Book **7**

Setting Up A Development Environment

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Setting Up A Development Environment

There are momentary hundreds of different HTTP servers, a number of compilers and thousands of design tools for web design and web application development. We decided to use the Microsoft Internet Information Server as an HTTP server for Intel and Windows

What to Read in This Part

Fehler! Es wurden keine Einträge für das Inhaltsverzeichnis gefunden.

1 Installing Internet Information Server for VB

A web server is a simple listener agent that receives requests from a client, interprets them and presents a matching result. There are a variety of web server applications on the market, which are more or less alike.

Simple web servers available for windows have a typical size of several hundred Kilobytes, so they are pretty small. Their size may vary with the range of features and degree of flexibility offered.

We will give some hints on how to install a web server application on a typical Windows NT/2000 or Windows 98/Millenium Workstation. Our preferred web server for development is the Microsoft Personal Web Server that comes free with Microsoft FrontPage.

1.1 Prerequisites for Webserver Installation

You can install a web server on your workstation. To install it on an NT computer, you need to have NT Local Administrator rights, which are necessary to modify any registry entries and to install new DLLs. To make the web server function, your computer needs to have TCP/IP protocol installed.

However, for developing web server applications your computer need not be really attached to the network. In this case your computer will be client and server at the same time. If your computer is already part of a functioning network, then you do not need to do anything else. If you can login locally to R/3, this is certainly the case.

1.2 Installing the Internet Information Server

Now you can install your web server using the installation and set-up procedure provided by the web server software. The installation will install the web server program files and create a set-up configuration, which defines a certain directory on your computer as the web server root directory. Personal Web server together with FrontPage creates a directory called *C:\WWWROOT* where the drive letter may vary. Personal web server is started as a front-end application and will show a small icon in the Windows system tray (the right end of the task bar), called the *web manager*, where you can modify some parameters of the software. Older versions of the Personal Web server will also show in the Windows *Control Panel* where you can do additional set-up.

1.3 Testing Your Installation

After a successful installation you can test the web server by calling it via your web browser. Start the Internet Explorer on the server and enter as URL, the IP address of your local computer, which is always "127.0.0.1". This will display the default page of your web server.

Testing Internet Information Server Installation

Microsoft® Internet Information Server is part of the free Windows NT Options Pack. It can also be downloaded free of charge from the microsoft.com web site

Personal Webserver PSA supports full power of IIS including ASP

The Microsoft Internet Information Server is a product that comes free of charge with the Windows NT Options pack. It consists of FrontPage server extensions and the Personal Webserver. To install it, you need to follow the instructions that come with the IIS. If the installation has been successful you should see the default welcome screen, when you call the site http://localhost.

The Personal Webserver is a simple web server with the same capabilities as the whole Internet Information Server. The only limitation is that it is not designed to handle multiple requests at the same time. This is fine for development purposes. It naturally supports Active Server Pages ASP to develop server-side Visual Basic Scripts.

Figure 1:   Calling the http://localhost web site should display the IIS default.htm page

