SAP GUI for HTML

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SAP ™

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SAP GUI for HTML

Purpose

The SAP GUI for HTML is an implementation model for SAP Internet applications that dynamically emulates R/3 transaction screens in a Web browser.

Implementation Considerations

If you want to allow users to run R/3 transactions directly from a Web browser, with a graphical user interface similar to that used in the SAP GUI for Windows, and with no additional effort involved, you should install the SAP GUI for HTML.

Integration

The SAP GUI for HTML is one of two models (the other is Web Transactions) for implementing SAP Internet applications that allow users to run R/3 dialog transactions directly from a Web browser.

Both models are driven by the SAP Internet Transaction Server (ITS), but their approach to implementation is different:

- Web Transactions

    This model allows you to convert R/3 transactions to Internet Application Components (IACs) by creating the services, HTML templates (one per R/3 transaction screen), and other ITS files yourself.

    To implement IACs using this model, you have to map each R/3 screen element to HTML manually. For this reason, you need some knowledge of HTML, HTML^{Business}, and, because of the demand for highly interactive HTML pages, scripting languages such as JavaScript. To create services and HTML templates, you also need to know how to use the SAP@Web Studio [Ext.].

- SAP GUI for HTML

    This model automatically maps the screen elements in R/3 transactions to HTML, using HTML^{Business} functions inside the ITS. Each of these HTML^{Business} functions handles a different screen element, and uses the screen attributes to position HTML controls at the same position on the HTML page as on the R/3 screen.

    To implement Internet applications using this model, you need little or no knowledge of HTML, HTML^{Business}, or JavaScript. Also, you do not have to be familiar with the SAP@Web Studio, because the SAP GUI for HTML generates the required templates automatically.

    SAP ships a standard library of HTML^{Business} functions for mapping R/3 screen elements to HTML, but you can modify these without having to make any changes in R/3.

For an overview of the different implementation models, see ITS Implementation Models [Ext.].

To run the SAP GUI for HTML, you must install the SAP Internet Transaction Server (ITS).

Features

Since most users are familiar with Web browsers, and HTML user interfaces have a universally accepted look and feel, the SAP GUI for HTML provides a similar easy-to-use graphical user interface.

If you install the SAP GUI for HTML server software and you have a standard Web browser, you can run R/3 transactions with no additional effort. For each R/3 screen, the SAP GUI for HTML dynamically generates an HTML page with a layout similar to that in the SAP GUI for Windows.

This is how the SAP GUI for HTML displays the Object Navigator of the ABAP Workbench:
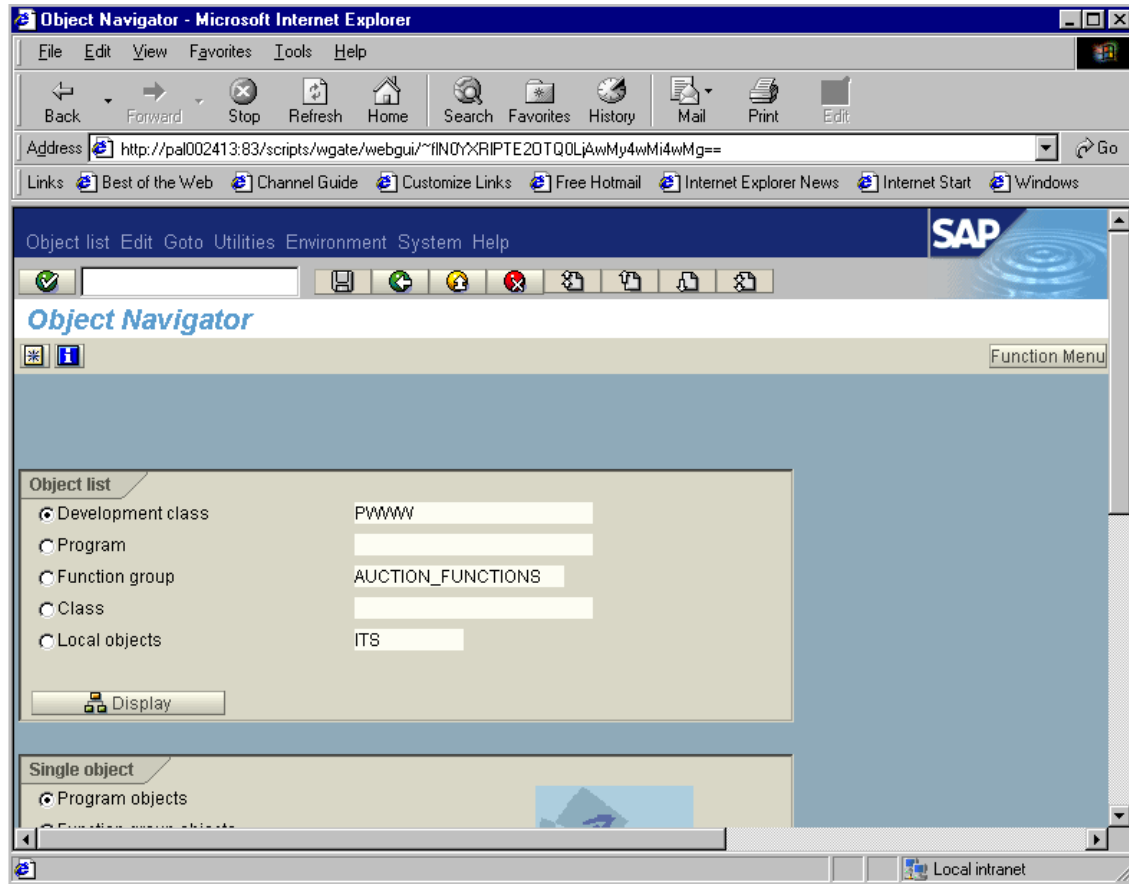
Dynamic emulation of R/3 transaction screens means that:

