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SAP@Web Studio

Purpose

The SAP@Web Studio is a PC tool for developing Internet applications. The SAP@Web Studio allows you to create, modify, and manage all the files required by the Internet Transaction Server (ITS) to drive Internet applications that access data in the R/3 System. Users can start these applications from any suitable Web browser.

Developing Internet applications driven by the ITS is a two-stage process that defines a clear separation between business logic and presentation logic. This process takes place both inside and outside the R/3 System.

- Inside the R/3 System, you define the business logic.
  
  To implement the business logic, you create transactions, function modules, or simple reports, in the ABAP Workbench.
  
  If you are using the Web transactions implementation model to enable R/3 transactions to run from a Web browser, the dialog flow is defined in the screen flow logic of the relevant transaction on the R/3 side.

- Outside the R/3 System, you define the presentation logic.
  
  To implement the presentation logic, you create all the required ITS files in the SAP@Web Studio.
  
  If you are using the flow file implementation model to develop an application where user navigation is not predefined in advance, you also define the dialog flow in the SAP@Web Studio.

Implementation Considerations

If you want to develop Internet applications that users can run from a Web browser via the ITS to access data in the R/3 System, you should install the SAP@Web Studio.

Integration

To allow Internet applications developed in the SAP@Web Studio to access data in the R/3 System, you must install an R/3 System, which is Release 3.0D or higher.

To connect the R/3 System to the Internet, test Internet applications developed in the SAP@Web Studio, and allow users to run them from a Web browser, you must also install the ITS.

Features

The SAP@Web Studio contains several features that support the development, design, and testing of Internet applications. This involves creating, maintaining, publishing, and managing all the ITS files required to run them.

The SAP@Web Studio wizards allow you to:

- Create ITS services.
- Generate HTML Business templates.
- Create language resources.

Using the application design features in the SAP@Web Studio, you can:

- Define the presentation aspects ("look and feel") of applications by editing HTML Business templates in the HTML Business editor.
  
  The HTML Business editor provides support for entering both HTML Business and standard HTML code.

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• Define the dialog flow of applications based on the flow file implementation model by generating a flow file for each HTML\textsuperscript{Business} template in the HTML\textsuperscript{Business} editor. The HTML\textsuperscript{Business} editor provides support for entering the eXtensible Markup Language (XML) code that defines the dialog flow of such applications.

• Edit services and languages in the grid control editor. The grid control editor allows you to enter parameters in name/value pairs.
  − In service files, the parameters define how a service should run.
  − In language resource files, the parameters define the language-independent texts used in your application.

When you have completed the design process, you can use the SAP@Web Studio’s testing, file publishing, and source control facilities to:

• Test new applications by running them directly in a Web browser. The HTML\textsuperscript{Business} editor allows you to preview the layout of HTML\textsuperscript{Business} templates and view data values in context by recording them when you run an application.

• Publish the files that make up an application to an ITS site. It is also possible to publish individual files as you develop applications.

• Manage the files that make up an application in ITS source control within the R/3 System.

For an overview of the steps required to develop Internet applications driven by the ITS in the SAP@Web Studio, see Internet Application Development [Seite 12].

The SAP@Web Studio is a flexible, integrated development environment that allows you to develop Internet applications driven by the ITS outside the constraints of the R/3 System.

You can also develop Internet applications by implementing services inside the R/3 System. To do this, you use the Web Application Builder in the ABAP Workbench. For further information, see the section on integrating Internet services in BC ABAP Workbench Tools [Extern]. If this link does not work from your current location, and you are outside the R/3 System, log on to the latest release and see under Help → SAP Library → Basis Components → ABAP Workbench (BC-DWB) → BC ABAP Workbench Tools.
ITS File Types

All Internet applications developed in the SAP@Web Studio are known to the Internet Transaction Server (ITS) as services. An ITS service is the set of files required by the ITS to run an Internet application from a Web browser. Each service can consist of up to five ITS file types:

- A service file
- HTML Business templates
- Flow files
- Language resources
- Multipurpose Internet Mail Extension (MIME) files

Service File

The service file contains the service description, which is the set of parameters that determines how a service runs. If this information is incomplete at runtime, the ITS may derive some details from the global service file (see below), or require the user to enter logon information. In any case, there must be one service file for each application.

Each service can be divided into one or more themes. Themes are instances of services that differ only in look and feel (appearance, graphics, layout or language). Each theme has its own set of HTML Business templates, flow files (if applicable), language resources, and Multipurpose Internet Mail Extension (MIME) files, but the functionality of the service is identical. In the SAP@Web Studio, themes are stored in subdirectories of the service directory.

HTML Business Templates

HTML Business templates are the means used by the ITS to display application screens in a Web browser when running a service.

For each screen, there must be one HTML Business template. Each template contains standard HTML code, and HTML Business statements. HTML Business is an SAP-specific macro language, which allows you to merge R/3 data dynamically into HTML Business templates.

Flow Files

Flow files contain the dialog flow logic that defines logical transitions between application states, depending on what the user chooses to do in the course of running an application.

When you are developing applications with the flow file implementation model, you need to generate one flow file for each HTML Business template. Each flow file contains Extensible Markup Language (XML) statements, using a predefined subset of XML elements.

Language Resources

Language resources are language-independent texts used by the ITS to run a service in a particular language.

Instead of hard-coding language-specific texts in HTML Business templates, you specify placeholders and store the texts in the relevant language resource file. At runtime, the ITS looks for placeholders in the templates and replaces them with texts from the language resource file.

For ease of maintenance alone, it makes sense to keep HTML Business templates for a service language-independent by creating language resources. However, not all templates use language resource files, and they are not mandatory.
**MIME Files**

MIME files contain the image, sound, and video elements you may want to include in services to enhance the visual appearance and effectiveness of your Internet applications. Like language resources, MIME files are optional.

**Summary of ITS File Types**

The following table summarizes the ITS file types used to develop Internet applications in the SAP@Web Studio, together with their name format and file extension. The table also specifies whether each file type is required or optional.

**ITS File Types**

<table>
<thead>
<tr>
<th>File Type</th>
<th>File Name Format and Extension</th>
<th>Required or Optional?</th>
</tr>
</thead>
<tbody>
<tr>
<td>Service file</td>
<td>&lt;service&gt;.srvc</td>
<td>Required. One service file per application.</td>
</tr>
</tbody>
</table>
| HTML Business templates | Web transaction implementation model:  
  - Language-independent templates:  
    <program>_<screen>.html  
  - Language-specific templates:  
    <program>_<screen>_<language>.html  
  The <program>, <screen>, and <language> elements refer to the R/3 program, screen, and development language of the associated ABAP transaction.  
  Flow file implementation model:  
  - <template name>.html  
    In this case, the template name is arbitrary. | Required. |
| Flow files      | Flow file implementation model:  
  - <template name>.flow  
    One for each HTML Business template. | Required in flow file applications. |
| Language resources | <service>_<language>.htrc                           | Optional but recommended.              |
ITS File Types

<table>
<thead>
<tr>
<th>MIME files</th>
<th>MIME file names are arbitrary. The file extensions depend on the type of file you are using. Here are some examples:</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>• Image files:</td>
</tr>
<tr>
<td></td>
<td>− &lt;name&gt;.gif</td>
</tr>
<tr>
<td></td>
<td>− &lt;name&gt;.jpeg</td>
</tr>
<tr>
<td></td>
<td>• Video files</td>
</tr>
<tr>
<td></td>
<td>− &lt;name&gt;.avi</td>
</tr>
<tr>
<td></td>
<td>• Sound files</td>
</tr>
<tr>
<td></td>
<td>− &lt;name&gt;.wav</td>
</tr>
<tr>
<td></td>
<td>Optional.</td>
</tr>
</tbody>
</table>

**Global Service File**

Services also derive information from the global service file (global.srvc), which is created during ITS setup and defines default parameter values for all services. The values defined in individual service files always override values in the global service file.
ITS File Storage Locations

The storage location of Internet Transaction Server (ITS) files that make up Internet applications developed in the SAP@Web Studio depends on the file type and whether the files have already been published, as shown in the following table:

<table>
<thead>
<tr>
<th>File Type</th>
<th>Storage Location</th>
</tr>
</thead>
<tbody>
<tr>
<td>Unpublished files</td>
<td>Project directory on local hard drive.</td>
</tr>
<tr>
<td></td>
<td>The default is:</td>
</tr>
<tr>
<td></td>
<td>C:\Program Files\SAP\Studio\2.0\bin&lt;project&gt;</td>
</tr>
<tr>
<td>Published HTML Business templates and all other non-MIME files</td>
<td>ITS site [Seite 38]</td>
</tr>
<tr>
<td>Published MIME files</td>
<td>Web server</td>
</tr>
<tr>
<td>Master copies of files</td>
<td>ITS source control in R/3</td>
</tr>
</tbody>
</table>
Internet Application Development

Purpose
This process describes the main steps you have to take in the SAP@Web Studio to develop Internet applications driven by the Internet Transaction Server (ITS).

Prerequisites
You have defined the business logic in the R/3 System:
- If you are developing an application based on the Web transactions implementation model, you have developed a dialog transaction.
  - You must do this first, because you need to be able to specify the underlying ABAP program and screen numbers when creating HTML Business templates.
- If you are developing an application based on the flow file implementation model, you have developed a set of Business APIs (BAPIs) or standard function modules.
  - In this case, it is not essential to define the business logic first, but it makes sense to follow the procedure described in this documentation.

Process Flow
To develop an Internet application that accesses data in the R/3 System and can be run from a Web browser, you must create an Internet Transaction Server (ITS) service.

The steps specified below describe how to:
- Create a new service.
- Modify an existing service.

Creating a New Service
1. Start the SAP@Web Studio [Seite 17] and set up the environment [Seite 21].
2. Create a new project [Seite 32] to store the service directories and files.
   - You can assign several services to one project.
3. Define an ITS site [Seite 39].
4. Create the ITS files:
   a. Create the service [Seite 43].
   b. Create the HTMLBusiness templates [Seite 48].
   c. If required, create flow files [Seite 52] for the HTMLBusiness templates.
   d. If required, create language resource files [Seite 53].
   e. If required, create more themes [Seite 55] for the service.
5. Specify the active service [Seite 87].
6. Edit the files [Seite 58] as necessary, and perform a syntax check [Seite 71] on the HTMLBusiness templates.
7. Publish and test [Seite 86] the service.
8. Store the new files in ITS source control:
   a. Add the files to ITS source control [Seite 95].
   b. Create a change request in the R/3 System.
   c. Assign the files to the change request [Seite 96].
Modifying an Existing Service

1. Start the SAP@Web Studio [Seite 17] and, if necessary, adjust the environment [Seite 21].
2. Open an existing project [Seite 33].
3. Select an existing ITS site [Seite 41].
4. Import the existing files [Seite 36].
   You can import files from the ITS server, or from the Web server, or check them out of ITS source control.
   If you import the files from ITS source control, you must assign them to a change request [Seite 96].
5. Specify the active service [Seite 87].
7. Publish and test [Seite 86] the service.
8. If you previously checked the files out of ITS source control, check them back in [Seite 98].

Result

You can now run the new or modified application from a Web browser.
SAP@Web Studio User Interface

Purpose
This process describes the basic functions of the SAP@Web Studio user interface. The SAP@Web Studio user interface is a flexible environment, which you can adjust to suit your development requirements. It includes all the features you need to create, maintain, and manage files required by the Internet Transaction Server (ITS) to run Internet applications from a Web browser.

SAP@Web Studio User Interface

Apart from the title bar and standard toolbar, the user interface consists of:

- Four windows:
  - Main work area
  - Project workspace
  - HTML Tags
  - Message area
- Publish toolbar

SAP@Web Studio Windows
The four main windows that make up the SAP@Web Studio user interface are listed in the following table:
### SAP@Web Studio User Interface

<table>
<thead>
<tr>
<th>Window</th>
<th>Location</th>
<th>Purpose</th>
</tr>
</thead>
<tbody>
<tr>
<td>Main Work Area</td>
<td>Upper right window.</td>
<td>Used to display and edit ITS files.</td>
</tr>
<tr>
<td>Project Workspace</td>
<td>Upper left window.</td>
<td>Lists all ITS files belonging to the current project.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>There are two available views [Seite 19], so what you see depends on the view you choose. The above graphic shows the File View.</td>
</tr>
<tr>
<td>HTML Tags</td>
<td>Below project workspace</td>
<td>Displays a list of standard HTML tags. You can modify the initial list to include the tags you use most frequently for developing HTML Business templates.</td>
</tr>
<tr>
<td>Message Area</td>
<td>Lower window.</td>
<td>Displays status and error messages.</td>
</tr>
</tbody>
</table>

You can adjust the relative size of all these windows (see below for details).

