, the graphical workflow log also shows the subsequent flow of a workflow instance. This view also allows you to make ad hoc changes to this single workflow instance.

**Technical View**

The technical view (see figure 6.5) shows technical control information and is therefore aimed particularly at workflow administrators. For a workflow with errors it allows you to see at a glance where the error has occurred and all messages (including warning messages) generated by the workflow. However, it is also a very useful display for determining exactly what happened during the workflow.
The workflow log is displayed as a two-level, hierarchical list. You can adapt the appearance of the list to suit your requirements using layouts.

**Tip** If you save your configuration as the initial configuration using the SAP List Viewer (ALV) settings control, then this view is displayed whenever you display the technical log. It is a good idea to customize the administrator’s initial configuration so that it always shows the task IDs of the work items in addition to the standard columns.

The technical view shows technical nodes and control structures, and makes additional data available, such as container elements ( ), agent data ( ), and workflow data ( ). The status of each work item is also displayed.

If the workflow is in status ERROR, the workflow log may contain a hierarchical list of underlying WebFlow Engine function modules that indicate exactly where the error was detected, helping to localize particularly obscure errors.

If you choose ... With subworkflow structure, you decide whether or not to display any subworkflows and their structure.
Depending on your personalization, you may have to choose... With error indicators to view the errors, which are marked in the log with the symbol. The standard indicator for work items that are not in error is . This is particularly useful for identifying at a glance work items with errors, particularly in more complex workflows where many work items are displayed in the log.

Tip By clicking on the error symbol associated with the parent workflow item (at the top of the list) you will be presented with a complete error analysis of the workflow, showing the probable root of the problem.

Just as with the standard view you can display a chronicle, agent or object view.

6.5 Resolving Agent Determination Errors

The most probable workflow problem that you are likely to encounter in a production environment is an agent determination problem. That is, a work item is sent to the wrong agents or to no agents at all.

Tip The WebFlow Engine cannot alert you if the wrong agent receives a work item (e.g. agent determination data out-of-date). This is where a good work item description comes to the rescue.

Once a workflow is developed and transported to production it may not need to be changed for some time, and even changes can be planned. With good design and thorough testing you can prevent most workflow problems. However, agent determination relies on data that is usually maintained directly in the production environment and may need to be changed at short notice. Even a relatively minor delay in updating agent determination rules or agent authorizations can have an immediate negative impact on a workflow.

The most common cause of agent determination errors is inadequate maintenance of the agent determination rule or the authorities given to agents. Ensuring timely maintenance of agent determination rules and workflow security can prevent the majority of agent determination errors. Problems can also occur because an agent has left the company, or is absent for some other reason, and has no substitute, or has reserved the work item so that none of the alternative agents can access it.

The good news is that implementing simple strategies such as substitution or default agents can help alleviate agent determination problems. For more details on these and other strategies refer to chapter 5, Agents.
6.5.1 Fixing Work Items with No or Wrong Agents

As a workflow administrator, it is usually your responsibility to redirect any work items that were sent to the wrong agent or have no agent at all.

You will probably also need to diagnose why the problem occurred and follow up any maintenance issues with the relevant personnel; otherwise the same problem will boomerang back to you on future work items.

Before you fix a work item with an agent problem, always check that you have identified the correct agent; for example, check it with the business process owner. Do not just take someone’s word for it that they are the correct agent; otherwise, you may inadvertently cause a security breach.

The other point to remember about fixing work items with the wrong agent is that you cannot send a work item to a new agent if it has already been completed. So if the wrong agent has already completed the work item, the most you can do is stop the problem from happening again and discuss the situation with the agents and business process owners involved. It is also a good idea to keep a log of what occurred for the benefit of auditors, and/or add an attachment to the workflow explaining why the wrong agent executed the work item.

Diagnosing why agent determination has failed is a topic in itself. Chapter 14, Advanced Diagnostics, will walk you through a plan of attack for diagnosing agent determination problems. Knowing the cause will help you solve the problem.

**Problem:** An agent lacks authorization to execute the work item; i.e. the desired agent is not a possible agent of the work item.