- Developers can create R/3 dialog transactions in the SAP GUI for Windows as usual, but run them directly in a Web browser, using the SAP GUI for HTML.

   Since the SAP GUI for HTML automatically generates HTML pages, there is no need to create HTML templates manually. As a result, the transactions can be shipped without HTML templates, provided the HTML presentation generated by SAP GUI for HTML is sufficient.

- Users can run R/3 transactions directly from a standard Web browser in the SAP GUI for HTML and get direct access to transactions in R/3 with most of the functionality available in the SAP GUI for Windows.

SAP GUI for HTML

Constraints

The scope of the SAP GUI for HTML is restricted by the inherent limitations of HTML and Web browsers. Although you can map most screen elements used on R/3 screens to HTML, controls with very Windows-oriented features cannot be implemented.

At present, the SAP GUI for HTML runs only on the Microsoft Internet Explorer 4.0 or higher.

SAPGUI for HTML Requirements

Installation Requirements

The installation requirements of the SAP GUI for HTML are minimal:

- On the client side, no additional components are needed

  Most PCs are equipped with standard Web browser software that allows you to run Web applications and display the results in HTML. Also, the SAP GUI for HTML generates HTML pages dynamically.

- On the server side, you need to install the SAP Internet Transaction Server (ITS) in front of the R/3 application server.

  The ITS is the interface between the R/3 System and the Internet.

  To install the ITS, you should follow the setup procedure described in the *SAP@Web Installation Guide* and make sure you install the Internet Application Component (IAC) package required by the SAP GUI for HTML.

  You can find the *SAP@Web Installation Guide* in SAPNet under the alias `instguides`.

System Requirements

To run the ITS (and hence the SAP GUI for HTML), your system must satisfy the following requirements:

Component	Requirement
Operating system	Windows NT 4.0 Server (Service Pack 4)
Web server	Any of the following: • Microsoft Internet Information Server (with ISAPI interface) • Netscape Enterprise Server (with NSAPI interface) • Other Web servers with CGI interface
Web browser	Microsoft Internet Explorer 4.0 (or higher) on Windows 32-bit operating systems.
R/3 System	Release 4.0 or higher.

SAPGUI for HTML Security

Since the SAPGUI for HTML is driven by the SAP Internet Transaction Server (ITS), network security concerns such as firewall support and Web Server security have already been taken into account.

For data transmission, you can use encryption technologies such as HTTPS (Hypertext Transfer Protocol Secure) between the Web browser and the Web server, or SNC (Secure Network Communication) between SAP components, as well as firewall configurations such as SAProuter (specific application level gateway). You can also use all standard R/3 security mechanisms.

- For basic information about ITS security, see the *SAP@Web Installation Guide* in SAPNet under the alias `instguides`.

- For detailed information about ITS security, and all other aspects of security concerning the R/3 System, see the *R/3 Security Guide* in SAPNet under the alias `securityguide`.

  You can find the details about ITS security in *Volume II: R/3 Security Services in Detail, Chapter 2-10: Special Topics*. Under *Protecting Internet Application Components (IACs)*, read the section *A Secure Network Infrastructure for the ITS*.

SAP GUI for HTML Architecture

SAP GUI for HTML Server

The SAP GUI for HTML is driven by the SAP Internet Transaction Server (ITS). The ITS interfaces between a 'stateless' Web server (HTTP protocol), which communicates with Web browsers via single request/response cycles, and a 'stateful' R/3 System (SAP GUI protocol), where running business transactions depends on internal status.

The ITS supports standard Web servers such as the Microsoft Internet Information Server (IIS) and the Netscape Enterprise Server (NES).