Adresse	localhost

⇨

Figure 2:   Example IIS default.htm page of Personal Webserver

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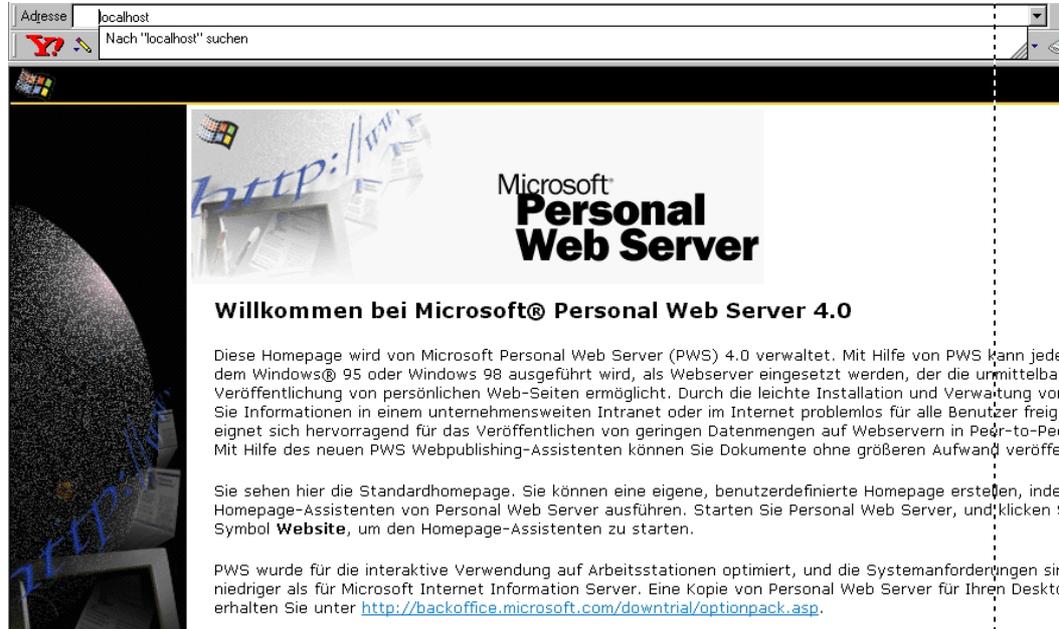
Test the URL	Calling your browser
http://localhost	Enter "localhost" or "127.0.0.1" or your computer's IP address as URL

Figure 3:   Entering the URL http://localhost should display the web server welcome screen

⇨

The browser will then display the web server default or welcome page if everything is installed correctly. The   web server administrator can set the welcome screen to any arbitrary HTML document.

Figure 4:   Entering the URL http://localhost should display the web server welcome screen

1.4 Troubleshooting hints

Self-pinging your server

IP address 127.0.0.1 or DNS-name *localhost* are always assigned to the local computer. If there are problems try the following from the command line:

```
ping -a 127.0.0.1
```

If this fails, your TCP/IP protocol is probably incorrectly installed. Our advice is that rebooting is always worth a try or reinstall TCP/IP.

Ping the localhost

Try the following command now to see whether your local DNS lookup works or not.

```
ping localhost
```

If this steps fails but ping 127.0.0.1 worked fine, your local `hosts.sam` file is corrupt or missing. In Windows the file `lmhosts.sam` or `hosts.sam` must be present in the Windows directory (the directory where Windows is installed to). A typical content is the following:

Listing 1:   Contents of file lmhosts.sam

```
# Copyright (c) 1998 Microsoft Corp.
# 102.54.94.97 rhino.acme.com # source server
# 38.25.63.10 x.acme.com # x client host
127.0.0.1 localhost
```

Check your IP setting with winipcfg

There is a standard program delivered with all Windows releases `winipcfg`. This displays your current IP settings. Check your network installation for eventual conflicts or inconsistencies.

2 Installing Tomcat Web Server for Java

Tomcat

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3 Installing Multiple Web Servers Simultaneously

Theoretically an unlimited number of web servers can coexist simultaneously on the same physical server, provided they are installed to different IP ports. E.g. Internet Information Server and Jakarta Tomcat can both reside peacefully on the same physical server. In fact they can even collaborate successfully with each other. In making them work together, you can make use of the strength of COM-based Windows applications and the portability of Java servlets.

3.1 Assigning Unique Ports to the Server

After installing the two servers you have to assign them two differing ports to listen to. E.g. you can make IIS to listen to standard port 8080 and assign port 8081 to Tomcat.

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3.2 Redirecting Pages From IIS to Tomcat

IIS can redirect an HTTP request to any arbitrary URL. The URL may have a port specified and be thus treated by a different HTTP server.

4 Installing The RFC Development Kit

R/3 communicates with the PC via a specially defined TCP/IP transport layer. The specification of this RFC transport is proprietary to SAP. In order to access R/3 via RFC you have to use the object libraries that come with the SAPGUI and are automatically installed with a full SAPGUI installation.

Chapter Contents

4.1 Installation Of The RFC Libraries

Install The SAP R/3 RFC Developer Kit With The SAPGUI

R/3 implements *CORBA*® compliant object models. These are defined to be used as an interface shim between the external program and R/3. You must go via these objects to communicate with R/3. The objects for NT clients are implemented in a couple of DLLs that need to be registered with the WINDOWS registry.