**SAP@Web Studio Publish Toolbar**

Located below the standard toolbar, the SAP@Web Studio publish toolbar contains a list box for currently defined ITS sites, as well as functions for building, publishing, and testing ITS services.

**SAP@Web Studio Publish Toolbar**

The elements in the publish toolbar are listed in the following table, moving from left to right:

<table>
<thead>
<tr>
<th>Element</th>
<th>Description</th>
<th>Purpose</th>
</tr>
</thead>
<tbody>
<tr>
<td>![mysite]</td>
<td>ITS site field.</td>
<td>Contains currently defined ITS sites [Seite 38].</td>
</tr>
<tr>
<td>![Publish]</td>
<td>Publish button.</td>
<td>Publishes specified ITS files to a specified ITS site.</td>
</tr>
<tr>
<td>![Build]</td>
<td>Build button.</td>
<td>Publishes all ITS files in the currently active service to the current ITS site.</td>
</tr>
<tr>
<td>![Go]</td>
<td>Go button.</td>
<td>Publishes all ITS files in the currently active service to the current ITS site, opens a Web browser, and starts the service.</td>
</tr>
</tbody>
</table>

When you start the SAP@Web Studio, the main work area on the right is blank, so the Editor menu is inactive and thus not displayed in the menu bar. As soon as you open an HTML Business template or other file for maintenance, the SAP@Web Studio inserts the Editor menu between the Tools and Options menus, as shown in the above graphic.

**Process Flow**

Before starting to develop Internet applications, you need know how to:

- **Start and stop [Seite 17]** the SAP@Web Studio.
- **Adjust the user interface [Seite 18]** to suit your needs.
• Use the project workspace views [Seite 19].
• Use the editors [Seite 20].
Starting and Stopping the SAP@Web Studio

Prerequisites
You must have installed the SAP@Web Studio.

Procedure
The table below describes the procedures for starting and stopping the SAP@Web Studio:

<table>
<thead>
<tr>
<th>Function</th>
<th>Procedure</th>
<th>Remarks</th>
</tr>
</thead>
<tbody>
<tr>
<td>Start the SAP@Web Studio</td>
<td>On the Windows NT 4.0 desktop, choose Start → Programs → SAP@Web Studio → Studio &lt;release&gt;.</td>
<td>The SAP@Web Studio installation procedure automatically inserts an entry in the Programs menu on your Windows NT 4.0 desktop.</td>
</tr>
<tr>
<td>Stop the SAP@Web Studio</td>
<td>In the SAP@Web Studio, choose File → Exit.</td>
<td>If the SAP@Web Studio detects unsaved changes, it prompts you to save them. When you confirm, the SAP@Web Studio closes all R/3 connections and terminates.</td>
</tr>
</tbody>
</table>
Adjusting the User Interface

Use
You can adjust the SAP@Web Studio user interface to suit your needs.

Procedure
The following table describes the functions available for adjusting the SAP@Web Studio user interface:

<table>
<thead>
<tr>
<th>To</th>
<th>Procedure</th>
</tr>
</thead>
<tbody>
<tr>
<td>Adjust relative size of a window.</td>
<td>1. Place cursor between two windows until you see a crosshair cursor. 2. Drag in either direction until you achieve the desired size.</td>
</tr>
<tr>
<td>View/hide the publish toolbar.</td>
<td>Choose View → Publish Toolbar.</td>
</tr>
<tr>
<td>View/hide ITS files in project workspace.</td>
<td>Choose View → Project Workspace.</td>
</tr>
<tr>
<td>View/hide tags in HTML Tags window.</td>
<td>Choose View → HTML Tags.</td>
</tr>
<tr>
<td>View/hide output in message area.</td>
<td>Choose View → Message Area.</td>
</tr>
</tbody>
</table>
Using the Project Workspace Views

The SAP@Web Studio’s project workspace allows you to display the Internet Transaction Server (ITS) files in two different views, as listed in the following table:

<table>
<thead>
<tr>
<th>View</th>
<th>Description</th>
<th>Remarks</th>
</tr>
</thead>
<tbody>
<tr>
<td>File View</td>
<td>Displays a file system view of all services assigned to a project.</td>
<td>In this view, you can expand the hierarchy for each service to display the associated HTML Business templates and other files. You can only display the files associated with one project at once.</td>
</tr>
<tr>
<td>Source Control</td>
<td>Displays all files in ITS source control at the currently defined ITS site.</td>
<td>To see this view, you must connect to the R/3 System.</td>
</tr>
</tbody>
</table>

Procedure

The following table describes the functions available for manipulating views and files in the project workspace:

<table>
<thead>
<tr>
<th>Function</th>
<th>Procedure</th>
</tr>
</thead>
<tbody>
<tr>
<td>Select view</td>
<td>Select the tab for the view you want. To display files in the Source Control view, you must connect to the R/3 System [Seite 94].</td>
</tr>
<tr>
<td>Edit files</td>
<td>To edit files in any of the views, double-click on the file names. This opens the file in the appropriate editor in the main work area.</td>
</tr>
<tr>
<td>Other file-related functions</td>
<td>1. Select any file in the File View. 2. Click the right mouse button. You see a list of possible functions in a pop-up window.</td>
</tr>
</tbody>
</table>
Using the SAP@Web Studio Editors

To edit the various Internet Transaction Server (ITS) file types, the SAP@Web Studio provides different editors:

- **HTML Business editor**
  
  You use the HTML Business editor to edit HTML Business templates and flow files.

- **Grid control editor**

  You use the grid control editor to edit service files and language resource files.

**Procedure**

**Using the HTML Business Editor**

To open the HTML Business editor:

1. Go to the File View in the project workspace.
2. Expand the hierarchy for a service.
3. Double-click on the name of an HTML Business template (extension .html).

For further information about editing HTML Business templates and flow files in the HTML Business editor, see [HTMLBusiness Editor [Seite 59]].

**Using the Grid Control Editor**

To open the grid control editor:

1. Go to the File View in the project workspace.
2. Expand the hierarchy for a service.
3. Double-click on the name of a service file (extension .srvc) or a language resource file (extension .htrc).

For further information about editing service files and language resource files in the grid control editor, see [Grid Control Editor [Seite 74]].
SAP@Web Studio Options

Purpose
This process describes the options available in the SAP@Web Studio for customizing your environment.

Process Flow
You can:

- Specify R/3 connection information [Seite 22]
- Specify a file viewer application [Seite 24]
- Specify default languages, character sets, and fonts [Seite 25]
- Specify a default project directory [Seite 28]
- Set the Web browser to open inside the SAP@Web Studio [Seite 29]
- Set HTMLBusiness editor options [Seite 30]
Specifying R/3 Connections

The SAP@Web Studio allows you to predefine logon information for each R/3 System to which you want to connect. This information includes:

- R/3 System details (system ID, host, and message server)
- User details (client, user name, password, and language)

You can specify R/3 connections that log on by group or by server:

- Connection by group
  Logging on by group means that the system chooses the application server host for you at runtime. This lets the system balance the user load by choosing the host machine that is least busy. If you are unsure which group to use, ask your system administrator.
  In general, you should specify R/3 connections by group whenever possible.

- Connection by server
  Sometimes, you want to log on to a specific R/3 host. If you create a connection by server, you specify this host explicitly. This means that when you log on, you are connected to this system only.

Procedure

<table>
<thead>
<tr>
<th>Function</th>
<th>Procedure</th>
</tr>
</thead>
</table>
| Specify Connection By Group    | 1. Choose Options → R/3 Systems.  
                              | 2. Choose Group.                  
                              | 3. Select an R/3 System and choose Lookup.  
                              | The SAP@Web Studio displays a list all available groups.  
                              | 4. Select the desired group and choose Add.  
                              | The SAP@Web Studio displays R/3 System information for this connection.  
                              | 5. Enter (or update) the values in these fields, as desired.  
                              |   - Description  
                              |   - System Number  
                              | 6. Choose OK.                  |

| Specify Connection By Server   | 1. Choose Options → R/3 Systems.  
                              | 2. Choose Server.                
                              | 3. Select an R/3 System and choose Lookup.  
                              | The SAP@Web Studio displays a list of all available servers.  
                              | 4. Select the desired group and choose Add.  
                              | The SAP@Web Studio displays R/3 System information for this connection.  
                              | 5. Enter (or update) the values in these fields, as desired.  
                              |   - Description  
                              |   - System Number  
                              | 6. Choose OK.                  |
Specifying File Viewers

The SAP@Web Studio allows you to select a file viewer for displaying files. This is useful if, for example, you want to display graphics in a particular graphics viewer.

If you predefine the applications you want to use as file viewers, you do not have to navigate to an application each time you want to use it to view a file.

**Procedure**

You can add a file viewer, change its properties, or delete it, as described in the following table:

<table>
<thead>
<tr>
<th>Function</th>
<th>Procedure</th>
<th>Result</th>
</tr>
</thead>
<tbody>
<tr>
<td>Add file viewer</td>
<td>1. Select Options → Studio Properties.</td>
<td>The SAP@Web Studio adds the selected file viewer to its list of known viewers. You can also choose Apply instead of OK. Apply saves your settings, but leaves the Studio Properties dialog open.</td>
</tr>
<tr>
<td></td>
<td>2. Select the Send To: tab page.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>3. Find the file viewer you want to add to the list of known file viewers:</td>
<td></td>
</tr>
<tr>
<td></td>
<td>a. Choose Add.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>b. Navigate to directory that contains required file viewer.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>c. Select program name, and choose Open.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>d. In the Shortcut tab page, enter an application name, and any command line arguments. For information about command line arguments, see the documentation for the file viewer.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>4. Choose OK.</td>
<td></td>
</tr>
<tr>
<td>Change file viewer properties</td>
<td>1. Select Options → Studio Properties.</td>
<td>The SAP@Web Studio updates the properties of the selected file viewer. You can also choose Apply instead of OK. Apply saves your settings, but leaves the Studio Properties dialog open.</td>
</tr>
<tr>
<td></td>
<td>2. Select the Send To: tab page.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>3. Select the file viewer you want to change.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>5. Change the entry as desired, and choose OK.</td>
<td></td>
</tr>
<tr>
<td>Delete file viewer</td>
<td>1. Select Options → Studio Properties.</td>
<td>The SAP@Web Studio deletes the selected file viewer. You can also choose Apply instead of OK. Apply saves your settings, but leaves the Studio Properties dialog open.</td>
</tr>
<tr>
<td></td>
<td>2. Select the Send To: tab page.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>3. Select the file viewer you want to delete.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>4. Choose Delete.</td>
<td></td>
</tr>
</tbody>
</table>
Native Language Support (NLS)

Purpose
This process describes how you can set options in the SAP@Web Studio to support HTML Business templates that contain texts in virtually any language.

Since most western languages are represented by a single-byte character set, this is the default in the SAP@Web Studio. However, many Asian languages require a double-byte character set to be displayed properly. If, for example, you have templates that contain Japanese texts, they cannot be read by the default character set.

Process Flow
To internationalize the SAP@Web Studio, you need to:
1. Install the National Language Pack for Windows NT on your system.
   See the Microsoft Web site for details.
2. Specify the default language [Seite 26].
3. Specify the character set or font [Seite 27] that corresponds to your locale.
Specifying a Default Language

In the SAP@Web Studio, you can specify a default language to be used for displaying all your files. This determines the character set used to display your code.

Prerequisites
You must install the National Language Pack for Windows NT.

Procedure
To specify the default language centrally:
1. Choose Options → Studio Properties.
2. Select the Fonts tab page.
3. Select the language you want to use as the default language.

Result
The SAP@Web Studio uses the selected language for displaying all files.

The character set used is important only for language-specific texts that you code explicitly in your HTML Business templates. If the templates contain language resource keys, you always see these in the HTML Business editor. Text substitution does not occur until the Internet Transaction Server (ITS) interprets the keys at runtime. Remember also that the length of the language key depends on the release of your R/3 System:

- One character for R/3 releases prior to 4.0 (for example, e for English)
- Two characters for R/3 releases from 4.0 (for example, en for English)
Specifying a Default Character Set and Font

In the SAP@Web Studio, you can specify a default character set and font to be used for displaying all your files.

The HTML Business editor supports all proportional and fixed fonts that are available for a particular character set.

Prerequisites
You must install the National Language Pack for Windows NT.

Procedure
1. Choose Options → Studio Properties.
2. Select the Fonts tab page.
3. In the Language group box, select a language.
4. In the Character Sets group box, select a character set for your language.
5. Select a font for your character set from the dropdown list box.
6. Choose OK.
   You leave Studio Properties.
7. Click the globe button in the status bar.
   You get a list of character sets.
8. Select the character set you want.
   Your selection is activated in the HTML Business editor.