**Solutions:**

- Once the agent’s authorization has been corrected, forward the work item to the desired agent.
- If the agent’s authorization is correct but they are still unable to execute the work item, it may be a buffering problem—see section 6.6.
- If the work item needs to be executed before security can be corrected, discuss the data with the desired agent, and use Execute Without Agent Check to execute and complete the work item.

**Problem:** The wrong agent or no agent was found, even though the desired agent has sufficient authority, i.e. the agent determination rule has failed.

**Solution:**

- If the agent is already a possible agent, but was not excluded or selected, forward the work item to the desired agent.
Problem: The desired agent cannot execute the work item because they are an excluded agent, i.e. they have been specifically excluded from executing the work item.

Solutions:
▶ If the agent is excluded, they cannot execute the work item, so you will need to forward the work item to someone else. The business process owner should be able to suggest an appropriate agent. Before you forward the work item, make sure the new agent is a possible agent of the task and not an excluded agent.
▶ Alternatively, discuss the data with the appropriate agent, and use Execute Without Agent Check to execute and complete the work item.

Problem: The work item cannot be accessed from any agent’s inbox.

Solutions:
▶ If an absent agent has reserved the work item, but there are other recipients available, replace the work item. This will allow other agents to view it. The same is true of work items in someone’s resubmission queue.
▶ If an absent agent has reserved the work item, and your agents are used to working with workflow substitution, create a substitute for the absent agent. The substitute agent can then execute the work item. Remember that the substitute must still have sufficient authorization to do this.
▶ If there are no alternative agents in the selected agent list and you do not want to use substitution, forward the work item to the appropriate (possible) agent suggested by the business process owner.

6.5.2 Preventing Agent Determination Problems from Reoccurring

Once you are confident the immediate problem is solved, you need to ensure that this does not happen again. This may mean:

▶ Ensuring that administration of security and agent determination is done promptly. If you can’t do this yourself, you may need to call on the business process owner and the relevant managers to improve the situation.
▶ Ensuring that personnel who are able to change values related to the workflow are aware of their impact on the workflow. You may need the assistance of the business process owner to improve the situation.
▶ Changing the workflow design or the rule determination design. For instance, if you are using a responsibility rule, you may want to turn on secondary priorities so that a default agent is determined when no specific agent is found.
▶ Setting up workflow substitution for relevant agents.
6.5.3 Support Tools for Agent Determination Problems

Execute Rules for Work Items

Administration · Workflow Runtime · Execute rules for work items (transaction SWI1_RULE).

You can use this function to repeat the step of defining the recipients for a work item. If a rule was used to determine the recipients, the rule will be re-executed.

Work Items Without Agents

Administration · Workflow Runtime · Work items without agents (transaction SWI2_ADM1).

This report finds all work items that have no agent at all, i.e. orphaned work items, for a particular selection period. The list displayed is similar to the work item selection report, and you have the same options available for examining and/or correcting work items.

Execute Work Items Without Agent Check

Administration · Workflow Runtime · Execute work item without agent check (transaction SWIA).

This report enables you to execute work items for which you are not a possible agent. This is therefore a very powerful tool and so should be given only to the administrators in production environments. Using the work item selection, you can select the necessary work items and then execute them, complete them or make them available again to the recipients (i.e. replace them).

If you need to use Execute Without Agent Check to fix a problem, consider adding an attachment to the work item explaining why this action was necessary and who advised what action should be taken. This can help answer and avoid awkward questions made by auditors or managers who are reviewing business processes retrospectively, long after the problem was solved.

6.6 Resolving Buffering Errors (The Cinderella Principle)

Buffering simply means that the system keeps a copy of certain data in memory rather than reading it from the database. This is done to improve overall system performance, and is particularly prevalent in organizational management related entities such as organizational units, jobs, positions, agents, tasks and relationships between them. Because there are so many buffers used for organizational
management related entities, most of these buffers are normally only refreshed at midnight (system time). Unfortunately, out-of-date buffers can have some curious effects on a workflow.