> Note: Install the complete SAPGUI on the computer that will connect to R/3 via RFC. This will install all necessary objects on the PC and take care of registry entries.

We recommend doing a complete installation of the SAPGUI on the computer that you have chosen to connect to R/3. If you plan a connection to the Internet this will be the computer that executes the Internet Information Server. The RFC SDK set-up will install all the object libraries on the PC and register them appropriately with the Windows registry. Of course you could selectively copy the DLLs and OCX files which you need. The difficult part is registering the objects. If you are really bothered by the unused objects you can delete them from the registry later.

4.2 Why Do I Have To Register My Objects?

The WINDOWS registry is the central directory for the WINDOWS run-time processor where it finds the information required to execute and dynamically link programs. All WINDOWS compliant programs are required to register with the WINDOWS registry and access all DLLs via the object class identifier found there. You should not be mislead into thinking that WINDOWS can execute programs which are not or are only partly registered. This is due to the WINDOWS DOS compatibility modus; i.e. WINDOWS can execute programs that have been written for the old versions of WINDOWS 3.11 and older.

What Will Be In The Registry?

The installation will create an own category SAP in the software section. Here the SAPGUI and the RFC objects will find the necessary information, e.g. the path names of the directories. The run time information of the objects is written as a multitude of entries into the `HKEY_CLASSES_ROOT` section of the registry, one entry per object.

Where Do The Files Go?

The SAPGUI installation copies the productive DLLs and OCX files to the WINDOWS common files directory. This is a WINDOWS predefined directory where applications put public files that are designed to be accessed by multithreading applications. The name of this directory may vary depending on language and set-up settings. If you made an English language installation using the default parameters and installation directories the common file directory is to be found in
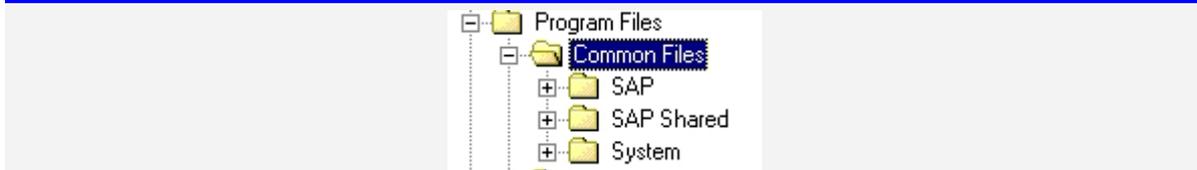
```
C:\Program Files\Common Files\SAP
```
The full path name is specified in the registry in the `software -> SAP ->`

`SAP Shared` key entry.

Figure 5:   Sample Common Files location of an English WINDOWS default installation

```
┌─ Program Files
   └─ Common Files
      ├─ SAP
      ├─ SAP Shared
      └─ System
```

⇨

Figure 6:   SAPGUI installation creates a sub-section the software section of the registry

```
┌─ HKEY_LOCAL_MACHINE
   ├─ Config
   ├─ Driver
   ├─ Enum
   ├─ Hardware
   ├─ Network
   ├─ Security
   └─ Software
      ├─ AASP
      ├─ Adaptec
      ├─ Adobe
      └─ SAP
```