Result
The SAP@Web Studio uses the selected character set and font for displaying all files.
Specifying a Default Project Directory

The default project directory is the default location for all projects created in the SAP@Web Studio, but you can specify any directory you like. The default path is:

C:\Program Files\SAP\Studio\2.0\bin\<project>

You can also specify that files you remove from the project hierarchy in the project workspace should also be deleted from the hard disk.

Procedure

<table>
<thead>
<tr>
<th>Function</th>
<th>Procedure</th>
<th>Result</th>
</tr>
</thead>
</table>
| Specify default project directory     | 1. Choose Options → Studio Properties.  
                                          2. Select the Directories tab page.  
                                          3. Enter a directory name in the Default Project Dir: field. | The SAP@Web Studio uses the selected directory to store all projects.   |
| Delete files from hard disk as well as from project hierarchy | Check the box Delete files from disk, if removed from project. |                                                                       |

💡

The project directory is always located on your host machine, so you can set the default project directory to any local directory you like.
Opening a Web Browser in the SAP@Web Studio

When you test a service, the SAP@Web Studio automatically opens a Web browser on your machine.

By default, the Web browser runs outside the SAP@Web Studio. Sometimes, however, it is useful to open the Web browser inside the SAP@Web Studio.

Procedure

To specify that you want the Web browser to open inside the SAP@Web Studio:
1. Choose Options → Studio Properties.
2. Select the Web Browser tab page.
3. Ensure that Open Browser window in Studio is selected.

Opening a Web browser inside the SAP@Web Studio works only for Microsoft Internet Explorer 4.0 (or higher).
All other browsers must be opened outside the SAP@Web Studio.
Setting HTML Business Editor Options

To support the development of HTML Business templates, the HTML Business editor displays the various elements of HTML Business code in different colors. This makes the code more easily readable, and distinguishes it from standard HTML code. You can change the default colors for each element of HTML Business to suit your needs.

Procedure
To set colors for displaying HTML Business code in the HTML Business editor:
4. Select Options → Studio Properties.
5. Select the Editor tab page.

You see a list of HTML Business elements with their HTML Business editor default colors:

```plaintext
<table>
<thead>
<tr>
<th>Syntax colors:</th>
</tr>
</thead>
<tbody>
<tr>
<td>HTML Business</td>
</tr>
<tr>
<td>Keywords</td>
</tr>
<tr>
<td>Contents</td>
</tr>
<tr>
<td>Resource Keys</td>
</tr>
<tr>
<td>HtmlBusiness Comment</td>
</tr>
<tr>
<td>Comment</td>
</tr>
</tbody>
</table>
```

6. Choose the element you want to customize, select a color from the palette, and choose OK.

Result
The SAP@Web Studio resets the default color for the element.
ITS Project Management

Purpose
This process describes how to manage Internet Transaction Server (ITS) projects in the SAP@Web Studio.

Process Flow
Before you start to develop an Internet application in the SAP@Web Studio, you should create a project. This is a convenient way of grouping the constituent ITS files, because it allows you to define which service you want to work on, and keeps the number of files small and focused.

The default project directory for all projects created in the SAP@Web Studio is:

```
C:\Program Files\SAP\Studio\2.0\bin\<project>
```

When you first create a project, it opens automatically. To maintain this project subsequently, or maintain any existing project, you must first open it.

When a project is open, the File View tab page displays the files in the current project:

- Each project can contain one or more services.
- Each service can contain one or more themes.
- Each theme can contain one or more HTML Business templates, flow files, language resources, and Multipurpose Internet Mail Extension (MIME) files.

In the SAP@Web Studio, you can:

- Create [Seite 32] projects
- Open [Seite 33] projects
- Close [Seite 34] projects
- Add [Seite 35] files to projects
- Import [Seite 36] files into projects
- Delete [Seite 85] files from projects
- Change the default project directory [Seite 28]

Always use the appropriate file management function in the SAP@Web Studio. Do not manipulate the underlying project directory directly.
Creating ITS Projects

To develop Internet applications in the SAP@Web Studio, you must create a project.

Procedure

1. Choose File → New and select the Projects tab.
2. Enter a project name.
3. If necessary, go to the Project Location field and browse to the place where you want the SAP@Web Studio to create the new project.
4. Choose OK.

Result

Unless you have specified a different default project directory [Seite 28], the SAP@Web Studio creates a project directory called <project> and a project file called <project>.itsp under:

C:\Program Files\SAP\Studio\2.0\bin\<project>\<project>.itsp
Opening ITS Projects

To work on a project in the SAP@Web Studio, you must open it first. When you open a project, it becomes the currently active project. Any previously opened project is closed, and all subsequent actions apply to the most recently opened project.

The SAP@Web Studio maintains a list of the most recently opened projects, so you can open them directly without having to browse through the file system.

Prerequisites

You must have created at least one project.

Procedure

You can either select a recent project from the list of recently maintained projects or search for one in the file system, as described in the following table:

<table>
<thead>
<tr>
<th>Function</th>
<th>Procedure</th>
</tr>
</thead>
<tbody>
<tr>
<td>Open a recent project</td>
<td>1. Choose Choose File → Recent Projects.</td>
</tr>
<tr>
<td></td>
<td>2. Select a project.</td>
</tr>
<tr>
<td>Open a project from the file system.</td>
<td>1. Choose File → Open Project.</td>
</tr>
<tr>
<td></td>
<td>2. Navigate to your project directory, if necessary.</td>
</tr>
<tr>
<td></td>
<td>3. Double-click on the project file name.</td>
</tr>
</tbody>
</table>

Result

The SAP@Web Studio opens the selected project and displays the project name in the project workspace.
Closing ITS Projects

When you close a project, all the subdirectories and files are no longer directly available.

Procedure
To close the currently active project, do one of the following:

- Choose File → Close Project.
- Open another project.

Result
The SAP@Web Studio closes the project by removing all the subdirectories and files from the project workspace.

To work on this project again, you must open it again.
Adding Files to ITS Projects

There are two ways you can add files to a project:

- To add files to a project from the file system, use this procedure.
- To add files to a project from an ITS site or ITS source control, import [Seite 36] them.

Procedure

To add files to a project from the file system:

1. In the project workspace File View, select the project to which you want to add files.
2. Choose Project → Add to Project → Files.
   
   You see the Add Files to Project dialog box where you can access files in any directory.
3. Navigate to the directory containing the files you want to add.
4. Select the file(s).
5. Choose Open.

Result

The SAP@Web Studio adds the files to the project directory.

💡

To add files to a project, you can also use the Copy, Cut, and Paste functions in the standard toolbar.

⚠️

If you delete files, they are removed from the project, but not from the underlying directory.

Always use the SAP@Web Studio interface to add files to a project. Adding files directly to the underlying project directory may result in inconsistent services.
Importing Files Into ITS Projects

There are two ways you can add files to projects:
- To add files to a project from an ITS site or ITS source control, use this procedure.
- To add files to a project from the file system, add them.

Procedure

To import files into a project from an ITS site or ITS source control:
1. Select the service name to which you want to add the files.
2. Choose Project → Add to Project → Import.
   You see the Add ITS Service Wizard dialog box where you can access files in any directory.
3. Follow the appropriate procedure, depending on what you want to do:

<table>
<thead>
<tr>
<th>Function</th>
<th>Procedure</th>
</tr>
</thead>
<tbody>
<tr>
<td>Import files from ITS site</td>
<td>1. Choose Next.</td>
</tr>
<tr>
<td></td>
<td>2. Select Import Service from Site and choose Next.</td>
</tr>
<tr>
<td></td>
<td>3. Select a site, and choose Next.</td>
</tr>
<tr>
<td></td>
<td>4. Select the ITS service name, and choose Next.</td>
</tr>
<tr>
<td></td>
<td>5. Select the desired service files, and choose Next.</td>
</tr>
<tr>
<td>Import files from ITS source</td>
<td>1. Choose Next.</td>
</tr>
<tr>
<td>control</td>
<td>2. Select Add Service from R/3 Source Control and choose Next.</td>
</tr>
<tr>
<td></td>
<td>3. Select an R/3 System, and choose Next.</td>
</tr>
<tr>
<td></td>
<td>4. Enter the logon information, and choose Next.</td>
</tr>
<tr>
<td></td>
<td>5. Select the desired service, and choose Next.</td>
</tr>
<tr>
<td></td>
<td>6. Select the desired service files, and choose Next.</td>
</tr>
<tr>
<td></td>
<td>7. Choose Finish.</td>
</tr>
</tbody>
</table>

Result

The SAP@Web Studio imports the files into the current project directory.

Importing files from ITS source control is a GET operation. This means that if you modify the files, you cannot return them to ITS source control afterwards. If you want to change the files, check them out. To add files to a project, you can also use the Copy, Cut, and Paste functions in the standard toolbar.

If you delete files, they are removed from the project, but not from the underlying directory.

Always use the SAP@Web Studio interface to import files to a project. Adding files directly to the underlying project directory may result in inconsistent services.
ITS Site Management

Purpose
This process describes how to define an Internet Transaction Server (ITS) site, which is the server location of the files required by the ITS to start a service.

Since some files are stored on the ITS server, and others on the Web server, an ITS site is really a combination of these two components. The ITS server and the Web server can reside on different systems, so an ITS site must contain information about the system and the data location.

• During development, all the files that make up an ITS service are assigned to a project in the SAP@Web Studio.
• At runtime, all the files that make up an ITS service files must be located at the ITS site, either on the ITS server or the Web server.

The mechanism used to transfer files from the SAP@Web Studio to the ITS site (runtime environment) is known as publishing.

The following table lists the different ITS service files and specifies whether they reside on the ITS server or on the Web server:

<table>
<thead>
<tr>
<th>ITS File</th>
<th>Location</th>
</tr>
</thead>
<tbody>
<tr>
<td>Services</td>
<td>ITS server</td>
</tr>
<tr>
<td>HTML Business</td>
<td>ITS server</td>
</tr>
<tr>
<td>templates</td>
<td>ITS server</td>
</tr>
<tr>
<td>Flow files</td>
<td>ITS server</td>
</tr>
<tr>
<td>Language resources</td>
<td>ITS server</td>
</tr>
<tr>
<td>MIME files</td>
<td>Web server</td>
</tr>
</tbody>
</table>

In the SAP@Web Studio, the procedure for defining ITS sites – including the ITS server and the Web server – supports different protocols such as NT NetBIOS and FTP.

Process Flow
To publish all the files required by the ITS to drive an Internet application, define an ITS site [Seite 39].

If you have defined more than one ITS site, specify the currently active site [Seite 41].
Defining an ITS Site

To define an Internet Transaction Server (ITS) site, you need to specify the ITS server and Web server locations of all the ITS files – services, HTML Business templates, flow files, language resources, and Multipurpose Internet Mail Extension (MIME) files – that make up a service.

Procedure

To define an ITS site, you use the SAP@Web Studio site wizard:

1. Choose Project → Site Definition.
   You see the Site Definition dialog box.
2. Choose New.
   You see the Site Wizard.
3. Enter a site name, and choose Next.
4. Enter the Web server host name, and choose Next.
5. Enter the ITS server host name, and choose Next.
6. Define the shared directories on the Web server and the ITS server.

   What you have to do here depends on whether you allow the SAP@Web Studio to determine the location of the ITS files (ITS Virtual Shares) or whether you want to define your own (Custom Shares):

   - ITS Virtual Shares

     | ITS Version | Procedure |
     |-------------|-----------|
     | 2.0 and later | Enter an ITS virtual instance name. The SAP@Web Studio automatically defines the following shared directories:  
     |              | • <ITS instance>_ITS for non-MIME files stored on the ITS server.  
     |              | • <ITS instance>_WWW for MIME files stored on the Web server. |
     | 1.0/1.1      | In these earlier ITS versions, you need to define the shared directories for the Web server and ITS server explicitly. |

   - Custom Share

     This option allows you to determine the shared directories and their location yourself by entering the Web server URL and ITS server URL. You can use both NetBIOS or FTP connections.

     | Connection | Procedure |
     |------------|-----------|
     |            | 2. Enter the Web server URL.  
     |            |   This determines the location of the MIME files.  
     |            |   Example: //<host name>/<Web share>/<dir>  
     |            | 3. Enter ITS server URL  
     |            |   This determines the location of all other ITS files  
     |            |   Example: //<host name>/<ITS share> |
Defining an ITS Site

| FTP | 1. Set up an FTP server and an FTP root directory with write access, so you can publish the files. |
|     | 2. Enter Web server URL |
|     |   This determines the location of the MIME files. |
|     |   Example: ftp://<host name>:<port number>/<dir> |
|     | 3. Enter ITS server URL |
|     |   This determines the location of all other ITS files |
|     |   Example: ftp://<host name>:<port number> |

7. Choose *Next*.
8. Choose *Finish* to confirm
9. Choose *OK* to exit.
Specifying the Active ITS Site

If you have defined more than one ITS site, you must specify one as the currently active site.