The majority of buffering errors can be prevented by ensuring buffers are updated whenever new agents are added, or when agent-determination rules or workflow-related security is changed. However, the lack of tools in pre-4.6x Basis environments does make updating the buffer more difficult.

Another way to avoid buffering problems is to habitually set up agent assignments and security at least the day before they are going to be used.

Buffering problems result in apparently impossible situations:

► The work item may appear in the agent’s inbox, but the agent is unable to execute it.
► All the agent administration and security is correct, but the agent determination still doesn’t work.

Most frustratingly, you can spend all day trying to resolve this problem, come in the next morning and find that everything is working fine. You could call this: “Midnight Magic” or the “Cinderella Principle”, i.e. everything’s back to normal after midnight.

6.6.1 Fixing Work Items with Buffering Problems

You can fix buffering problems by refreshing buffers. This can be done by:

► Using the Synchronize runtime buffer option. This refreshes the majority of organizational management buffers.
► Using the refresh index option when assigning agents to tasks. This updates buffering of the agent assignment to a task.
► Using the refresh organizational environment option in the Business Workplace or in the “Start Workflow” function (Transaction SWUS). This refreshes buffers for the current user ID.

If buffering has stopped an agent from accessing a work item, it is enough to refresh the buffers. However, if buffering has caused an agent determination problem, i.e. the work item was not sent to the correct agent, you will still need to fix the agent determination problem on work items created before the buffers were refreshed (see section 6.5).
Sometimes security problems can appear to be buffering problems. For instance if you are in an R/3 system with HR structural authorizations, a lack of appropriate authorizations will result in agents not being able to access their work items. The error messages that appear when attempting to execute the work item are the same or similar to error messages that appear with buffering problems.

6.6.2 Preventing Buffering Problems From Reoccurring

Prevent buffering problems in the longer term by:

▶ Encouraging updates of relevant security, organizational management data, and workflow data the day before it will be used.
▶ Synchronizing the runtime buffer after emergency changes to workflow related security if it needs to be used straight away.
▶ Making agents aware of buffering problem symptoms (e.g. via a web site) and, where possible, give them access to the refresh organizational environment option so that they can refresh their own buffers.

6.6.3 Support Tools for Buffering Problems

Synchronize Runtime Buffer

Administration · Workflow Runtime · Synchronize runtime buffer (transaction SWU_OBUF)

You can use this function to initialize the main memory buffers used by the Web-Flow Engine. You can set the current time as the new buffering start time. After the new buffering start time has been set, the system reads the values from the database instead of from the buffer so that the current data is used. As the data is read from the database, it is added to the buffers once more.

Tip You should always refresh the runtime buffer when you have made a change in a task definition or after transporting new workflows or versions of workflows that are to be used on the day of transport.

After executing this function, some workflow functions will initially have lower than optimal performance. This applies until the main memory rebuilds the buffers up to optimal levels.
6.7 Other Support Tools

Here are some more reports and functions that you may find useful in dealing with work item errors:

**Diagnosis of Workflows with Errors**

Administration · Workflow Runtime · Diagnosis of Workflows with Errors (transaction SWI2_DIAG)

This function displays all workflows with errors and groups them according to error cause (agent, deadlines, binding, or other). This report helps you to assess whether particular types of errors are reoccurring across many workflows, or whether the problem is specific to just a particular work item. You can also fix and restart the workflow from this report.

**Tip** The system determines highest-level work items with errors, i.e. if a work item is in error status, the work item shown will belong to the highest workflow in error hierarchically above it.

**Workflow Restart After Error**

Administration · Workflow Runtime · Workflow Restart After Error (transaction SWPR)

This report can be used to display a list of workflows with errors for a particular selection period, and then restart them. The benefit of this report is that it allows you to perform a mass restart of workflows.

**Deadline Monitoring for Work Items**

Administration · Workflow Runtime · Work Item Deadline Monitoring

Tasks with deadlines have also have deadline monitoring based on a background job. You can change the period duration of the background job, change it, schedule it, display it, or execute it manually (transaction SWWA).