⇨
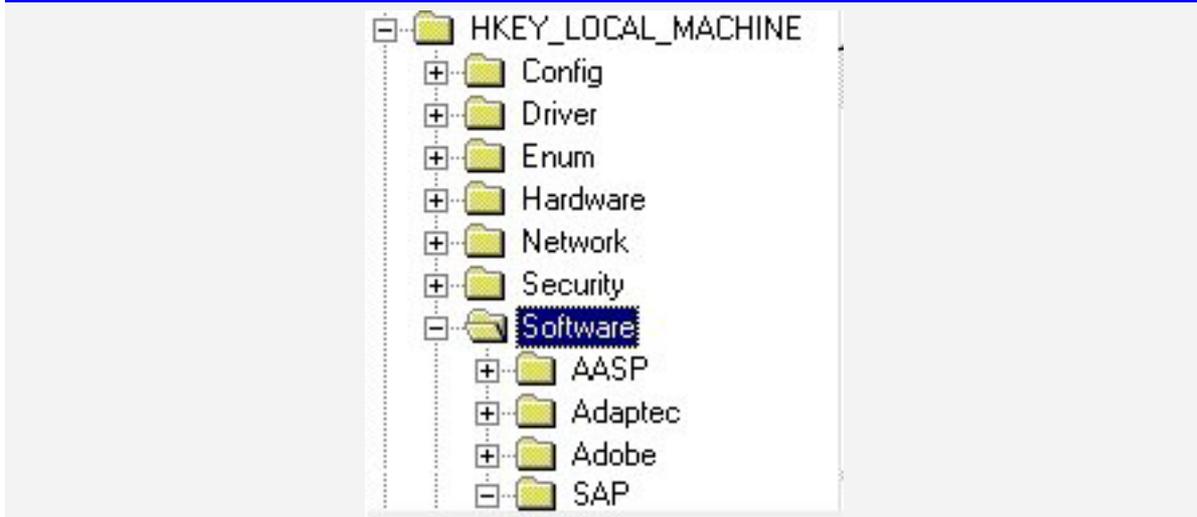
Figure 7:   SAP category in the software section of the registry

```
┌─ SAP
   ├─ Converter
   ├─ General
   ├─ ITSConverter
   ├─ MTS
   ├─ OfficeIntegration
   ├─ RFC
   ├─ SAP Client
   ├─ SAP Shared
   ├─ SAPGUI
   └─ SEM
```

Name	Wert
(Standard)	(Wert nicht gesetzt)
SAPDestDir	"C:\SAPpc"
SAPSysDir	"C:\Programme\Gemeinsar
SAPWorkDir	"C:\SAPworkdir"

⇨
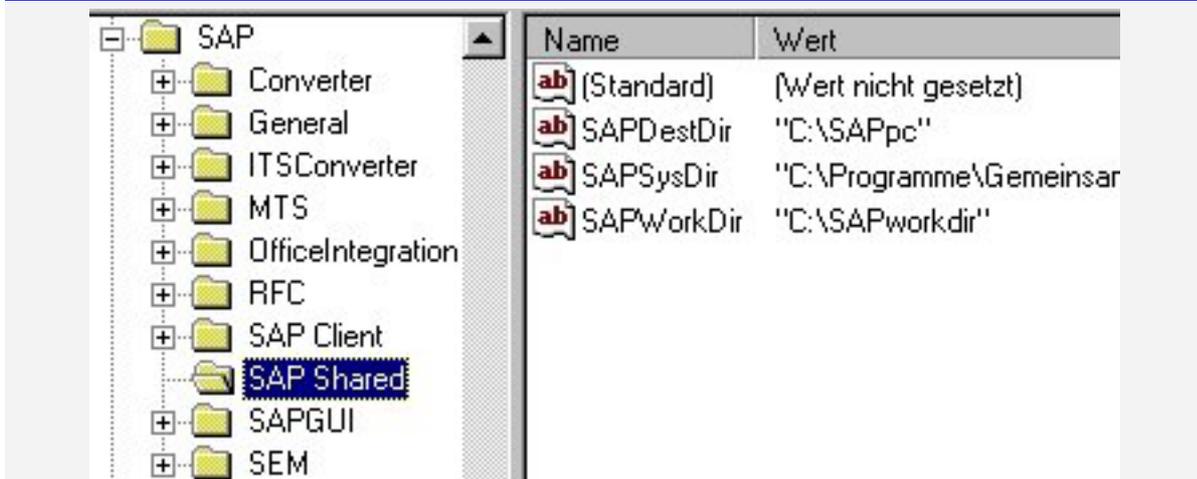
Figure 8:   Registry Entries for RFC Developer Kit