The following graphic shows one complete SAP GUI for HTML request/response cycle:

SAP GUI for HTML: Request/Response Cycle
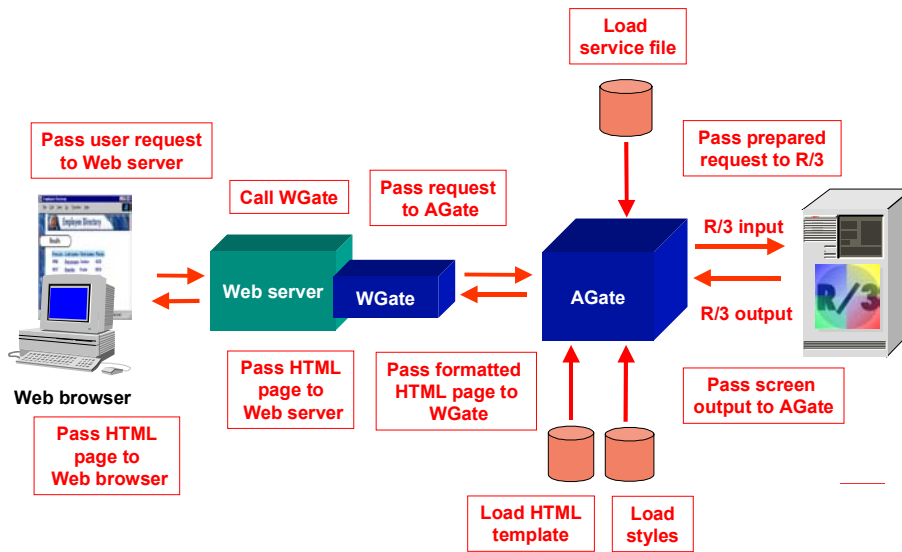
When the user starts a SAP GUI for HTML session from a Web browser, the request/response cycle comprises the following steps:

1. The Web browser passes the request to the Web server.

2. The Web server loads the WGate (Web gateway), which is the Web server extension that links the ITS to the Web server.

3. WGate sends the request data over a TCP/IP connection to the AGate (application gateway), which is the ITS core processing component.

4. AGate loads the appropriate service file and uses the information stored there to establish a connection to the R/3 System.

5. The R/3 System responds by sending the logon screen back to AGate.

SAP GUI for HTML Architecture

6. AGate uses either standard styles or a customer HTML template to generate an HTML page.

    A style is a configurable set of rules that define how each user interface element found on an R/3 transaction screen is mapped to HTML.

7. AGate sends the generated HTML page back to WGate.

8. WGate passes the HTML page to the Web server.

9. The Web server passes the page to the user's Web browser, which displays the result.

In order to maintain the user's context in R/3, AGate maintains the connection to the R/3 System during the entire SAP GUI for HTML session, but the link between the Web browser and the Web server is closed after each request/response cycle.

For every subsequent request after the session has been established, the Web browser uses cookies to send a session identifier with the HTTP request that uniquely identifies the connection to R/3.

In each subsequent dialog step in the Web browser, the user changes a set of screen fields. The Web browser sends these fields to the Web server and WGate, which passes them to AGate. Thanks to the unique session identifier sent in the request data, AGate finds the connection to the R/3 System and sends the changed screen fields to the R/3 System along with an OK code. The R/3 System returns a changed SAP screen that is converted to HTML either by using the standard styles or a customer's own HTML template.

HTML Generation
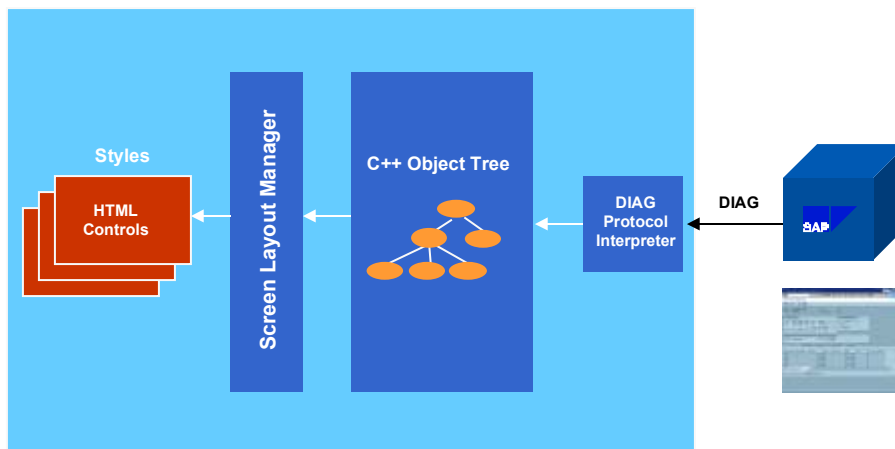
Communication with the R/3 System is handled by the DIAG protocol interpreter, which provides a corresponding C++ object for every dialog object on the transaction screen. These C++ objects are organized in an object tree. Each C++ class provides member functions to access – and change - the specific attributes of the corresponding dialog object.