**Work Item Rule Monitoring**

Administration · Workflow Runtime · Work Item Rule Monitoring

If conditions are defined for the work item start or work item end for steps in the workflow, these conditions must be regularly checked. This task is performed by a report that is controlled by a background job. You can schedule or display the
background job. You can also start the report manually using Execute Work Item Rule Monitoring (report RSWWICOND).

**Continue Workflow After System Crash**

Administration • Workflow Runtime • Continue Workflow After System Crash
(transaction SWPC)

You can use this report to select and continue workflows that have had the status `STARTED` for longer than a day. This means that workflows that have come to a halt after system errors can be continued.

### 6.8 Help-Desk in the Intranet

As you have seen so far, being prepared is the best way of ensuring smooth and efficient processing. However, by distributing responsibility to the workflow agents, you will make the whole process transparent to them and less of a mystery. This allows them to react faster to exceptional circumstances (such as another agent sitting for too long on a work item) and proactively support other agents downstream in the process.

Take a multi-pronged approach.

1. Use a web-based help desk to distribute information and provide generic support.
2. Use the agents to help report and diagnose problems promptly. Give the agents enough information to avoid confusion over what is or is not a problem.
3. Use workflow administrators to deal with problems before they become noticeable to the agents.

### 6.8.1 Web-based Help Desks

It is helpful to provide a web-accessible (Intranet/Extranet) help desk support site that provides:

- Contact numbers for problem resolution.
- FAQs—Frequently asked question lists to increase understanding and helps users diagnose and resolve their own problems.
- Access to generic training material.
- Access to “tips and tricks” for dealing with inboxes, attachments, performing tasks, etc.
- Reference documents explaining the business process and workflow, e.g. in the form of a graphical flowchart.
- Highlight new and soon-to-be-provided workflows.
- Post interesting results such as: time taken to complete the process before versus after the workflow was implemented; number and frequency of workflows.
- Provide a 'suggestion box' for ways to improve the workflow.
- Acknowledge users who have contributed to improving workflow.

In addition, when the business process changes, the help desk is the ideal place to publish information to:
- Announce that the workflow process definition has changed.
- Explain why the workflow has been changed and what benefit the changes will give.
- Explain the differences between the new and old process.
- Explain what if any affect this will have on users.

### 6.8.2 Self Help

Encourage agents to understand where they fit into the business process. One way to do this is to give them a copy of the workflow flowchart with the tasks they perform highlighted. Another way is to hand out ‘survival packs’ or newsletters explaining the workflow flowchart to all users, the expected benefits of the new workflow, and how to access their work items, updating any last minute training information, and showing who to contact if they have any problems.

Send clear, concise and complete instructions with the work item. If possible, have some of the agents read the instructions prior to the workflow being activated, to check that they make sense. Give the agent enough information to help identify, diagnose and fix problems. As well as speeding error resolution, this also helps to build the agent’s acceptance of the process.

In each work item, tell the agent why they have received it and who to contact if they believe they should not have received it or if they are having problems completing it. Thus, your agents will see:

- "You have received this work item because..."
- "Please contact ... if you believe you should not have received this work item."
- "Please contact ... if you are unable to complete this work item/access this hyperlink."

Encourage prompt reporting of any problems. Anecdotal problems are often difficult to substantiate, as the work item is often completed and the evidence lost before any diagnosis can be attempted.
Make reporting problems easy. Consider using a simple workflow to do just this. For instance, let the agent enter a text describing a problem, a code for the type of problem found (wrong agent, missing information, cannot execute work item), a code for the process to which it belongs (purchasing request, vacation request, etc.), and user ID/contact details. Have the workflow route the problem reported to an appropriate agent based on the type of problem found and the process to which it belongs. Include an e-mail response directed back to the initiator confirming that the problem has been fixed.

**6.9 Day in the Life of a Workflow Administrator**

The title of this section is perhaps a little misleading, because, thanks to the high degree of integration of SAP’s WebFlow Engine with the rest of SAP’s software, the time spent purely administrating (as opposed to development) is of the order of an hour a week, even in large corporations with high workflow volume. Most of this time is devoted to updating the organizational model to deal with staff fluctuation and organizational changes or helping review workflows currently being developed. However, if you have been nominated as a workflow administrator, or you are responsible for resourcing workflow administrators, then you will want to take this responsibility seriously and it helps to have some idea of what a workflow administrator does on a day-to-day basis.