Procedure

Go to the publish toolbar, and select the desired site name in the ITS site list box.

Result

When you publish files, the SAP@Web Studio uses this site to determine the locations of the ITS server and Web server directories.
ITS Service Creation

Purpose
This process describes how to create all the files required by the Internet Transaction Server (ITS) to run an Internet application from a Web browser. This set of files is known as a service.

Process Flow
To create an ITS service to run your application, you must:

1. **Create a service file** [Seite 43].
   Each service must contain one service file.

2. **Create HTML Business templates** [Seite 48].
   Each service must contain at least one HTML Business template.

3. If you are developing a flow file application, you also need to **create flow files** [Seite 52].
   In applications based on the flow file implementation model, you must attach one flow file to each HTML Business template.

4. **Create language resources** [Seite 53].
   Unless you intend to use language-specific HTML Business templates, you must create at least one language resource file for the language in which the transaction is being developed and tested.

5. If you want to create instances of the same service that differ only in look and feel, you need to **create multiple themes** [Seite 55].
   You can create several themes for one service. Themes are instances of services that differ only in look and feel. Each theme has its own set of templates and other service files, but the functionality of the service is the same for all themes.

   ![Tip]
   If you are developing applications using the Web transactions implementation model, it is best to create services, HTML Business templates, and language resources with the SAP@Web Studio wizards, but you can also **create files manually** [Seite 57].

   If you are developing applications using the flow file implementation model, you **must** create files manually [Seite 57].
Creating ITS Service Files

To create an Internet Transaction Server (ITS) service, you must create a service file. The service file contains the service description, which is the set of parameters that determines how a service runs. If this information is incomplete at runtime, the ITS may derive some details from the global service file, or require the user to enter logon information. In any case, there must be one service file for each application.

- If you are developing applications using the Web transactions implementation model, it is best to create services with the SAP@Web Studio service wizard, but you can also create the files manually [Seite 57].
- If you are developing applications using the flow file implementation model, you must create the files manually [Seite 57].

Prerequisites

There must be a user in the R/3 System which your service is using.

Procedure

To create a service file using the service wizard:

1. Choose File → New and select the File Wizards tab.
2. Select Service Wizard.
3. Ensure that Add to Project is selected, and that the project directory name is correct.
4. Choose OK.
5. Enter a service name, and choose Next.
Creating ITS Service Files

6. Select an R/3 System to which you are connecting, and choose Next.

7. Specify how R/3 logon information is to be determined.

The service name can have up to 14 characters. This must be unique and should normally be the same as the corresponding R/3 transaction.
Logon information includes the client, user name, password, and logon language. Specify whether you want to use global logon information or define service-specific logon information by selecting the appropriate option:

<table>
<thead>
<tr>
<th>Option</th>
<th>Procedure</th>
</tr>
</thead>
<tbody>
<tr>
<td>Use global service specification</td>
<td>No action required.</td>
</tr>
<tr>
<td></td>
<td>The logon information is taken from the global service file global.srvc at runtime.</td>
</tr>
<tr>
<td>Specify a service specific login</td>
<td>Enter service-specific logon information.</td>
</tr>
<tr>
<td></td>
<td>You may wish to define a special user with limited authorizations for Web transactions. This user must exist in the R/3 System. Alternatively, you can leave these variables blank, and let users enter their own logon information.</td>
</tr>
</tbody>
</table>

If you define service-specific logon information, remember that the language key must be:
- One character for R/3 releases prior to 4.0 (for example, e for English)
- Two characters for R/3 releases from 4.0 (for example, en for English)

8. Enter a timeout value and choose Next.
The timeout value defines the time (in minutes) after which the service terminates if no ITS session activity occurs. This is important in case the user branches to another URL without leaving the ITS session.

9. Enter the ITS service type and choose Next:

<table>
<thead>
<tr>
<th>Option</th>
<th>Procedure</th>
</tr>
</thead>
<tbody>
<tr>
<td>Use Web Transaction</td>
<td>Enter the R/3 transaction name.</td>
</tr>
</tbody>
</table>
Use WebRFC

Enter the following information:

- **Destination**
  
  R/3 System to which you are connecting.

- **System Type**
  
  Target system type. The default is R/3.

- **RFC Trace**
  
  Select this if you want to trace your communication protocol.

10. Choose Finish to confirm.

**Result**

The SAP@Web Studio creates a service file called `<service>.srvc` and displays it in the project workspace.

You edit this service file with the [grid control editor](Seite 74). Remember that parameter values specified here always override the default parameter values in the global service file `global.srvc`.

💡

The SAP@Web Studio does not automatically create a theme for your new service, and the service file does not contain a theme parameter.

However, the global service file `global.srvc` initially contains the default theme parameter 99. At runtime, this setting causes the system to search for HTML templates in a subdirectory called 99. If the subdirectory does not exist, an error occurs.

Therefore, when you create HTML business templates for your service, the SAP@Web Studio automatically proposes the default theme 99.

If you do not intend to use more than one theme for this service, you should accept the default setting. If you change this value, you must also change the value specified in the global service file `global.srvc`.

If you want to use more than one theme for a service, you must create the themes explicitly [(Seite 55)](Seite 55).
Creating HTML Business Templates

You must create an HTML Business template for every screen in an Internet application.

If you are developing applications using the Web transactions implementation model, it is best to create HTML Business templates with the SAP@Web Studio template wizard, but you can also create the files manually [Seite 57]. If you are developing applications using the flow file implementation model, you must create the files manually [Seite 57].

Prerequisites

There must be a user in the R/3 System which your service is using. You must create a service file [Seite 43] first.

Procedure

To create an HTML Business template using the template wizard:

1. Choose File → New and select the File Wizards tab.
2. Select Template Wizard.

3. Ensure that Add to Project is selected, and that the project directory name is correct.
4. Choose OK.
5. Select an R/3 System that contains the required screen information and choose Next.
6. Enter the required R/3 logon information and choose Next.

Logon information includes the client, user name, password, and logon language.

💡 If you define service-specific logon information, remember that the language key must be:
- One character for R/3 releases prior to 4.0 (for example, e for English)
- Two characters for R/3 releases from 4.0 (for example, en for English)

7. Enter the required R/3 screen information and choose Next.
Enter values in the fields as described in the following table:

<table>
<thead>
<tr>
<th>Field</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Program</td>
<td>Program name of R/3 transaction.</td>
</tr>
<tr>
<td>Screen Number</td>
<td>Screen number of program.</td>
</tr>
<tr>
<td>Service</td>
<td>The SAP@Web Studio proposes the current service.</td>
</tr>
<tr>
<td>Style</td>
<td>Template style.</td>
</tr>
<tr>
<td></td>
<td>There are four possible template styles:</td>
</tr>
<tr>
<td></td>
<td>- <strong>Classic</strong></td>
</tr>
<tr>
<td></td>
<td>- <strong>Business</strong></td>
</tr>
<tr>
<td></td>
<td>- <strong>WebGUI</strong></td>
</tr>
<tr>
<td></td>
<td>- <strong>Mobile Devices</strong></td>
</tr>
<tr>
<td></td>
<td>The style you choose depends on the type of application you are</td>
</tr>
<tr>
<td></td>
<td>developing. When you select a style, a description of the main</td>
</tr>
<tr>
<td></td>
<td>features is displayed on the left.</td>
</tr>
<tr>
<td>Theme</td>
<td>The SAP@Web Studio proposes the default theme 99.</td>
</tr>
<tr>
<td></td>
<td>Unless you intend to create more than one theme for your service, or</td>
</tr>
<tr>
<td></td>
<td>you want to change the name for some other reason, leave the theme</td>
</tr>
<tr>
<td></td>
<td>unchanged.</td>
</tr>
<tr>
<td>Language dependent</td>
<td>- If you want to keep your templates language-independent,</td>
</tr>
<tr>
<td></td>
<td>ignore the Language dependent box. Whenever possible, you should</td>
</tr>
<tr>
<td></td>
<td>use this option.</td>
</tr>
<tr>
<td></td>
<td>- If you need to create language-specific templates, check the</td>
</tr>
<tr>
<td></td>
<td>Language dependent box and select a language.</td>
</tr>
</tbody>
</table>

8. Choose Finish to confirm.
Result
The SAP@Web Studio:

- Creates the HTML Business template and displays it in the project workspace under the current service and theme.
- Activates the Editor menu in the menu bar

The Editor menu contains functions for editing HTML Business templates. The format of the file name depends whether you have created a language-independent template or a language-specific HTML Business template:

<table>
<thead>
<tr>
<th>File Type</th>
<th>File Format</th>
</tr>
</thead>
<tbody>
<tr>
<td>Language-independent</td>
<td><code>&lt;program name&gt;_&lt;screen number&gt;.html</code></td>
</tr>
<tr>
<td>Language-specific</td>
<td><code>&lt;program name&gt;_&lt;screen number&gt;_&lt;language&gt;.html</code></td>
</tr>
</tbody>
</table>

You edit HTML Business templates in the HTMLBusiness editor [Seite 59].
Creating Flow Files

Use
If you are developing an application based on the flow file implementation model, you must create a flow file for each HTML Business template that requires a dialog flow definition, and define the flow logic. To do this, you use the HTML Business editor.

Prerequisites
You have created the associated HTML Business template.

Procedure
To create a flow file for an HTML Business template:
1. If the HTML Business template for which you want to generate a flow file is not already open in the main work area, open it by double-clicking the file name in the project workspace.
   The SAP@Web Studio opens the template in the main work area.
2. Choose Add Flow File or Edit → Add Flow File.
   The SAP@Web Studio creates and opens a flow file with initial `<flow>` and closing `</flow>` tags.
   You can toggle between the HTML Business code defined in the HTML Business template and the flow logic defined in the flow file by using the HTML Source and Flow Source buttons located in the status bar of the HTML Business editor.
3. Enter the flow logic between the `<flow>` and `</flow>` tags.
4. Save your work.

Result
The SAP@Web Studio creates a flow file called `<template>.flow` and attaches it to the HTML Business template.
Flow files are not displayed separately in the project workspace, but you can always distinguish whether a flow file exists for a template by looking at the template icon:

<table>
<thead>
<tr>
<th>Template Icon</th>
<th>Status</th>
</tr>
</thead>
<tbody>
<tr>
<td>![template flow file]</td>
<td>Template has flow file.</td>
</tr>
<tr>
<td>![template no flow file]</td>
<td>Template has no flow file.</td>
</tr>
</tbody>
</table>
Creating Language Resources

Unless you are working with language-specific HTML Business templates, you should create at least one language resource file for the language in which the application is being developed.

If you are developing applications using the Web transactions implementation model, it is best to create language resources with the SAP@Web Studio resource wizard, but you can also create the files manually [Seite 57].

If you are developing applications using the flow file implementation model, you must create the files manually [Seite 57].

Prerequisites

There must be a user in the R/3 System which your service is using.
You must first create a service file [Seite 43] and at least one HTML Business template [Seite 48].

Procedure

To create a language resource file using the resource wizard:
1. Choose File → New and select the File Wizards tab.
2. Select Resource Wizard.
3. Ensure that Add to Project is selected, and that the project directory name is correct.
4. Choose OK.
5. Enter values for service, theme, and language, and choose Next.
If you define service-specific logon information, remember that the language key must be:

- One character for R/3 releases prior to 4.0 (for example, e for English)
- Two characters for R/3 releases from 4.0 (for example, en for English)

You get a dialog window that lists all the language resource files that exist for this service.

6. If language resource files exist for the service and you want to import the language resource keys from these, check the relevant boxes.

7. Choose Next.


**Result**

The SAP@Web Studio creates a language resource file called `<service>_<language>.htrc` and displays it in the project workspace under the current service and theme.

You can edit this language resource file in the grid control editor [Seite 74].
Creating ITS Themes

Themes are instances of Internet Transaction Server (ITS) services that differ only in their look and feel (appearance, graphics, layout or language).

- Each service can be divided into one or more themes.
- Each theme has its own set of HTMLBusiness templates, flow files (if applicable), language resources, and Multipurpose Internet Mail Extension (MIME) files, but the functionality of the service is identical. In the SAP@Web Studio, themes are stored in subdirectories of the service directory.

When creating HTMLBusiness templates, you can accept the default theme 99 proposed by the SAP@Web Studio or rename the theme. If necessary, you can create further themes for your service and even define a default theme:

- To create a theme for a service, you must create a subdirectory for all the HTMLBusiness templates and other files associated with the theme. This subdirectory should have the same name as the theme.
- To define a default theme for a service, you add a `~theme` parameter to the service file and specify a value. This default can be overridden at runtime.

Procedure

The procedures in the table below describe how to:

- Create a theme for a service.
- Specify a default theme for a service.