The SAP GUI for HTML server traverses the object tree and retrieves all dialog object attributes required for the HTML presentation. Object attributes are made available to HTML templates and standard styles in the form `<object>.<attribute>`.
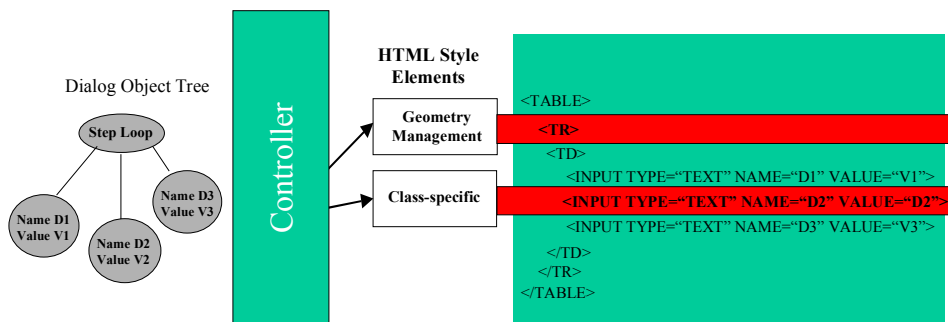
The SAP GUI for HTML controller (screen layout manager) traverses the dialog object tree created by the DIAG protocol interpreter. During this process, the controller applies HTML styles to every object to convert the R/3 screen to an HTML page. These styles are implemented by HTML[Business] functions - for each screen element.

The controller performs the following tasks:

- Selects an HTML style (HTML[Business] function) to create HTML output for each dialog object.

- Performs geometry management, so that the positions of dialog objects on the HTML page are the same as on the R/3 screen.

- Reads the dialog object attributes (e.g. name, size, position, value) and passes them to an HTML style.

HTML Styles

To merge dialog object attributes into otherwise static HTML pages, the SAP GUI for HTML server provides the HTML[Business] interpreter, which evaluates the HTML[Business] functions.

HTML[Business] functions can have any number of parameters.

For example, the function `tablecontrol` has several parameters to configure a table control.

Here is the code for the HTML style `tablecontrol`:

```
function tablecontrol( ~tcname, X,Y,width,height,with_position=1 )

     write("<!-- TableControl " ,~tcname,"-->\n") ;
```

```
        if ( ^~tcname.columnCount == 0 )
              return("") ;
        end ;

        if ( with_position==1 )
<!--          divbegin(x,y,width,height) ;   -->
              write("<div class=\"all\" style=\"overflow:

        auto;width:",~font_size*width,";") ;
              abs_position(X,Y) ;
              abs_size(width,height) ;
              write("\">") ;
        else
              write("<div class=\"all\" style=\"overflow:

        visible;width:",~font_size*width,";") ;
              write("\">") ;
        end ;

        tablecontrol_main(~tcname);

        divend() ;

end ;
```

Every **write** statement sends HTML code to the Web browser.

Basic Screen Elements

The SAP GUI for HTML supports most basic screen elements and simple GUI controls used in the R/3 System, as indicated in the following table:

Screen Element	Supported by SAP GUI for HTML?	Remarks
GUI menus	Yes	
Group boxes	Yes	
Text fields	Yes	
Input fields	Yes	
Radio buttons	Yes	
Checkboxes	Yes	
Pushbuttons	Yes	
Dropdown list boxes	Yes	
Tabstrip controls	Yes	
Table controls	Yes	Although it is possible to resize and move table control columns interactively, this can adversely affect performance. In this case, SAP recommends you to use the ALV grid control [Page 17] instead.
Scrollable screens	Yes	
ABAP list displays	Yes	
Icons	Yes	
Dialog boxes	Yes	
GET CURSOR	Yes	
SET CURSOR	No	
Function key menu	Yes	

Complex Controls

The SAP GUI for HTML supports several complex GUI controls used in the R/3 System, as indicated in the following table:

For information about using these controls in the SAP GUI for HTML, click on each control:

Control	Supported by SAP GUI for HTML?
ALV grid control [Page 17]	Yes
ALV tree control [Page 18]	Yes
Calendar control [Page 19]	Yes
Container control [Page 20]	Yes
Docking control [Page 21]	Yes
HTML control [Page 22]	Yes
Image control [Page 23]	Yes
Search help control [Page 24]	Yes
Splitter control [Page 25]	Yes
Text edit control [Page 26]	Yes
Toolbar control [Page 27]	Yes
Simple tree control [Page 28]	Yes
List tree control [Page 29]	Yes
Column tree control [Page 30]	Yes

ALV Grid Control

Container class	CL_GUI_ALV_GRID / CL_GUI_ALV_GRID_BASE
Purpose	This control (ALV = ABAP List Viewer) displays lists and provides common list operations for user interaction.
SAP GUI for HTML restrictions	In general, supported features include single and double click on cells, current cell definition, single and multiple column selection, XOR single and multiple row selection, XOR single and multiple cell selection, toolbar controls, titlebar, icons/checkboxes in cells, and standard cell colors. For performance reasons certain individual cell-visualization properties may be disabled in production systems handling large amounts of data.