You need to consider:

- **Who should be the workflow administrator?**
  What sort of skills does a workflow administrator need? Are they technical skills, business knowledge or both? Can the system administrator be the workflow administrator, too? Is it a full time or part-time position?

- **Who makes the business decisions in the event of failure?**
  Given that workflows are business processes in action, how does the business interact with the workflow administrator if the workflow fails?

- **Crisis response**
  When a workflow fails, the business process fails. If the process was important enough to be implemented as a workflow, then any failure is equally critical. What does the workflow administrator do in the event of such a crisis?

- **Day-to-day monitoring**
  What does a workflow administrator need to do on a day-to-day basis, even when there isn’t a crisis?

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2 Metrics from one company with 90 different workflows and 75 000 work items per day:
8 working hours workflow administration per week—mainly organizational management changes such as a user changing job.
Housekeeping
How does a workflow administrator help maintain optimal efficiency of your workflow environment?

Making the most of a precious resource
How can you make the most of the workflow administrator in your organization?

6.9.1 Who Should be the Workflow Administrator?

Workflow administration usually involves both technical activities and business activities, so it makes sense to have both technical and business personnel as administrators. It is rare to find someone with all the technical and business skills needed to support your workflows, so consider having either a team of administrators who work together, or setting up a contact sequence for support. Both the technical and business people need to have a good understanding of workflow. Bear in mind that there will not be enough workflow administration duties to perform to keep a single person fully occupied, let alone a whole team. So the administrator will pursue other duties too.

There are a number of possible team structures, for instance:

- A centralized, dedicated team of technical and business administrators
- A centralized, dedicated technical administrator and a decentralized part-time business administrator on an as-needed basis
- Regional teams of technical and business administrators on a part-time basis
- Centralized system administrators who are part-time workflow administrators, with nominated business contacts for each business process
- Workflow administrators who are also workflow developers

The team structure that is right for your organization depends on:

1. The number and frequency of workflows you are running. The more workflows you run, and the more you have in the development pipeline, the more likely administration will become a full-time activity.

2. The number of people affected by the workflow. This includes not just the agents but also people who are relying on the workflow to complete processes for them. The more people affected, the more business administrators will be needed to help educate and explain the workflow behavior. You can reduce this activity by using a web site to help educate and explain workflow behavior.
3. The availability of workflow resources. If you have only a few people skilled in workflow, they may act as workflow developers and workflow administrators. As the number and frequency of workflows grow, you will probably need to separate these roles.

4. How extensively workflow is being used, i.e., whether workflow is regarded as continuous business improvement, where the administrator plays an on-going role in the development of new scenarios, or whether only a few limited processes have been activated.

The basic rules of thumb are:

1. Business people (e.g. supervisors) and/or a web site as the first point of contact for queries about how the process works and for "what do I do now?".
2. A technical administrator available to solve deeper problems.
3. Assign business process owners who can be contacted to make business decisions in case of failure. Make sure you have backup contacts as well; in a crisis you may need to contact someone within a few minutes of finding the problem.
4. Make sure the workflow developer is available to help solve problems especially in the first couple of weeks after a new or changed workflow is activated in production.

The workflow administrator is on the front line when workflow problems happen. Usually it is your critical, essential and high volume business processes that have been worth the cost of implementation as workflows. Therefore, it is vital that your workflow administrator be capable of handling problems as they arise from the very first time a workflow is run in your production environment. Remember that most problems are likely to occur in the first few instances of a new or changed workflow. Above all it is not realistic to give workflow administration to a system administrator and expect them to be able to diagnose or resolve problems without any workflow training.

A workflow administrator needs the following:

- An understanding of workflow basics
- An understanding of the particular workflows they are supporting
- Practice in using the various diagnosis and error resolution support tools
- Names of persons to contact when a workflow fails and a business decision needs to be taken

**Tip** Pick an administrator with good people skills (e.g. communication and tact) and preferably with hotline experience too.
6.9.2 Who Makes the Business Decisions in the Event of Failure?