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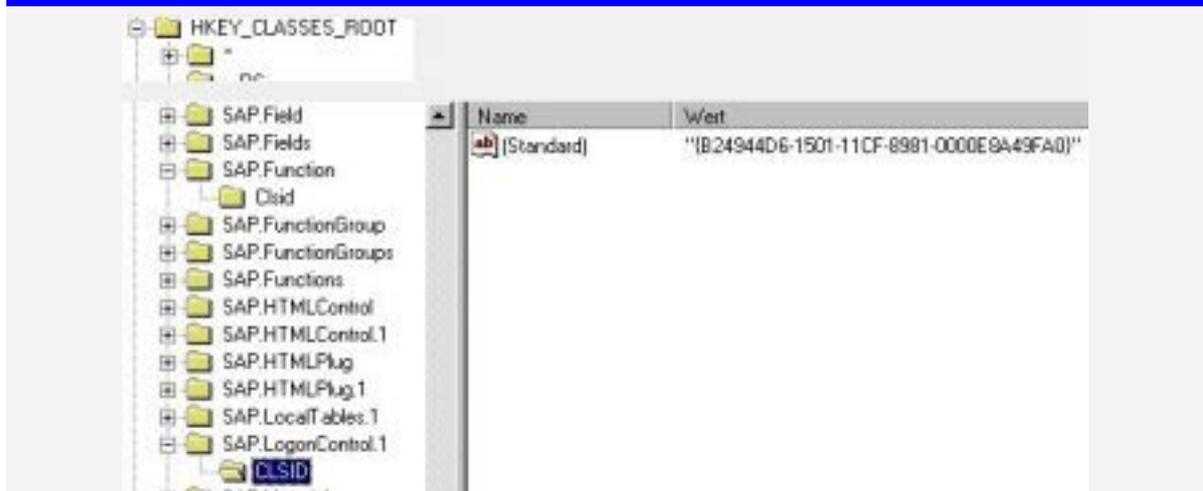
4.3 Telling VB Where to Find the OCX Controls

VB uses a complicated strategy to locate the OCX and DLLs that are used in a project. The safest way to ensure that VB knows the OCX you want to use is to define it explicitly to the IDE.

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A typical Visual Basic program makes intensive use of class libraries that are stored in DLL files or as OCX-controls. Although the object classes contained therein are generally well registered in the WINDOWS® registry, Visual Basic does not recognize them automatically unless it is told where to look for them.

In the menu entry "Reference" of the Visual Basic IDE you can tell which DLLs or OCX files should be actively searched for classes and objects, when a program is compiled or executed.

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SAP's OCX controls are usually stored in the WINDOWS® common files directory, which exists in every proper WINDOWS® installation. In a standard US-English installation the directory would be named by default as:

```
\Program Files\Common Files\Sap\System
```

However, the path to common files is a registry option, so it can be changed after installation. Non-English installations especially, rename the directory to a name in the local language.
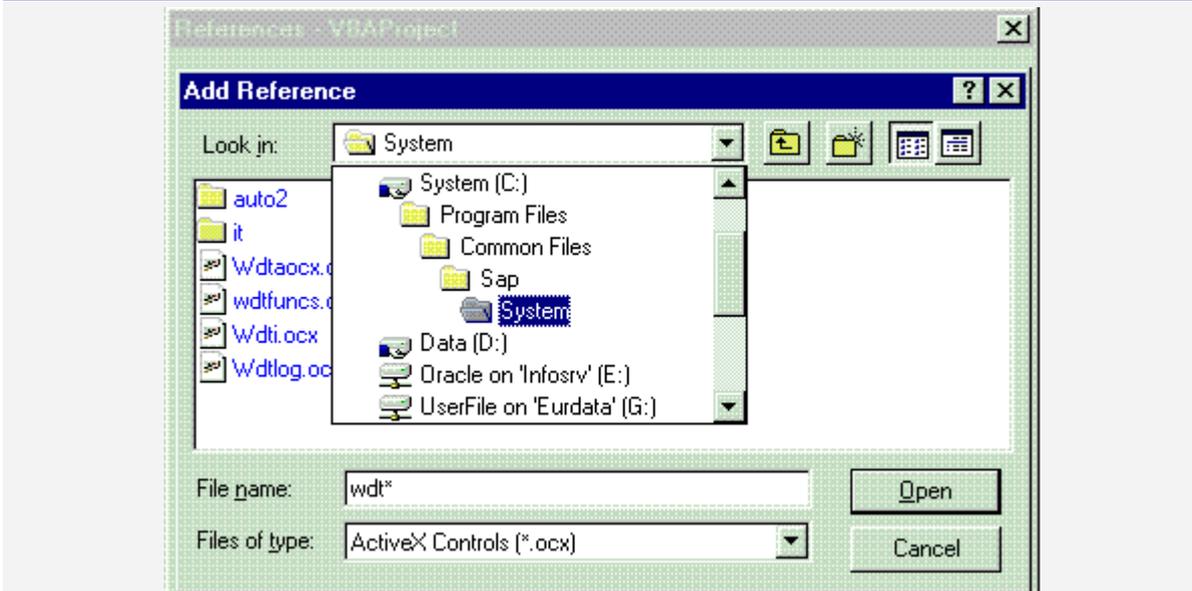
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VBA lets you set references to type libraries