For further information about the ALV grid control, see BC - ALV Grid Control [Ext.].

ALV Tree Control

Container class	CL_GUI_ALV_TREE
Purpose	This control comprises the HTML control [Page 22], the tree control [Page 28], and the toolbar control [Page 27]. See the individual controls for details.
SAP GUI for HTML restrictions	None.

Calendar Control

Container class	CL_GUI_CALENDAR
Purpose	This control provides simple and intuitive interface for displaying, entering or selecting date information. The calendar control can handle different styles, but not all styles are supported (see below).

SAP GUI for HTML restrictions	• Selection of multiple days, weeks, or months is not implemented.
	
	• Initially displayed date range is not increased when you scroll to the top or the bottom.
	
	• At present, the following styles are supported:
	
	   – CNCA_STYLE_V_NAVIGATOR
	      Vertical date navigator style.
	
	   – CNCA_STYLE_H_NAVIGATOR
	      Horizontal date navigator style.
	
	   – CNCA_STYLE_POPUP_NAVIGATOR
	      Vertical date navigator style as popup.

For further information about the calendar control, see SAP Calendar Control [Ext.].

Container Control

Container class	CL_GUI_CUSTOM_CONTAINER
Purpose	This control hosts other controls in a logical collection, and provides a physical area for displaying them.
SAP GUI for HTML restrictions	None.

For further information about the container control, see SAP Container [Ext.].

Docking Control

Container class	CL_GUI_DOCKING_CONTAINER
Purpose	This control allows you to dock one or more areas to the standard R/3 screen (with or without controls).
SAP GUI for HTML restrictions	• The docking control looks best attached to the left of the screen. • The visual design of the docking control is incomplete.

For further information about the docking control, see SAP Docking Container [Ext.].

HTML Control

Container class	CL_GUI_HTML_VIEWER
Purpose	This control displays HTML pages, and graphics or images, that are either stored in the database or generated at runtime.
SAP GUI for HTML restrictions	• Posting data with screen data is not possible. • Posting data in a form using the GET method is not possible.
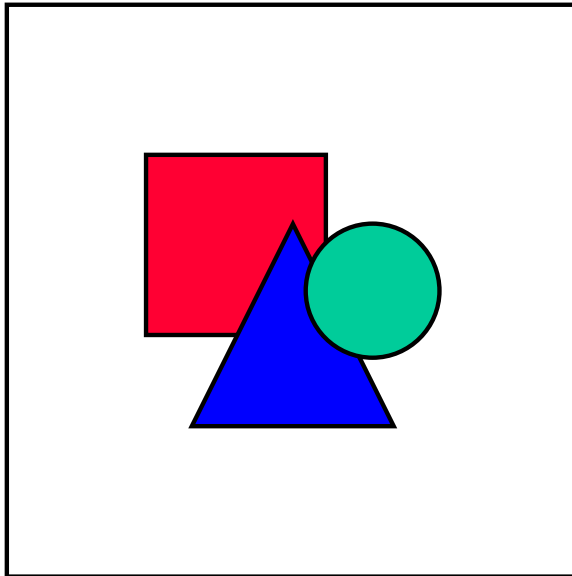
Since use of this control can considerably impair performance of the R/3 System and the generation of HTML pages cannot be customized, SAP recommends that you use HTML^{Business} templates instead.

For further information about the HTML control, see SAP HTML Viewer [Ext.].

Image Control

Container class	CL_GUI_PICTURE
Purpose	This control displays graphics in BMP, JPG, or GIF format.
SAP GUI for HTML restrictions	At present, the following elements are not supported: • SAP GUI icons • Windows bitmaps • Popup menus A double-click event is available only if a single-click event is not registered.

For further information about the image control, see SAP Picture [Ext.].

Search Help Control

Purpose	This control searches for specific business objects.
SAP GUI for HTML restrictions	Recursive search help (that is, nesting search helps within each other) is not supported.

For further information about the search help control, see Search Help Control [Ext.].

Splitter Control

Container class	CL_GUI_SPLITTER_CONTROL
Purpose:	This control allows you to define sub-areas for other container controls in a specific area (docking container, custom container or splitter container) and manages their display as a percentage of the total display area. Sub-areas are separated by a sash (a movable separating bar). You can also nest structures, that is, embed a splitter container in a subarea of another splitter container.
SAP GUI for HTML restrictions	Resizing the splitter areas does not work.