<table>
<thead>
<tr>
<th>Function</th>
<th>Procedure</th>
</tr>
</thead>
<tbody>
<tr>
<td>Create a theme</td>
<td>1. Choose the File View tab, and select the service.</td>
</tr>
<tr>
<td></td>
<td>2. Choose Project → Add to project → Theme, or press the right mouse button and choose Insert → Theme.</td>
</tr>
<tr>
<td></td>
<td>The SAP@Web Studio creates a new directory in the File View, and places the cursor in the directory name box.</td>
</tr>
<tr>
<td></td>
<td>3. Enter a name for the directory and press Enter.</td>
</tr>
<tr>
<td></td>
<td>If you intend to use ITS source control to manage your files,</td>
</tr>
<tr>
<td></td>
<td>choose a theme name that is no more than two characters long.</td>
</tr>
<tr>
<td>Specify a default theme</td>
<td>1. Choose the File View and double-click on the service.</td>
</tr>
<tr>
<td></td>
<td>The SAP@Web Studio displays the service file in the main work area.</td>
</tr>
<tr>
<td></td>
<td>2. Find the <code>~theme</code> parameter in the file.</td>
</tr>
<tr>
<td></td>
<td>- If the parameter already exists, select it.</td>
</tr>
<tr>
<td></td>
<td>- If the parameter does not exist:</td>
</tr>
<tr>
<td></td>
<td>a. Place the cursor in the bottom (blank) field in the Name column.</td>
</tr>
<tr>
<td></td>
<td>b. Enter <code>~theme</code> in this field.</td>
</tr>
<tr>
<td></td>
<td>3. Click on the Value part of the same row, and enter a two-character theme name.</td>
</tr>
</tbody>
</table>
Creating ITS Themes

Result
When you have created a new theme, you can add HTML Business templates and other ITS files, or copy existing files from another theme to the new theme.
Creating ITS Files Manually

When developing Internet applications driven by the Internet Transaction Server (ITS), you can create some of the files either with the SAP@Web Studio wizards or manually.

- If you are developing an application based on the Web transactions implementation model, it is best to create the service file, HTML\textsuperscript{Business} templates, and language resources with the wizards designed for the purpose, but you can also create the files manually.
- If you are developing an application based on the flow file implementation model, you must create the files manually. \textbf{Do not use the wizards.}

When you create ITS files manually, the SAP@Web Studio creates an empty file according to the information you provide. If, for example, you are creating HTML\textsuperscript{Business} templates, it does not log on to the R/3 System, and does not generate HTML\textsuperscript{Business} code.

\textbf{Procedure}

To create a service, HTML\textsuperscript{Business} template, or language resource manually:

1. Choose \textit{File} $\rightarrow$ \textit{New} and select the \textit{Files} tab.
2. Select the type of file you want to create.
3. Enter the service name, and all other required fields.
   - To add the file to a project:
     a. Ensure that \textit{Add to Project} is selected.
     b. If you want to specify a project other than that displayed in the \textit{Location} field, enter the desired project or browse to find a project.
   - To add the file to a non-project location:
     a. Deselect \textit{Add to project}.
     b. If you want to specify a project other than that displayed in the \textit{Location} field, enter the desired project or browse to find a project.
4. Choose \textit{OK}.

\textbf{Result}

The SAP@Web Studio creates the file and opens it in the relevant editor in the main work area:

- Service files and language resource files are opened in the grid control editor [Seite 74].
- HTML\textsuperscript{Business} templates are opened in the HTMLBusiness editor [Seite 59].
ITS Service Maintenance

The SAP@Web Studio provides two editors to maintain the Internet Transaction Server (ITS) files that make up services:

- **HTML Business editor**
- **Grid control editor**

**HTML Business editor**

You use this editor to:

- Enter and test HTML Business and standard HTML code in HTML Business templates.
- Create flow files.
- Edit flow logic.
- Preview the HTML Business template layout.
- View context data values.

**Grid control editor**

You use this editor to:

- Define service parameters in service files.
- Define language-independent text in language resource files.
- Maintain context data values.

💡

The commands used in the HTML Business editor and the grid control editor require a file window to be open and selected. If no file window is open, the command is either unavailable, or applies to items selected in the File View.

For detailed information about using the HTML Business editor, see [HTMLBusiness Editor [Seite 59]].
For detailed information about using the grid control editor, see [Grid Control Editor [Seite 74]].
HTML Business Editor

You use the HTML Business editor to enter and test HTML Business and standard HTML code in HTML Business templates.

The HTML Business editor can run in four modes:

- **HTML Source**
  
  This mode displays the HTML Business code that defines the presentation.
  
  You use this mode to enter and maintain standard HTML and HTML Business code.
  
  For clarity, you can set specific parts of the code - standard HTML, comments, or HTML Business – to be displayed in a different color.
  
  The editor mode is the default mode.

- **Flow Source**
  
  This mode displays the XML code that defines the flow logic in the flow file attached to the HTML Business template.

- **Context Data**
  
  The context grid allows you to view data values generated for each HTML Business template at runtime. To generate data values, you can choose to record the session when you test a service.

- **Preview**
  
  The preview displays your template as it will look when displayed as an HTML page in the user’s Web browser, but without the data values supplied at runtime.
Starting and Stopping the HTML Business Editor

Use

You use these procedures when you want to start or stop the HTML Business editor.

Prerequisites

You must have created at least one service with one or more HTML Business templates in the project workspace.

Procedure

Use the following procedures to start or stop the HTML Business editor for each HTML Business template:

<table>
<thead>
<tr>
<th>Function</th>
<th>Procedure</th>
<th>Result</th>
</tr>
</thead>
</table>
| Start HTML Business editor | 1. Select a service in the project workspace and expand file hierarchy.  
                              2. Select the template you want to edit.  
                              3. Double-click or press right mouse button and choose Open.          | The HTML Business editor opens the template in HTML Source mode in the main work area.  
                                                                                   In the main work area, you can have any number of windows open at once. |
| Stop HTML Business editor   | 1. Select template you wish to close in the work area.  
Using the HTML\textsuperscript{Business} Editor

The HTML\textsuperscript{Business} editor offers most standard text editing functions.

Prerequisites

You must have started the HTML\textsuperscript{Business} editor for the HTML\textsuperscript{Business} template you want to edit.

Procedure

The standard functions provided by the HTML\textsuperscript{Business} editor are summarized in the following table:

<table>
<thead>
<tr>
<th>Operation</th>
<th>Procedure</th>
<th>Result/Remarks</th>
</tr>
</thead>
<tbody>
<tr>
<td>Select text</td>
<td>Drag mouse over text.</td>
<td></td>
</tr>
<tr>
<td>Select a word</td>
<td>Double-click on word</td>
<td></td>
</tr>
<tr>
<td>Select all text</td>
<td>1. Position cursor in editor window.</td>
<td>Places selected text in buffer. Text remains in buffer until next cut or copy operation.</td>
</tr>
<tr>
<td></td>
<td>2. Choose Edit $\rightarrow$ Select All.</td>
<td></td>
</tr>
<tr>
<td>Cut text</td>
<td>1. Select text.</td>
<td>Places selected text in buffer. Text remains in buffer until next cut or copy operation.</td>
</tr>
<tr>
<td></td>
<td>2. Choose Cut or Edit $\rightarrow$ Cut.</td>
<td></td>
</tr>
<tr>
<td>Copy text</td>
<td>1. Select text.</td>
<td>Places selected text in buffer. Text remains in buffer until next cut or copy operation.</td>
</tr>
<tr>
<td></td>
<td>2. Choose Copy or Edit $\rightarrow$ Copy.</td>
<td></td>
</tr>
<tr>
<td>Paste previously cut or copied text</td>
<td>1. Position cursor where you want to paste text.</td>
<td>Pastes text from buffer. A paste operation does \textbf{not} empty the buffer.</td>
</tr>
<tr>
<td></td>
<td>2. Choose Paste or Edit $\rightarrow$ Paste.</td>
<td></td>
</tr>
<tr>
<td>Delete text</td>
<td>1. Select text.</td>
<td>Deletes selected text.</td>
</tr>
<tr>
<td></td>
<td>2. Choose Delete or Edit $\rightarrow$ Delete.</td>
<td>When you delete text with the \textit{Delete} function, it is gone. To rescue deleted text, choose \textit{Undo} immediately.</td>
</tr>
<tr>
<td>Undo cut, delete, or other operation</td>
<td>Choose Undo or Edit $\rightarrow$ Undo.</td>
<td>Reverses previous operation.</td>
</tr>
<tr>
<td>Find text</td>
<td>1. Choose Find or Edit $\rightarrow$ Find.</td>
<td>Finds next occurrence of string. To find subsequent occurrences, keep choosing \textit{Find Next}. You can search for whole words only, perform a case-sensitive search, and search up or down.</td>
</tr>
<tr>
<td></td>
<td>2. In \textit{Find what} field, enter search string.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>3. Choose \textit{Find Next}.</td>
<td></td>
</tr>
</tbody>
</table>
### Using the HTMLBusiness Editor

| Replace text. | 1. Choose Edit → Replace.  
2. In Replace with field, enter replace string  
3. To replace first occurrence of find string, choose Replace.  
   To replace all occurrences of find string, choose Replace All. | Replaces one occurrence of find string or all occurrences.  
To search for each occurrence of the find string before replacing it, choose Find Next.  
You can search for whole words only, perform a case-sensitive search, and search up or down. |
|---|---|---|
| Set marker(s) | 1. Place the cursor on the desired line in the code.  
2. Select Ctrl + F2 | Sets a marker.  
If you set more than one marker, you can jump between them by pressing F2. |
| Delete marker(s) | 1. Place the cursor on the desired line in the code, where there is already a marker.  
2. Select Ctrl + F2 | Deletes marker. |

💡 If an HTMLBusiness template or other ITS file is open for editing in the main work area, the editor commands apply to the file text.
If no HTMLBusiness template or other ITS file is open in the main work area, the editor commands apply to the file selected in the File View.
Inserting Standard HTML Tags

When using the HTML Business editor to enter standard HTML code, you can:

- Insert HTML tags as you type.
- Insert HTML tag attributes as you type.
- Insert text formatting tags.

Procedure

Inserting Standard HTML Tags as you Type

If you enter < to open a standard HTML tag, the HTML Business editor recognizes this and automatically displays a list of valid tags in a scrollable pop-up window at the cursor position.

As you type, the HTML Business editor finds, and highlights, the nearest alphabetical match in the list of valid tags. You can select the highlighted tag or any other tag in the list.

If you select a tag from the list of valid tags, the HTML Business editor inserts it at the cursor position.

When you enter the closing angle bracket for the tag, the HTML Business editor inserts the closing tag automatically.

Suppose you intend to use the <body> tag in your template.

As soon as you enter < to open the tag, the HTML Business editor displays a list of valid tags. To insert the body tag, double-click on it and you see <body>.

When you enter the closing angle bracket, the HTML Business editor automatically inserts the closing tag </body>.

If the HTML Business editor finds no more matches as you type, the window closes automatically.

To close the pop-up window at any time, click elsewhere on the screen.

Inserting Standard HTML Tag Attributes as you Type

If you enter a valid standard HTML tag followed by a blank, and this tag has attributes, the HTML Business editor recognizes this and automatically displays a list of valid tag attributes in a scrollable pop-up window at the cursor position.

As you type, the HTML Business editor finds, and highlights, the nearest alphabetical match in the list of valid tag attributes. You can select the highlighted tag attribute or any other tag attribute in the list.

If you select a tag attribute from the list of valid tag attributes, the HTML Business editor inserts it at the cursor position.

When you type the closing angle bracket, the HTML Business editor inserts the closing tag automatically.

Suppose you intend to use the tag <select> followed by the tag attribute name.

As soon as you enter a blank after <select, the HTML Business editor displays a list of possible attributes. To insert the attribute, double-click on it and you see <select name="".

When you enter the closing angle bracket, the HTML Business editor automatically inserts the closing tag </select>.
Inserting Standard HTML Tags

If the HTML Business editor finds no match as you type, the window closes automatically. To close the pop-up window at any time, click elsewhere on the screen.

**Inserting Standard HTML Formatting Tags**

To insert standard HTML formatting tags as you type:

1. Either position the cursor or select some existing text
   - If you position the cursor, the HTML Business editor inserts the opening and closing tags there, so you can enter text between them.
   - If you select some existing text, the HTML Business editor inserts the opening and closing tags to enclose the selected text.

2. Either click on the right mouse button and choose HTML Tags or go to the SAP@Web Studio menu bar and choose Editor → HTML Tags.