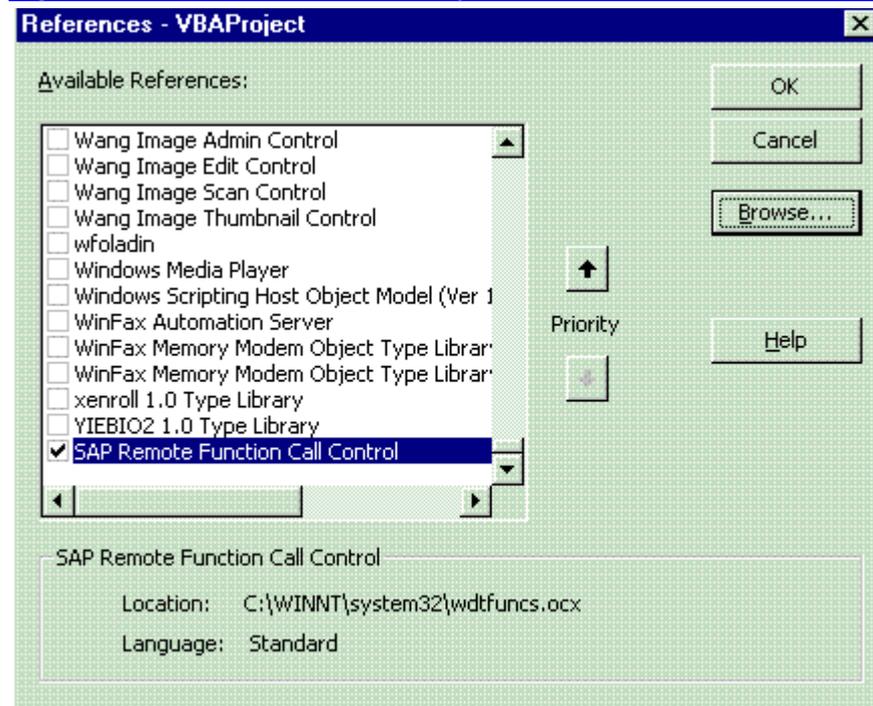**Figure 9:   VB lets you specify the libraries to use during development**
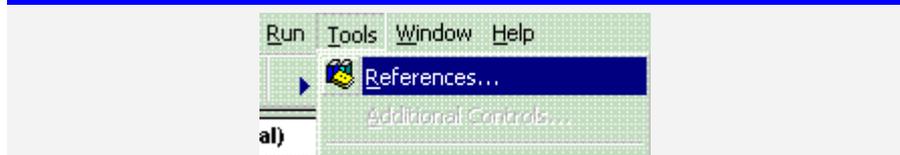
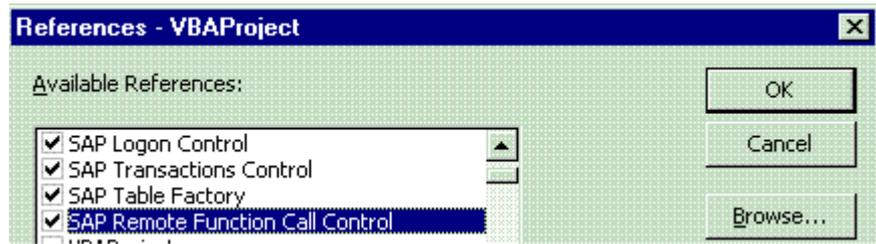SAP OCX controls are installed to the Windows Common Files directory

Figure 10: The OCX controls are usually found in the location
\Program Files\Common Files\Sap\System .

SAP Logon, RFC and Table Factory controls should always be referenced

Figure 11: These are the libraries that you need at least

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5 Casabac Web Design Tool For R/3