Text Edit Control

Container class	CL_GUI_TEXTEDIT
Purpose	This control allows you to implement an editor for entering and working with text. It can be used as a simple text editor and as an editor for ABAP code.
SAP GUI for HTML restrictions	• Setting and retrieving text selections is not possible under Microsoft Internet Explorer 4, but is supported by Internet Explorer 5. • Setting individual fonts for text parts is not possible. • Setting part of the text to read-only is not.

For further information about the text edit control, see SAP Textedit [Ext.].

Toolbar Control

Container class	CL_GUI_TOOLBAR
Purpose	This control allows you to define additional toolbars. These toolbars can contain pushbuttons, pushbuttons with dropdown menus, menus, separators, pushbutton groups, and toggle buttons.
SAP GUI for HTML restrictions	Static dropdown menus, which are similar to browser dropdown menus, are supported, but currently require a modification to the application code: When defining toolbar buttons, you should reference CL_CTMENU. Try to make use of this feature whenever possible. With this solution, you can still change, disable, or merge menus and menu entries at later PAI / PBO stages. Modifications to the framework guarantee that the data is transferred to the toolbar control.

For further information about the toolbar control, see <u>SAP Toolbar [Ext.]</u>.

Simple Tree Control

Container class	CL_GUI_SIMPLE_TREE
Purpose	This control allows you to display tree structures.
SAP GUI for HTML restrictions	At present, the size of generated HTML pages is very large. This should be reduced in later releases. Multiple selection of nodes does not work. The scroll position (top node) cannot be set and retrieved, nor can it be maintained between browser requests. Drag and drop does not work. The context menu for nodes does not work.

For further information about the calendar control, see SAP Tree [Ext.].

List Tree Control

Container class	CL_GUI_LIST_TREE
Purpose	This control allows you to display tree structures. The tree items can be formatted like an ABAP list.
SAP GUI for HTML restrictions	All the limitations of the simple tree control [Page 28] apply. ABAP list formatting and colors are not yet implemented.

For further information about the calendar control, see SAP Tree [Ext.].

Column Tree Control

Container class	CL_GUI_COLUMN_TREE
Purpose	This control allows you to display tree structures.
	The nodes of a column tree consist of a folder/leaf symbol and items arranged in columns. Items can be text, images, checkboxes, pushbuttons and links.
SAP GUI for HTML restrictions	All limitations of the simple tree control [Page 28] apply.
	The column width cannot be set or changed. It is determined by the widest item in the column.
	The column order cannot be set and changed.
	The hierarchy part of the tree cannot be scrolled separately.

For further information about the calendar control, see SAP Tree [Ext.].

Current Restrictions and Known Bugs

Features not Supported by the SAP GUI for HTML

At present, the SAP GUI for HTML does not support the features listed in the following table:

Feature	Remarks
Office Integration	
ArchiveLink viewer	
Context menu	Not supported due to Web browser contraints.
Business graphics	Applications that start business graphics programs, or use business graphics controls, fail.
File upload/download	
Shortcuts	
Multiple windows	Applications that open parallel SAP GUI windows fail.
Drag and drop	Not supported due to Web browser constraints.
Accelerator keys	Accelerator keys such as `F1`, `F4`, `TAB`, and `ENTER` are predefined by the browser vendor, so they cannot be used in the SAP GUI for HTML. For a list of all accelerator keys in Microsoft Internet Explorer, see the Explorer online help.
SAP front-end printing	

User Session Termination

The SAP GUI for HTML terminates user browser sessions by default if there has been no user action in the system after a certain time.

If this occurs, you may see the following message:

Invalid session
You have tried to use a WWW session that has already been terminated. You should restart your session. If the problem persists you should close the World Wide Web browser and open it again.

To restart a session, just follow the instructions.

Known Bugs

When a GUI menu is opened, active input fields on the screen may overwrite the menu entries.

HTML Styles and HTML Templates

When a user runs an R/3 transaction from a Web browser, the SAP GUI for HTML generates the HTML templates corresponding to the R/3 screens automatically by mapping each R/3 screen element to HTML. This mapping is achieved by a set of general layout styles implemented by HTML[Business] functions.

HTML Styles

The layout of HTML pages generated by the SAP GUI for HTML is similar to the layout of the corresponding R/3 transaction screen.

- If you are satisfied with the layout of the R/3 screen, you can use the standard styles provided by SAP.

- If you want to adjust the layout, you can modify the styles.