Whatever the cause of a failure, correcting workflows in error is much more than a technical activity. Remember always that the workflow represents the business process, and when you make decisions about how to deal with failed processes you are literally affecting business operations. You need to have a business process owner (and backup—in a crisis you often have to be able to contact people rapidly) who can be contacted to help manage and resolve the failure by assessing:

- How serious is the failure from a business viewpoint?
- How critical is this particular failure? If it is not critical now, will it become critical if it is not resolved in the next hour, day, week, etc.?
- Who needs to be notified of the failure?
- If the fault in your workflow affects a customer directly, you may need to notify them. If the fault hinders issuing a payment this may mean notifying a supplier.
- Is there a workaround? For example can someone do the work manually until the problem is resolved?
- When the crisis is over, how can we prevent it from happening again? Should the workflow be enhanced to cope with this problem? Should procedures (e.g. for maintaining agent data) be updated? Should the helpdesk or Web site include instructions to agents to encourage better and faster reporting of similar problems in the future?

Even if the workflow administrator knows the answers to these questions, most organizations cannot afford for these decisions to be taken by one person alone. Your organization will usually need to be able to show that the correct process has still been followed and that the relevant personnel have been involved in deciding on the actions to be taken. On the other hand, you don’t want to delay resolving workflow problems while meetings are being held to evaluate possible remedial actions. As much as possible:

- Make sure workflows are designed so that they can be easily restarted in the event of an error.
- Build workflows that listen for manual action so that corrective action taken outside of the workflow will not leave the workflow hanging.
- Have a plan of action before problems happen. Anticipate potential failures and how they will be resolved as part of the workflow design.
- After every problem, and particularly after recurring problems, do post-mortems and evaluate what was the root cause of the error and how the process can be improved to prevent the error.
Make sure that problems in the workflow will be quickly highlighted so corrective action can be taken. This means making sure that the workflow reports errors effectively (e.g. by using the standard error monitoring program to notify the administrator).

Here is one real-life example of a workflow designed to handle errors effectively:

1. At one point in a workflow, a background work item updates some data. As other personnel may also be working on the data, locking conflicts can arise. The background work item is designed to report any errors including locking errors. If you designate the error as temporary, the WebFlow Engine will repeat the method execution whenever the locking problem occurs.

2. If the background work item is locked, the WebFlow Engine automatically retries the operation several times after a predefined wait (e.g. 10 minutes).

3. If the retry count is exhausted so that the work item is sent into an error state, the workflow definition sends a dialog work item to a designated agent, asking them to complete the activity manually.

Here is another example:

1. At one point in a workflow, a work item asking for an approve/reject decision is sent to an agent. Maintenance of the agent determination rules is a problem and frequently no agent is found. The agent determination rules are maintained using a responsibility rule.

2. The secondary priorities option is turned on for the responsibility rule. This allows specific agents to be maintained at high priority, and default agents to be maintained on a lower priority setting. Thus, when the work item is assigned, the workflow examines the specific agents first, and only if no specific agent is found will it use the default agents. The default agents are trained to determine the correct agent, forward the work item to the correct agent, and update the responsibility rule.

Your workflow developer and technical workflow administrators will probably be able to describe many more examples but it is the business process owner who must decide what suits your organization best. No matter how well designed your workflow, in the event of a failure it is the business process owner who ultimately must decide what corrective action should be taken, and whether fixing the failed workflow is enough to fix the process from a business perspective.
6.9.3 Crisis Response

Crisis response is the most important part of any workflow administrator’s job. When a process fails, the pain felt by the business, and thus by the head of the workflow administrator, can be considerable. It is helpful to have a plan of attack for those panic calls. Most of the following plan is common sense.