3. Select the desired tag.

The HTML Business editor inserts the tags as summarized in the table below:

<table>
<thead>
<tr>
<th>HTML Tag</th>
<th>HTML Business Editor Action</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Bold</strong></td>
<td>Inserts the tag <code>&lt;b&gt;&lt;/b&gt;</code> or encloses selected text.</td>
</tr>
<tr>
<td><strong>Italic</strong></td>
<td>Inserts the tag <code>&lt;i&gt;&lt;/i&gt;</code> or encloses selected text.</td>
</tr>
<tr>
<td><strong>Paragraph</strong></td>
<td>Inserts the tag <code>&lt;p&gt;</code> or encloses selected text.</td>
</tr>
<tr>
<td><strong>Break</strong></td>
<td>Inserts the tag <code>&lt;b&gt;</code> or encloses selected text.</td>
</tr>
<tr>
<td><strong>Font dialog</strong></td>
<td>Opens a font dialog, where you can define a font, color, and size tags.</td>
</tr>
<tr>
<td></td>
<td>Converts your selections to HTML and either inserts it at the cursor position or encloses the selected text.</td>
</tr>
<tr>
<td></td>
<td>Example of inserted HTML: <code>&lt;font face=&quot;Arial&quot; color=&quot;Green&quot; size=&quot;3&quot;&gt;&lt;/font&gt;</code></td>
</tr>
<tr>
<td><strong>Header 1</strong></td>
<td>Inserts the tag <code>&lt;h1&gt;&lt;/h1&gt;</code> or encloses selected text.</td>
</tr>
<tr>
<td><strong>Header 2</strong></td>
<td>Inserts the tag <code>&lt;h2&gt;&lt;/h2&gt;</code> or encloses selected text.</td>
</tr>
<tr>
<td><strong>Header 3</strong></td>
<td>Inserts the tag <code>&lt;h3&gt;&lt;/h3&gt;</code> or encloses selected text.</td>
</tr>
<tr>
<td><strong>Header 4</strong></td>
<td>Inserts the tag <code>&lt;h4&gt;&lt;/h4&gt;</code> or encloses selected text.</td>
</tr>
<tr>
<td><strong>Header 5</strong></td>
<td>Inserts the tag <code>&lt;h5&gt;&lt;/h5&gt;</code> or encloses selected text.</td>
</tr>
</tbody>
</table>
Inserting Standard HTML Tags

| Header 6 | Inserts the tag `<h6>` or encloses selected text. |

**Result**

In all cases, the SAP@Web Studio inserts the desired HTML tag.
Entering HTML Business Code

Use
When entering HTML Business code in the HTML Business editor, you can:

- Highlight HTML Business elements.
- Get parameter information on HTML Business keywords and functions.
- Display the definition of HTML Business functions.
- Insert HTML Business tags.
- Insert language resource keys as you type.

Prerequisites
You must have started the HTML Business editor for the template you want to edit.

Procedure

Highlighting HTML Business Elements
When you are editing an HTML Business template, the HTML Business editor recognizes and highlights HTML Business elements.

The following table lists HTML Business elements and their default colors:

<table>
<thead>
<tr>
<th>HTML Business Element</th>
<th>Default Color</th>
</tr>
</thead>
<tbody>
<tr>
<td>General HTML Business</td>
<td>Blue</td>
</tr>
<tr>
<td>HTML Business keywords</td>
<td>Brown</td>
</tr>
<tr>
<td>Constants</td>
<td>Black</td>
</tr>
<tr>
<td>Language resource keys</td>
<td>Pink</td>
</tr>
<tr>
<td>HTML Business comments</td>
<td>Gray</td>
</tr>
<tr>
<td>Developer comments</td>
<td>Green</td>
</tr>
</tbody>
</table>

You can either use the default colors or define your own colors [Seite 30].

Getting Parameter Information on HTML Business Keywords and Functions
You can get full parameter information for any HTML Business keyword or function as you type. To do this, select the text, click the right mouse button, and choose Parameter information.

Suppose you want to select parameter information for the wgateURL function.
If you select the text, you see the following information:

wgateURL(parameter = expression {,parameter = expression})

Displaying HTML Business Function Definitions
If you write your own HTML Business function, you can go to the definition of that function wherever it is located (it may reside in a different file).

To do this, select the text, click the right mouse button, and choose Goto definition.

If you change the definition of a self-written HTML Business function:
The parameter information is automatically updated and can be viewed from wherever you select **Goto definition**.

The function is no longer recognized and is not highlighted. However, the HTMLBusiness editor and all editor instances, which include the current file, recognize the new function created by the modification. This also applies to **include** statements.

**Inserting HTMLBusiness Tags as you Type**

When you are editing HTMLBusiness templates, you can insert HTMLBusiness tags as you type:

1. Either position the cursor or select some existing text.
   - If you position the cursor, the opening and closing tags are inserted there, so you can enter text between them.
   - If you select some existing text, the opening and closing tags are inserted to enclose the selected text.
2. Either click on the right mouse button and choose **HTMLBusiness Tags** or go to the SAP@Web Studio menu bar and choose **Editor → HTMLBusiness Tags**.
3. Select the desired tag.

   The HTML editor inserts the tags as summarized in the table below:

<table>
<thead>
<tr>
<th>HTML Tag</th>
<th>HTMLBusiness Editor Action</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Backticks</strong></td>
<td>Inserts two backticks ``` or encloses selected text.</td>
</tr>
<tr>
<td><strong>Server Tags</strong></td>
<td>Inserts the tag <code>&lt;server&gt;&lt;/server&gt;</code> or encloses selected text.</td>
</tr>
<tr>
<td><strong>MimeUrl</strong></td>
<td>Inserts the tag <code>mimeURL()</code> or encloses selected text in the parentheses.</td>
</tr>
</tbody>
</table>

**Inserting Language Resource Keys as you Type**

If you are editing an HTMLBusiness template and you enter `#` to denote a language resource key, the HTMLBusiness editor recognizes this and automatically displays a list of language resource keys already defined for the currently active service (and theme, if relevant) in a scrollable pop-up window at the cursor position.

As you type, the HTMLBusiness editor finds, and highlights, the nearest alphabetical match in the list of language resource keys. You can select the highlighted key or any other key in the list.

If you select a key from the list of keys, the HTMLBusiness editor inserts it at the cursor position.

When you enter the closing angle bracket for the tag, the HTMLBusiness editor inserts the closing tag automatically.

If the HTMLBusiness editor finds no more matches as you type, the window closes automatically.

To close the pop-up window at any time, click elsewhere on the screen.

If you update a language resource file by adding or deleting language resource keys, this is immediately reflected in the pop-up list that appears in the editor.
Maintaining Custom Tag Lists

To support the editing of HTML Business templates in the HTML Business editor, the SAP@Web Studio allows you to maintain your own list of frequently used tags, so that you can access them faster. When you first start the SAP@Web Studio after installation, the HTML Tags window contains a list of standard HTML tags in a layout that resembles a file manager. You can modify the list – and the window itself - to meet your own requirements.

You can:
- Insert tags from the HTML Tags window directly into HTML Business templates.
- Add new tags.
- Change, rename, and delete existing tags.
- Create new folders to store groups of tags.
- Move tags between folders.
- Display or hide the HTML Tags window.

Procedure

Depending on what you want to do, follow the procedure in the table below:

<table>
<thead>
<tr>
<th>To</th>
<th>Procedure</th>
<th>Result</th>
</tr>
</thead>
</table>
| Insert a tag into an HTML Business template. | 1. In HTML Business template, either position cursor or select text.  
2. In HTML Tags window, double-click tag you want to insert. | The SAP@Web Studio inserts the tag at the cursor position or encloses the selected text. |
| Create a tag. | 1. Position cursor somewhere in HTML Tags window.  
2. Select right mouse button.  
3. Choose Add Tag.  
4. In Custom Tag Name field, enter a name for your tag.  
5. In Start Text box, specify a start text for your tag.  
6. In End Text box, specify an end text for your tag.  
7. Choose OK. | The SAP@Web Studio adds the tag to the list in the HTML Tags window. |
| Change a tag. | 1. Select tag.  
2. Select right mouse button  
3. Choose Edit Tag.  
4. Change tag as required.  
5. Choose OK. | The SAP@Web Studio applies your changes. |
### Maintaining Custom Tag Lists

<table>
<thead>
<tr>
<th>Task</th>
<th>Steps</th>
<th>Description</th>
</tr>
</thead>
</table>
| Rename a tag                | 1. Select tag.  
2. Select right mouse button.  
3. Choose *Rename*.  
4. Specify new name by overwriting old name.  
5. Press *Enter*. | The SAP@Web Studio renames the tag.                    |
| Delete a tag                | 1. Select tag.  
2. Select right mouse button.  
3. Choose *Delete*. | The SAP@Web Studio deletes the tag immediately.        |
| Create a folder             | 1. Select an existing folder.  
2. Select right mouse button.  
3. Choose *Create Folder*.  
4. Enter a name for the folder.  
5. Press *Enter*. | The SAP@Web Studio creates a new folder.               |
| Display or hide HTML Tags window | Choose Editor → View HTML Tags. | The SAP@Web Studio displays or hides the HTML Tags window below the project workspace. |
Inserting Graphics into HTML Business Templates

When you are editing HTML Business templates in the HTML Business editor, you can insert graphic and other Multipurpose Internet Mail Extension (MIME) files directly by drag and drop.

**Procedure**

1. In the SAP@Web Studio’s project workspace, select the *File View*.
2. Select the file that contains the graphic you want to insert.
3. Drag the file to the HTML Business editor window and drop it at the desired location in the HTML Business code.

**Result**

The HTML Business editor automatically generates the necessary HTML Business code (and the required parameters).

If you select the image file *help.gif* and drag it to an English template under theme 99 in a service called *myservice*, the HTML Business editor generates the following code in the template:

```
mimeURL(~service="myservice",~theme="99",~language="en",~name ="help.gif")
```
Checking HTML Business Syntax

When you have designed your HTML Business template, you can use the HTML Business editor to check the syntax of HTML Business code.

Procedure
To perform a syntax check on the HTML Business code in an HTML Business template:

1. Choose Syntax Check or Tools → Syntax Checker.
   The SAP@Web Studio lists all syntax errors in the lower window.
2. Double-click on an error message.

Result
The SAP@Web Studio places the cursor where the error occurred in the HTML Business code.

This function checks only syntax errors in HTML Business code, that is, only errors found in those statements enclosed in backticks.
Errors in standard HTML code are not detected.
Previewing HTML Business Template Layout

When you have designed your HTML Business template and performed a syntax check, you can use the HTML Business editor’s preview mode to check how the template will look when displayed as an HTML page in the user’s Web browser.

Procedure
To preview the layout of an HTML Business template
1. If the HTML Business template is not already open in the main work area, open it by double-clicking the file name in the project workspace.

   The SAP@Web Studio opens the template in the main work area.

2. At the bottom of the template window, choose Preview.

Result
The SAP@Web Studio displays the HTML Business template as it will look in the user’s Web browser.

Since the preview mode previews the layout of HTML Business templates without connecting to an R/3 System, templates that rely on R/3 texts for their appearance may look incomplete.

The preview mode is only a dummy display, so pushbuttons and other actions have no effect.
Viewing Context Data Values

When you test a service by running it in the SAP@Web Studio, you can record the operation, so that the data values generated for each HTML Business template at runtime are stored in a context file. You can then view these values in the HTML Business editor’s, and edit them in the grid control editor.

The data values generated may be runtime variables, R/3 texts used to label buttons, or other screen objects.

Prerequisites

You must run the service and record the operation for at least one HTML Business template.

Procedure

To view data values for an HTML Business template:

1. Start the HTML Business editor by selecting the HTML Business template.
2. At the bottom of the template window, choose Context Data.

Result

The HTML Business editor switches to the context grid where you see a list of generated data values.

For information about how to edit these values in the grid control editor, see Using the Grid Control Editor [Seite 75].
Grid Control Editor

You use the grid control editor to:

- Display and edit service files
- Display and edit language resource files
- Edit context data values
  
  These values are generated at runtime, stored in the context data file, and displayed in the HTML Business editor’s context grid.

The grid control editor displays the information in each of these files as a list of name/value pairs in individual cells. The value of the name component for each pair must be unique. To edit the file, you can tab from one cell to the next.
Using the Grid Control Editor

Use
This procedure describes how to use the functions in the grid control editor to maintain:

- Context data values
  These values are generated at runtime, stored in the context data file, and displayed in the HTML Business editor's Context Data mode.
- Service files
- Language resource files

Prerequisites
You need to display the file you want to maintain.