    For example, you can change the color of every input field by modifying the inputfield [Page 55] style, or include your company logo in the header by modifying the page_begin [Page 59] style.
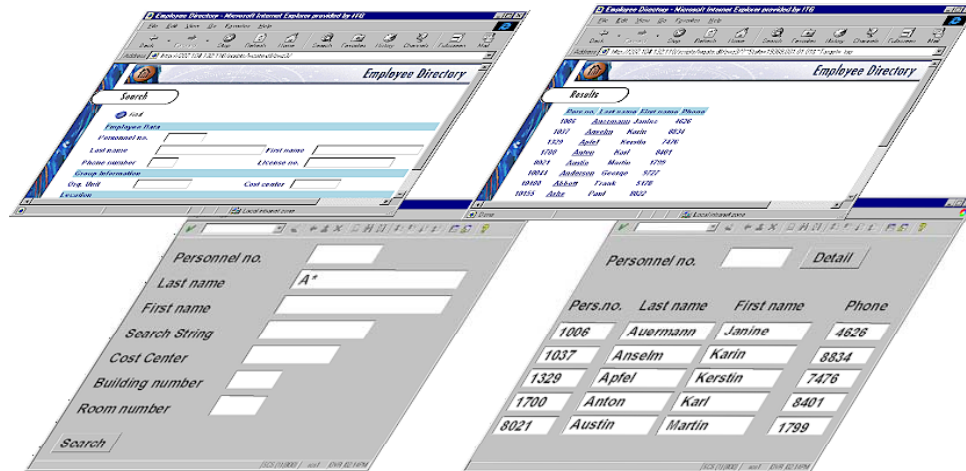
HTML Templates
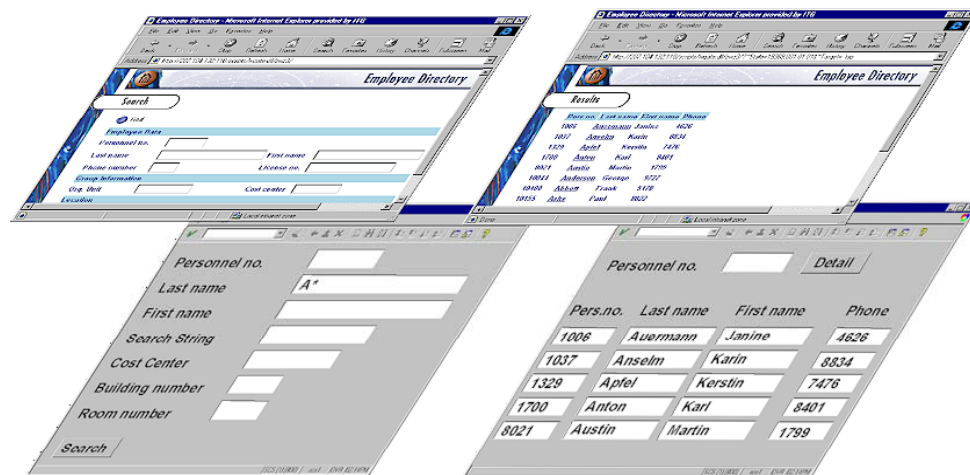
If you use your own HTML templates, the layout of the generated HTML page is no longer directly linked to the layout of the R/3 screen. This means that you can choose which fields from the R/3 screen you want to appear in the page generated by the SAP GUI for HTML.

- If you want to modify the layout of HTML pages generated by the SAP GUI for HTML more radically, and/or enhance the graphical design, you can modify the HTML templates, or create your own.

For example, you may want to suppress fields where users never enter data because the default values are derived from a parameter ID.

HTML Styles or HTML Templates?

There is one essential difference between changing HTML styles and changing HTML templates:

- Changing HTML styles affects the layout of a particular object class in a template.

- Changing HTML templates affects the overall layout of a template.

The following table contrasts use of standard HTML styles by the SAP GUI in HTML with the use of HTML templates:

Feature	Standard HTML Styles (SAP GUI in HTML)	HTML Template
Look and feel	Similar to SAP GUI for Windows, since each screen element is automatically mapped to HTML.	HTML templates allow you to design a different look and feel from the SAP GUI for Windows.
Layout	Simple. Limited number of graphical layout options (for example, font, font size, and background color).	Complex, but more flexible. Extended layout options supported by use of MIME files.
Field mapping	One-to-one. Each R/3 screen field in the SAP GUI for Windows is mapped to a screen field in SAP GUI for HTML.	Flexible. For example, you can hide fields with default values from the Web page.
Special techniques	No special techniques applicable.	You can implement features such as pull-down help texts.
Additional development	No additional development effort required.	Additional development effort required. You have to design and publish HTML templates, and implement additional functions.

HTML Styles and HTML Templates

HTML Style Reference

The HTML style elements used by the SAP GUI for HTML to map R/3 screen elements to HTML pages are implemented by HTML^{Business} functions.

Location

The HTML^{Business} functions that generate screen elements are specifed in the system template file `generatordhtml.html`.