- Gather the symptoms of the problem from the person reporting it.
- Use these to identify the workflow.
- Check whether the workflow is functioning as designed or not.
- If the workflow is working as designed and there is no error, notify the person reporting the problem and the business process owner. Get the business process owner involved in explaining the designed process to the person reporting the error. If appropriate, ask the business process owner to discuss with the person reporting whether the workflow needs to be altered.
- If the workflow is working as designed but poor data maintenance is affecting it, notify the business process owner. Get the business process owner to help organize corrections to the data and discuss whether corrective action needs to be taken until the data has been fixed. Notify the person reporting the problem of what caused the problem and what is happening to resolve the issue. Avoid laying blame.
- If there is an error, diagnose the error. Notify the business process owner of the problem and discuss possible resolutions. Notify the person reporting the problem of what caused the problem and what is happening to resolve the issue. Avoid laying blame. Resolve the problem. Notify the person reporting and the business process owner that the problem has been resolved.
- Keep a log of reported errors. For example, note which workflow, what type of error (education issue, process gap, bad data maintenance, error), who reported it, which business process owner was involved in resolving it.
- Hold a post-mortem with the business process owner. This may be a quick chat or a formal meeting, depending on the nature of the problem. Discuss whether the problem could have been better handled, and whether it is appropriate to change the workflow to help.
- Use the log of reported errors to demonstrate to management which workflows are causing problems so that corrective action can be taken.

Of course you can additionally create a special workflow to let users report problems. This will help you find and notify the business process owner, and finally update a reported errors log. If the log is kept on the system, then you can easily summarize the data for management.
Often it is not the workflow itself that causes a problem, but an underlying transaction or routine that has failed in a way not anticipated by the workflow. This could be due to any number of causes such as:

- Changes that were made to the configuration of transactions or routines without considering possible effects on the workflow. This can include seemingly harmless changes, such as adding a new value for a code.
- Changes in values, including master data, used by the transaction or routine that are used for determining agents for follow-on steps in the workflow. This may have the effect that no agent can be determined from the new values.
- Users operating transactions or routines in an unexpected way, possibly due to inadequate or ineffective training in the process.
- Users involved in the process failing to act in a timely manner, especially where underlying transactions/routines use perishable data.

It is quite normal for many of the reported ‘workflow’ errors to not be workflow errors at all. Remember that the workflow is some person’s view of the business process, and even if the problem is not the workflow itself, make sure you at least help coordinate a response. Thus, the workflow administrator’s job is not just diagnosing and resolving errors but also acting as an intermediary to ensure that the process as a whole is running smoothly. This part of the job can easily be split between the administrator and the business process owner. It is worthwhile deciding who will be responsible for what before the workflow is activated in the production environment.

### 6.9.4 Day-to-Day Monitoring

Even when everything is running smoothly, there are still a few things for the workflow administrator to do. The following are mostly ‘health checks’ that should be carried out at least once a day. If you are running a large number of workflows you should, of course, make these checks more frequently.

- Regularly check your inbox for workflow errors. The error-monitoring job (SWWERRE) will report severe errors such as event linkage errors, binding errors, and rule resolution errors directly to your inbox. This way you may be able to fix a problem before the agents notice it.
- Execute the error overview report (*Diagnosis of workflows with errors*, transaction SWI2_DIAG) to see what errors, if any, are outstanding.
- Check that the error-monitoring job (SWWERRE) is running correctly.
6.9.5 Periodic Reality Checks

It cannot be stressed enough, how important the human role is in squeezing maximum success out of workflow automation. Having a workflow definition that defines the optimum process is half the story—helping the users to support this process is the other half.

Make sure you periodically check all of your different user groups to see that they are using the workflow the way you had intended, especially in the period immediately after going live. Do not be depressed if the users are not following your guidelines—work with the users to improve things.

Typical things that go wrong are:

► Agents print out work items on paper, asking other colleagues to fill in the details on paper. The original agent then types the paper input into the relevant transaction.

**Solution:** Check the business logic of your agent determination rules.

► Agents are not completing the work on time because they need to research additional information before completing the task.

**Solution:** Try to retrieve this information up front. You could include it in the work item description.

► Agents are not completing the work on time because they are being held up by other processes that are not synchronized with this task.

**Solution:** You can synchronize one process with another using events.

► The agent simply does not understand what has to be done (work item description may be missing).