Procedure
The functions available in the grid control editor are similar, regardless of the type of file you are editing. They are summarized in the following table:

<table>
<thead>
<tr>
<th>Function</th>
<th>To</th>
<th>Procedure</th>
</tr>
</thead>
<tbody>
<tr>
<td>Layout definition</td>
<td>Sort column entries.</td>
<td>Click column header.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>To reverse the order, click column header again.</td>
</tr>
<tr>
<td></td>
<td>Resize columns.</td>
<td>Place cursor between columns until you see a different symbol, and drag in either direction until you achieve the required column sizes.</td>
</tr>
<tr>
<td>Navigation</td>
<td>Move from cell to cell.</td>
<td>To go to next cell, use <strong>TAB</strong> key.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>To go to previous cell, use <strong>SHIFT+TAB</strong>.</td>
</tr>
<tr>
<td></td>
<td>Move from line to line.</td>
<td>Use arrow keys.</td>
</tr>
<tr>
<td></td>
<td>Scroll file up/down.</td>
<td>Use vertical scroll bar or page up/down key.</td>
</tr>
<tr>
<td></td>
<td>Scroll file across.</td>
<td>Use horizontal scroll bar.</td>
</tr>
<tr>
<td>Maintenance functions</td>
<td>Edit a cell.</td>
<td>Select cell by double-clicking. This opens an edit box where you can enter data. If the new text is longer than the old text, the cell expands automatically.</td>
</tr>
<tr>
<td></td>
<td>Create an entry.</td>
<td>If the file contains blank lines, double-click on a line and enter data in box.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>If the file contains no blank lines, choose <strong>Insert</strong> → <strong>New String</strong> and enter data in box.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>The cell expands automatically.</td>
</tr>
<tr>
<td>Copy</td>
<td>1. Select cell by double-clicking.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>2. Select right mouse button.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>3. Choose <strong>Copy</strong> in pop-up window.</td>
<td>You can also use keyboard operations.</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
### Using the Grid Control Editor

<table>
<thead>
<tr>
<th>Action</th>
<th>Steps</th>
</tr>
</thead>
</table>
| Cut    | 1. Select cell by double-clicking.  
2. Select right mouse button.  
3. Choose **Cut** in pop-up window.  
You can also use keyboard operations. |
| Paste  | 1. Select cell by double-clicking.  
2. Select right mouse button.  
3. Choose **Paste** in pop-up window.  
You can also use keyboard operations. |
| Delete | 1. Select cell by double-clicking.  
2. Select right mouse button.  
3. Choose **Delete** in pop-up window.  
You can also use keyboard operations. |
| Undo   | 1. Select cell by double-clicking.  
2. Select right mouse button.  
3. Choose **Undo** in pop-up window.  
You can also use keyboard operations. |
Editing Service and Language Resource Files

You edit service files and language resource files in the grid control editor.

When you open a service file or a language resource file in the grid control editor, you see the defined service parameters as name-value pairs. The procedure for editing these files is similar.

Procedure

Opening a file for maintenance in the grid control editor depends on the file type. Use the appropriate procedure in the following table:

<table>
<thead>
<tr>
<th>To</th>
<th>Procedure</th>
</tr>
</thead>
<tbody>
<tr>
<td>Display/edit service files</td>
<td>1. Select the service file in the SAP@Web Studio’s project workspace.</td>
</tr>
<tr>
<td></td>
<td>2. Double-click.</td>
</tr>
<tr>
<td>Display/edit language resource files</td>
<td>1. Select the language resource file in the SAP@Web Studio’s project workspace.</td>
</tr>
<tr>
<td></td>
<td>2. Double-click.</td>
</tr>
<tr>
<td>Edit context data values for HTML Business templates</td>
<td>1. Select the template file in the SAP@Web Studio’s project workspace.</td>
</tr>
<tr>
<td></td>
<td>You see the HTML Business editor.</td>
</tr>
<tr>
<td></td>
<td>2. Double-click.</td>
</tr>
<tr>
<td></td>
<td>3. At the bottom of the template window, choose Context Grid.</td>
</tr>
</tbody>
</table>

Result

In each case, the SAP@Web Studio displays the grid control editor.

For information about basic grid control editor functions, see Using the Grid Control Editor [Seite 75].
ITS File Management

Purpose
This process describes how to manage Internet Transaction Server (ITS) files in the SAP@Web Studio project workspace. These ITS files include services, HTML Business templates, flow files, language resources, and Multipurpose Internet Mail Extension (MIME) files. Flow files are attached to HTML Business templates and are not displayed separately in the project workspace.

Process Flow
In the project workspace, the SAP@Web Studio provides basic file management functions that allow you to:

- [Open][Seite 79] files
- [Save][Seite 80] files
- [Print][Seite 81] files
- [Close][Seite 82] files
- [Copy and move][Seite 83] files
- [Drag and drop][Seite 84] files
- [Delete][Seite 85] files
Opening ITS Files
You can open Internet Transaction Server (ITS) files from one of the views in the project workspace, or from a dialog box (if the file is not displayed in project workspace).

Prerequisites
You have already opened a project.

Procedure
To open a file displayed in the File View of the project workspace:
1. In the project hierarchy, navigate to the file you want to open.
2. Double-click on the file name.

Result
The SAP@Web Studio calls the appropriate editor for the type of file you are opening, and displays the file in the main work area.
Saving ITS Files

You can save an Internet Transaction Server (ITS) file to its current location, to a different location, or to a new name.

Procedure

If you have multiple files open in the main work area, select the file you want to save. Then, follow the appropriate procedure in the following table:

<table>
<thead>
<tr>
<th>Function</th>
<th>Procedure</th>
</tr>
</thead>
<tbody>
<tr>
<td>Save file to current location</td>
<td>Choose Save or File → Save.</td>
</tr>
<tr>
<td>Save file to different name or</td>
<td>1. Choose File → Save As.</td>
</tr>
<tr>
<td>location</td>
<td>The SAP@Web Studio displays the Save As dialog box where you can specify the drive, directory, and file name for saving your file.</td>
</tr>
<tr>
<td></td>
<td>2. Navigate to the desired directory.</td>
</tr>
<tr>
<td></td>
<td>3. If necessary, enter the new name for the file.</td>
</tr>
<tr>
<td></td>
<td>4. If necessary, select the file type for the file (in the Save as type field). The SAP@Web Studio saves your file with the file extension for the file type you select.</td>
</tr>
</tbody>
</table>

Result

When you save a file to a different name or location, the SAP@Web Studio closes the original file, and opens the new file.

To continue editing the original file, you have to re-open it.
Printing ITS Files
You can print the text of HTML Business templates and flow files.

Procedure
1. In the File View of the project workspace, select and open the HTML Business template.
2. If you want print the flow file, switch to Flow Source in the HTML Business editor.
3. Choose Print or File → Print.

Result
The SAP@Web Studio sends your HTML Business code to the defined printer.
Closing ITS Files

The procedure for closing Internet Transaction Server (ITS) files is the same for all file types.

Procedure
1. Select the window of the file you want to close.
2. Choose File → Close.
   - If you have changed the file contents, but not yet saved the changes, the SAP@Web Studio prompts you to save.
     - To save before closing, choose Yes.
     - To close without saving, choose No.
   - If the file is new, the SAP@Web Studio displays the Save as dialog box.
     - Specify a name for the file and choose OK.

Result
The SAP@Web Studio closes the file.
Copying and Moving ITS Files

You can copy or move Internet Transaction Server (ITS) files either from the file system or from ITS source control.

To copy or move Internet Transaction Server (ITS) files from the file system:

- Add the files [Seite 35] to the project.
- Drag and drop the files [Seite 84].

To copy or move files from ITS source control:

- Import the files [Seite 36] to the project.
Dragging and Dropping ITS Files

You can copy or move files between directories in a project by dragging and dropping them in the project workspace File View.

Procedure

To copy or move files by drag and drop, follow the relevant procedure in the following table:

<table>
<thead>
<tr>
<th>Function</th>
<th>Procedure</th>
<th>Result</th>
</tr>
</thead>
</table>
| Copy file(s). | 1. Select file(s) you want to copy.  
2. Drag file(s) to target directory. | The SAP@Web Studio copies file(s) from source directory to target directory.  
The file(s) now exist(s) in both directories. |
| Move file(s). | 1. Select file(s) you want to move.  
2. Hold down right mouse button and press Shift key  
3. Drag file(s) to target directory  
4. Release right mouse button. | The SAP@Web Studio moves file(s) from source directory to target directory.  
The file(s) now exist(s) only in the target directory. |
Dealing ITS Files

You can either delete Internet Transaction Server (ITS) files, or move them to another directory.

Procedure

<table>
<thead>
<tr>
<th>Function</th>
<th>Procedure</th>
<th>Result</th>
</tr>
</thead>
<tbody>
<tr>
<td>Delete files</td>
<td>1. In the File View, select the file(s) you want to delete.</td>
<td>The SAP@Web Studio deletes the file(s) from your project directory.</td>
</tr>
<tr>
<td></td>
<td>2. Choose Delete or Edit → Delete.</td>
<td>Any files you delete remain in the underlying directory in the file system.</td>
</tr>
<tr>
<td>Move files</td>
<td>1. Select file(s) you want to move.</td>
<td>The SAP@Web Studio moves the selected files from the source directory to the target directory.</td>
</tr>
<tr>
<td></td>
<td>2. Hold down right mouse button and press Shift key.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>3. Drag file(s) to target directory.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>4. Release right mouse button.</td>
<td></td>
</tr>
</tbody>
</table>

When you delete files with the Delete function, the SAP@Web Studio deletes the selected file(s) from the project hierarchy in the project workspace, but not from the hard disk. This prevents data loss resulting from accidental deletion.

If you want files that you delete to be removed from the hard disk at the same time, you must select this option explicitly. In this case, see Specifying a default project directory [Seite 28].

You can also delete files by moving them with the Copy, Cut, and Paste functions in the standard toolbar.

To delete files from a project, always use the functions in the SAP@Web Studio user interface. Deleting files from the underlying project directory may result in inconsistent services.
ITS Service Publishing

Purpose
This process describes how to publish the Internet Transaction Server (ITS) files that make up a service.

Publishing a service means copying the current versions of all the relevant files from the SAP@Web Studio on your PC to the ITS site (that is, to the relevant directories on the ITS server or the Web server). At runtime, the ITS uses these files to generate the HTML pages displayed in the user’s Web browser.

Prerequisites
Before you can publish any files in a service, you must first define an ITS site.

Process Flow
When you publish a service, you need to:
1. Specify the active ITS service [Seite 87]
2. Publish the service to an ITS site.

There are three ways to publish an ITS service. Use the appropriate function in the SAP@Web Studio’s publish toolbar, as listed in the following table:

<table>
<thead>
<tr>
<th>Function</th>
<th>Effect</th>
</tr>
</thead>
<tbody>
<tr>
<td><img src="image" alt="Publish" /></td>
<td>Publish function. Publishes individual files in a service. This function allows you to select the files you want to publish, and specify the ITS site to which they should be published.</td>
</tr>
<tr>
<td><img src="image" alt="Build" /></td>
<td>Build function. Builds the service and publishes all the files. This function publishes all the files that make up a service to the currently active ITS site in a single operation. You cannot select individual files or specify an ITS site.</td>
</tr>
<tr>
<td><img src="image" alt="Go" /></td>
<td>Go function. Builds the service, publishes all the files, and starts the service. This function publishes all the files that make up a service to the currently active ITS site in a single operation, and starts the service at the same time. You cannot select individual files or specify an ITS site.</td>
</tr>
</tbody>
</table>

− If you want to publish individual files in a service, see Publishing ITS Files [Seite 88]. Remember that if you want to test the service, you must first publish all the files.
− If you want publish all the files in a service, see Building ITS Services [Seite 89].
− If you want to publish all the files in a service, and test the service at the same time, see Testing ITS Services [Seite 90].
Specifying the Active ITS Service

Before publishing an Internet Transaction Server (ITS) service, you must specify the currently active service, because the Build and Go functions in the SAP@Web Studio publish toolbar always operate on the currently active service:

- The Build function publishes the service to the active ITS site.
- The Go function publishes the service to the active ITS site, and starts it.

Procedure

To specify the currently active service:

1. Choose Project → Set Active Service.
   - The SAP@Web Studio displays a sub-menu of services in the current project.
2. Select the desired service name.
   - The SAP@Web Studio highlights the selected service in the project workspace File View.

Result

The SAP@Web Studio applies all subsequent Build and Go operations to the currently active service.
Publishing ITS Files

Publishing an Internet Transaction Server (ITS) service means copying the current versions of all the relevant files from the SAP@Web Studio on your PC to the ITS site (that is, to the relevant directories on the ITS server or the Web server). At runtime, the ITS uses these files to generate the HTML pages displayed in the user’s Web browser.

You can either:

- Publish the entire service to the currently active ITS site.
  
  If you want to do this, it is easier to use the Build function, which builds the service and publishes all the files in a single operation. In this case, see Building ITS Services [Seite 89].

- Publish individual files in a service to a specified ITS site.
  
  If you want to do this, follow the procedure below.

Prerequisites

To publish individual ITS files, you must first:

- Define an ITS site [Seite 39].

- Specify the desired active service [Seite 87].
  