You can find `generatordhtml.html` in either the system template directory `templates`, or a service-specific directory, at one of the following locations:

- `<drive>:\Program Files\SAP\its\2.0\<virtual ITS>\templates\system\pm`

    `generatordhtml.html` can be found here if the service parameter `~runtimeMode` is set to PM (default) in the global service file `global.srvc`.

- `<drive>:\Program Files\SAP\its\2.0\<virtual ITS>\templates\system\dm`

    `generatordhtml.html` can be found here if the service parameter `~runtimeMode` is set to DM in the global service file `global.srvc`.

- `<drive>:\Program Files\SAP\its\2.0\<virtual ITS>\templates\system`

- `<drive>:\Program Files\SAP\its\2.0\<virtual ITS>\services\<service>`

HTML^{Business} Function Description

Most of the HTML^{Business} functions that generate screen elements take an object name `(~object_name)` and an index `(~index)` as parameters.

To access an object attribute, you should use the following statement:

`^~object_name[index].attribute`

HTML^{Business} Function List

The HTML^{Business} functions called from `generatordhtml.html`, or from other functions within `generatordhtml.html`, to generate basic R/3 screen elements are listed below:

HTML Style Reference

To map one screen page to HTML, you need to call these functions in a particular order, as described in .

buttonbar

This function generates the application toolbar. It is called by the function toolbar [Page 67].

container_begin

This function generates a subscreen on the current screen.

container_end

This function generates the closing tags for container_begin [Page 38].

control_begin

This function generates a container for a control.

control_childbegin

This function generates a container for a child control. It is used with hierarchical controls such as the splitter control.

control_childend

This function generates the closing tags for control_childbegin [Page 41].

control_decls

This function generates declarations (for example, hidden fields) used for a control.

control_end

This function generates the closing tags for a control container.

control_init

This function generates a control type. It is called once for each control type on a page.

control_main

This function generates the main part of a control.

dynpromenu

This function generates the menu bar. It is called by toolbar [Page 67].

dynpro_begin

This function generates the HTML elements used to map the user area of an R/3 screen.

dynpro_end

This function generates the closing tags for elements created by <u>dynpro_begin [Page 48]</u>.

form_begin

This function generates the HTML form and a set of hidden fields used to store system variables.

The SAP GUI for HTML document contains one single form that is used to pass user input from the Web browser back to the R/3 System.

form_end

This function generates the closing tags for elements created in form_begin [Page 50].

You can use this function to display the message line using the `~messageLine` system variable.

frame_begin

This function generates a container for a group box.

frame_end

This function generates the closing tags for the elements created by frame_begin [Page 52].

frame_main

This function generates a group box header.

inputfield

This function generates a text entry field.

label

This function generates a read-only (output) field.

line

This function generates the lines between labels and input fields.

list

This function generates the HTML tags required to display an ABAP report.

page_begin

This function generates the HTML head and body sections, as well as definitions like syle sheets and JavaScripts, that are used for the whole page.

Typically, the top of each generated HTML page is a banner (for example, a company logo).

This function also uses the `~windowTitle` system variable to set the title of the browser to the title of the SAP GUI window.

page_end

This function generates the closing tags for elements created in page_begin [Page 59].

stdtoolbar

This function generates the standard toolbar buttons. It is called by toolbar [Page 67].

tablecontrol

This function generates a table control.

tabstrip_begin

This function generates a container for a tabstrip control and the tabs.

tabstrip_end

This function generates the closing tags for the elements created by tabstrip_begin [Page 63].

tabstrippage_begin

This function generates a container for a tabstrip control page.

tabstrippage_end

This function generates the closing tags for the elements created by <u>tabstrippage_begin [Page 65]</u>.

toolbar

This function generates the area of the screen located above the user area. This area usually contains the menu bar (GUI menu), the standard toolbar (including the command field and buttons such as *Back*, *Exit*, *Cancel*, and *Save*) and the application toolbar.

To generate all these elements, the function calls the following functions:

- **dynpromenu**

    This function generates the menu bar.

- **stdtoolbar**

    This function generates the standard toolbar buttons

- **buttonbar**

    This function generates the application toolbar

Mapping R/3 Screens to HTML Pages

To generate a complete mapping of an R/3 screen, as displayed in the SAP GUI for Windows, to an HTML page, as displayed in the SAP GUI for HTML, the HTML[Business] functions are called in the following order:

```
page_begin
       …
       toolbar
       …
               dynpromenu
               …
               stdtoolbar
               …
               buttonbar
               …
       form_begin
       …
               dynpro_begin
               …
               <!--- Build hierarchy of user interface elements ---;
               …
               dynpro_end
               …
       form_end
       …
page_end
```

All these functions are called directly in the system template file `generatordhtml.html`, with the exception of `dynpromenu`, `stdtoolbar`, and `buttonbar`, which is called by the function `toolbar`.