**Solution:** Update the work item description and provide more background information on the Web.

► Deadline notifications are going to the managers but the managers never log on to the system

**Solution:** It is often more effective sending deadline notifications to the agents themselves rather than the managers.

► Authorization problems are preventing an agent from performing a task in the way it was intended.

**Solution:** Authorization needs to be changed or an alternative method used (such as a form).

Luckily, problems like these are more the exception than the rule, but they highlight the importance of performing these reality checks after going live. Most of the common problems are easily resolved, but if they are not resolved they have
a big effect on the overall performance of the workflow. Planning one reality check for the period after going live is just as important as planning the user acceptance before going live—there is no excuse for skipping either.

6.9.6 Housekeeping and Archiving

The workflow administrator is also responsible for the health of the WebFlow Engine in the long term. An important part of this job is to ensure that old work items and workflow logs are regularly cleared from the system. If you use data from the work items or workflow logs to create reports via WIS or BW or similar, make sure you have run your reports and summarized the relevant data before the work items and logs are deleted.

Clearing Tasks

Administration · Workflow Runtime · Clearing Tasks

The background jobs of the WebFlow Engine create job logs that need to be regularly deleted. This task is performed by a report that is controlled by a background job. You can schedule or display the background job. You can also execute the report Execute clearing tasks manually.

Archiving and Reorganization

Administration · Workflow Runtime · Reorganization

These functions include reports for archiving and deleting work items.

► Archive work item

The archive object for work items is called WORKITEM. Archiving is performed using the standard archiving utilities. Only completed or cancelled work items are archived. If the work item refers to a workflow instance, dependent work items are also archived. If the work item is part of a higher-level work item (i.e. if the work item is a step of a workflow) it cannot be archived until the higher-level work item is completed or cancelled. Both work item data and matching log data are archived.

Container references are archived, but the objects they represent are not affected. For example, if a work item has an object reference to a material master, the reference will be archived, but the material master data will be unaffected. Attachments to work items will be deleted even if they have not been archived.

During archiving, data that is no longer required in the system is checked using application-specific criteria and put in an archive file. The data is not removed
from the database. After the files to be archived have been completely copied to
the archive file, they can be deleted from the database in a separate program
run.

All actions or programs are processed in the background. You can schedule the
necessary background jobs in archive management.

**Display workflows from archive**
You can use this report to display a workflow for an application object. After
the workflow work item determined by the selection criteria is read from the
archive, the system displays the workflow log. The functions of the workflow
log are not fully available, however.

**Delete work item**
This report deletes work items from tables without archiving. It simply deletes
whatever work items you ask it to delete without checking; in other words, you
could delete work items from an active workflow! It is primarily designed for
clearing abandoned work items from development systems. If you do not set
the indicator *Delete immediately*, the report is executed only on a test basis.

**Caution** This report should not be used in a production system. Not only
does it run slower than the archiving report, but if used incorrectly, it jeop-
ardizes the good working relationship you have built up with your col-
leagues! Authorization controls should prevent its accidental execution,
other than with a tested report variant.

In a production system you must use archive management to archive and
delete work items in order to ensure data consistency.

**Delete work item history**
This report deletes all workflow log entries relevant to work items (work item
history) without archiving. If you do not set the indicator *Delete immediately*,
the report is only executed on a test basis.

### 6.9.7 Making the Most of a Precious Resource

You will want to make the most of your workflow administrator, and keep the job
interesting so that you retain your administrator for as long as possible.

Apart from administration itself, your workflow administrator can:

- Develop new workflows
- Enhance existing workflows
- Review new and enhanced workflows (quality assurance)
- Train agents in using their workflows
- Educate personnel responsible for data maintenance, particularly maintenance of agent determination rules and workflow related security.
- Educate new business process owners in how their workflows work and the sorts of problems/error resolutions that can or have occurred for their workflows.

Evangelize workflow to the organization. It helps to use quantitative data produced by reports to show the benefits of workflow. It may also be useful to show how workflows operate in practice, how the various workflow logs and reports show what is happening, and what sort of information can be evaluated after the process has completed.
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