  This is important, because the Publish function always publishes selected files to the currently active service.

Procedure

1. In the File View, select the files (or service) you want to publish.

   You see the Publish Files dialog box.

2. Choose Publish Files or Project → Publish Files.

3. Enter the desired site name in the Publish to Site field.

4. Ensure that all the files you want to publish are selected.

5. Choose OK.

   The SAP@Web Studio performs a syntax check on the HTML Business statements in every HTML Business template to be published. If templates contain errors, these are listed in the message area.

   To jump to the location of the error, double-click on an error message.

Result

The SAP@Web Studio copies the files to the ITS server directory and Web server directory, as specified by your site definition.

At the site destination, the SAP@Web Studio compares all file versions, and overwrites any old files with new ones, if they have changed.
Building ITS Services

Building an Internet Transaction Server (ITS) service means publishing all the files by copying the current versions of all the relevant files from the SAP@Web Studio on your PC to the ITS site (that is, to the relevant directories on the ITS server or the Web server). At runtime, the ITS uses these files to generate the HTML pages displayed in the user’s Web browser.

When building a service, the SAP@Web Studio automatically publishes everything. It does not prompt you for file or site information.

If you want to publish individual files in a service, see Publishing ITS Files [Seite 88].

Prerequisites

To build a service, you must first:

- Define an ITS site [Seite 39].
- Specify the desired active service [Seite 87].

This is important, because the Build function always publishes the currently active service.

Procedure

In the publish toolbar, choose Build or Project → Build Service.

Result

The SAP@Web Studio immediately copies all files that make up the service to the ITS server directory and Web server directory, as specified by your ITS site definition.

At the site destination, the SAP@Web Studio compares all file versions, and overwrites any old files with new ones, if they have changed.
Testing ITS Services

To test an Internet Transaction Server (ITS) service, you can simply start it. When you do this, the SAP@Web Studio:

- Publishes the service to the currently active ITS site
- Opens a Web browser (either inside or outside the SAP@Web Studio)
- Starts the service in the Web browser

You can also publish a service without calling it.

Prerequisites

To publish a service, you must first:

- Define an ITS site [Seite 39].
- Specify the desired active service [Seite 87].
  This is important, because the Go function always starts the currently active service.

You do not need to connect to R/3 first.

Procedure

1. Select the service you want to start.
2. Choose choose Go or Project → Start Service.
   The SAP@Web Studio opens a Web browser, starts the service, and displays the first screen of the application as an HTML page.
3. If you want to check the data values generated for each template at runtime, choose Record in the Web browser window.
   You can switch this option on/off for each template.
   To view the recorded data values, see Viewing Context Data Values [Seite 73].

   By default, the Web browser runs outside the SAP@Web Studio. To change this option, see Opening a Web Browser in the SAP@Web Studio [Seite 29].
Using Web Browser Functions

When you start a service in the SAP@Web Studio, a Web browser opens either inside or outside the SAP@Web Studio environment. Web browsers that run inside the SAP@Web Studio have a simplified user interface that hides the browser toolbars and menu bars. Use this procedure to access Web browser functions not visible in the SAP@Web Studio main work area.

Prerequisites
You must set the SAP@Web Studio options to open the Web browser inside the Studio [Seite 29].

Procedure
To use Web browser toolbar functions:
1. Position the mouse in the Web browser window.
2. Click the right mouse button.

Result
You get a menu containing the important functions.
ITS Source Control

Purpose

This process describes how you can use source control in the R/3 System to manage versions of all the Internet Transaction Server (ITS) files that make up a service. When you have created a service and tested it in the SAP@Web Studio, you can store all the files in the R/3 System together with the related ABAP code by adding them to ITS source control. This protects against simultaneous modification of files, because all users have read access to files, but only a single user is allowed to check files out and modify them.

Process Flow

What you can or cannot do with ITS files depends on whether they have been checked into ITS source control and where they currently reside, as summarized in the following table:

<table>
<thead>
<tr>
<th>Current ITS File Location</th>
<th>Possible Action</th>
</tr>
</thead>
<tbody>
<tr>
<td>Not yet in ITS source control</td>
<td>Add the files [Seite 95].</td>
</tr>
<tr>
<td>Checked into ITS source control</td>
<td>Either:</td>
</tr>
<tr>
<td></td>
<td>- Check the files out [Seite 97] for modification.</td>
</tr>
<tr>
<td></td>
<td>Only allowed for single users for update purposes.</td>
</tr>
<tr>
<td></td>
<td>- Get files for read-only access [Seite 100].</td>
</tr>
<tr>
<td></td>
<td>These files cannot be copied back to ITS source</td>
</tr>
<tr>
<td></td>
<td>control.</td>
</tr>
<tr>
<td>Checked out of ITS source control</td>
<td>Check the files in [Seite 98].</td>
</tr>
<tr>
<td></td>
<td>Only the user who has checked the files out can do this.</td>
</tr>
</tbody>
</table>

You can manage source-controlled ITS files in the R/3 System. To do this, log on to the relevant system and choose Tools → Web development → Web object administration.
## Working With Source-Controlled ITS Files

Internet Transaction Server (ITS) source control protects files against simultaneous updates by different users.

### Prerequisites

To access files in ITS source control, you must connect to the R/3 System [Seite 94].

### Procedure

The procedures below summarize what you can do with files in ITS source control:

<table>
<thead>
<tr>
<th>If you want to</th>
<th>Procedure</th>
</tr>
</thead>
</table>
| Add files to ITS source control for the first time           | 1. Add the files [Seite 95].  
|                                                             | 2. Assign the files to a change request [Seite 96] in the R/3 System.                                                                    |
| Update files in ITS source control                          | 1. Check the files out [Seite 97].  
|                                                             | 2. Edit [Seite 58] and test [Seite 90] the files.  
|                                                             | 3. Check the files back in [Seite 98].  
|                                                             | You do not need to reassign the files to the change request. The R/3 System does this automatically.                                  |
| Reassign files in ITS source control to a new change request after transport | Assign the files to a new change request [Seite 96] in the R/3 System.  
|                                                             | After releasing a change request for transport, you must ensure that the files are assigned to a new change request. If you fail to do this, users cannot check the files in or out. |
| Get read-only access to files in ITS source control         | Get the required file(s) [Seite 100].  
|                                                             | This procedure allows you read-only access to ITS files. You cannot copy these files back into source control.                        |

You can manage source-controlled ITS files in the R/3 System. To do this, log on to the relevant system and choose Tools → Web development → Web object administration.
Connecting to the R/3 System

To manage Internet Transaction Server (ITS) files in ITS source control, you must connect to the R/3 System.

Prerequisites
You must have a user in the R/3 System to which you are connecting.

Procedure
To connect to an R/3 System:
   The SAP@Web Studio displays the Select R/3 System dialog box, which displays all the R/3 connections you have defined. You can define more connections using the New button.
2. Select an R/3 System, and choose OK.
3. If not already displayed, enter logon information such as client, user, password, and language.
4. If you want the SAP@Web Studio to remember and reuse your password, select Save Password.
   If you do this, the SAP@Web Studio stores your password internally in encrypted format.
   On subsequent logons, you do not have to enter your password again.
   If you set up the SAP@Web Studio to maintain all other logon information for you, you do not see a logon screen at all.
5. Choose OK.

Result
The SAP@Web Studio logs you on to the R/3 System, and displays all source-controlled services in the Source Control view.
Adding Files to ITS Source Control

When you have created and tested an Internet Transaction Server (ITS) service, you can add the files to ITS source control.

Prerequisites
You must connect to the R/3 System [Seite 94] where you want to add the files.

Procedure
1. Select the file(s) you want to add.
2. Click the right mouse button and choose Add to Source Control.
   You see the Source Control Check In dialog box.
3. Check the files you want, and choose OK.

Result
The SAP@Web Studio adds the files to ITS source control in the R/3 System. Users wishing to modify these files must check them out first.

Now, assign the files to a change request in R/3 [Seite 96]. If you fail to do this, ITS source control will not permit any subsequent check-outs.
Assigning ITS Files to Change Requests in R/3

When you add Internet Transaction Server (ITS) files to ITS source control in the R/3 System for the first time, you must assign them to a change request. At subsequent check-ins, the system remembers the relevant change request and automatically replaces the files. You don’t need to specify a change request each time.

If you release a change request for transport, you must create a new change request and reassign the files to it. If you fail to do this, the files cannot be checked out (or in) by other users.

Prerequisites
You must add the files to ITS source control [Seite 95].

Procedure
To assign new files to a change request in the R/3 System:
1. Choose Tools → Web development → Web object administration.
2. In the Service name field, enter the service name. You can make generic entries here.
3. Choose Execute. You see a list of objects for the service.
4. Select the service and choose Transport. You see the Change Request Query dialog.
5. Enter a valid change request number or create a new one.
   − To display a list of your own existing change requests, choose Own requests.
   − To create a change request, choose Create request.

Result
The R/3 System creates a change request and assigns the files. You can now check the files out [Seite 97] and modify them.

💡 When the R/3 System releases a change request that includes ITS files, it does not check the status of the files. Therefore, it is possible to release a transport for which files are still checked out. If this happens, you cannot check the objects back in until you create a second change request and assign the objects to it.
Checking ITS Files out of Source Control

If you want to modify Internet Transaction Server (ITS) files already added to ITS source control, you must check them out first.

Checking out files means downloading copies of the source-controlled versions from the R/3 System to the SAP@Web Studio.

If you check out files accidentally, or find that you do not want to make any changes, you can also reverse this operation.

Prerequisites
- You must [connect to the R/3 System](#) from which you want to check out the files.
- The files you check out must be [assigned to a change request](#) in the R/3 System.
- The files must not be already checked out to another user.

Procedure

<table>
<thead>
<tr>
<th>To</th>
<th>Procedure</th>
<th>Result</th>
</tr>
</thead>
<tbody>
<tr>
<td>Check files out</td>
<td>1. In the <strong>File View</strong>, select the files you want to check out.</td>
<td>The SAP@Web Studio downloads the files to your working directory, and marks them as checked out to you.</td>
</tr>
<tr>
<td></td>
<td>2. Click the right mouse button and choose <strong>Check Out</strong>.</td>
<td></td>
</tr>
<tr>
<td>Undo file checkout</td>
<td>1. In the <strong>File View</strong>, select the files for which you want to undo the check out.</td>
<td>The SAP@Web Studio reverses the checkout operation.</td>
</tr>
<tr>
<td></td>
<td>2. Click the right mouse button and choose <strong>Undo Check Out</strong>.</td>
<td></td>
</tr>
</tbody>
</table>
Checking ITS Files Into Source Control

When you have finished modifying source-controlled Internet Transaction Server (ITS) files, you must check the new versions back into ITS source control.

Checking files back into ITS source control means uploading them from the SAP@Web Studio to the R/3 System in order to update the source-controlled versions with your latest changes.

Prerequisites
- You must connect to the R/3 System [Seite 94] where you want to check in the files.
- The files must have been previously checked out [Seite 97] to you.

Procedure
To check files back into ITS source control:
1. In the File View, select the files you want to check in.
2. Click the right mouse button and choose Check In.

Result
The SAP@Web Studio copies the files from your working directory to ITS source control.
If you are checking the files back in and they were already assigned to a change request, they are automatically reassigned to the same change request.
Setting Checkin/Checkout Options

Sometimes, you forget and work on Internet Transaction Server (ITS) files that you have not checked out. This can happen if you have checked the files into ITS source control, but the old versions still reside on the your PC.

You can prevent this by setting the appropriate options in the SAP@Web Studio. ITS source control then does one of the following when you check files in:

- Deletes the files from the source directory
- Sets the read-only attribute on files in the source directory

**Procedure**

To set checkin/checkout options when you add files ITS source control or check them back in.

1. Choose *Options → Check In/Out*.
2. Select an option:

<table>
<thead>
<tr>
<th>To</th>
<th>Procedure</th>
</tr>
</thead>
<tbody>
<tr>
<td>Delete files on your PC.</td>
<td>Select <em>Remove local copy after Add or Check In.</em></td>
</tr>
<tr>
<td>Set files to read-only.</td>
<td>Select <em>Use read only flag for files that are not checked out.</em></td>
</tr>
</tbody>
</table>
Getting Read-Only Access to ITS Files

You can always get read-only access to Internet Transaction Server (ITS) files in ITS source control by copying them from the R/3 System. As long as you don’t want to modify them, you don’t need to worry about whether another user has exclusive access.

Prerequisites
- You must connect to the R/3 System [Seite 94] from which you want to get the files.
- You must specify a working directory for the files [Seite 28].

Procedure
To copy files from ITS source control to your PC:
1. In the Source Control tab, select the files you want to copy.
2. Choose Tools → Source Control → Get File(s).

Result
The SAP@Web Studio copies the files from R/3 System to your working directory.