



Entire Screen Builder

Installation

Version 4.3.1



This document applies to Entire Screen Builder Version 4.3.1 and to all subsequent releases.

Specifications contained herein are subject to change and these changes will be reported in subsequent release notes or new editions.

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Installation

This section explains how to install Entire Screen Builder.

You can install Entire Screen Builder either on a Windows or UNIX system. Please note that the full functionality is only available on Windows systems while there are several restrictions (platform availability, functionality) for UNIX systems.

The installation program installs and preconfigures the Entire Screen Builder Server on a Windows or UNIX machine. It also copies the client software for the different viewers to subdirectories on the server machine. See the GUI Viewers and Terminal Viewer documentation for information on the viewers and their distribution to the client workstations.

If the host system on which you run your Natural applications is a UNIX or OpenVMS system, additional software for Entire Screen Builder has to be installed on the host (i.e. a daemon which starts a Natural program that is linked with an Entire Screen Builder library).

If the host system on which you run your applications is a mainframe, you only have to install Entire Screen Builder. No additional software has to be installed on the host system.

The following topics provide all information required for installing Entire Screen Builder:

- Supported Communication Methods
- Possible Setup Scenarios
- Installing Entire Screen Builder on a PC
- Installing the Entire Screen Builder Server in the UNIX Environment
- Installing Entire Screen Builder on Natural UNIX Hosts
- Installing Entire Screen Builder on Natural OpenVMS Hosts
- HTTP Tunneling

Supported Communication Methods

Entire Screen Builder supports the following communication methods:

- Telnet 3270(E)
 - BS2000 TCP/IP
 - NetWare for SAA
 - Open Systems
-

Telnet 3270(E)

Entire Screen Builder supports TCP/IP TN3270 and TN3270E communication.

You can use any network adapter that is supported by any TCP/IP stack software which provides the WinSock 2 interface.

The TCP/IP stack software must be installed and active in order to activate terminal emulation.

This mode supports extended attribute bytes (EABs).

See also: Communication Properties for Telnet TN3270 in the Administration documentation.

BS2000 TCP/IP

This communication method emulates the standard 9750 terminal which is a 24 by 80 characters display without colors. Local printing is not supported. In addition to the standard 9750 terminal features, the following features of the 975x family are supported:

- 80 FTZ per line
- 20 P-keys
- 24 F-keys
- reverse video
- full 9756-type memory support for P-Registers

Entire Screen Builder supports TCP/IP communication with BS2000 hosts with any network adapter that is supported by any TCP/IP stack software which provides the WinSock 2 interface.

The prerequisite on the host side is the communication subsystem BCAM version V.11, which establishes the connection with the host (available within the Siemens product DCAM).

No third-party software is needed for Entire Screen Builder to activate terminal emulation.

To make the terminal emulation key settings similar to those on a BS2000 keyboard, use the predefined key scheme BS2KEYS1.

See also: Communication Properties for BS2000 in the Administration documentation.

NetWare for SAA

To use Entire Screen Builder with Novell NetWare for SAA Version 1.3 to 4.0, you must have access to the SAA gateway via IPX/SPX or TCP/IP.

No third-party software is required for Entire Screen Builder to activate terminal emulation.

This mode supports extended attribute bytes (EABs).



This communication method is not supported by the Solaris version of the Entire Screen Builder Server.

See also: Communication Properties for NWSAA in the Administration documentation.

Open Systems

This is a proprietary protocol for communicating with Natural applications on UNIX and OpenVMS hosts.

You can use any network adapter that is supported by any TCP/IP stack software which provides the WinSock 2 interface.

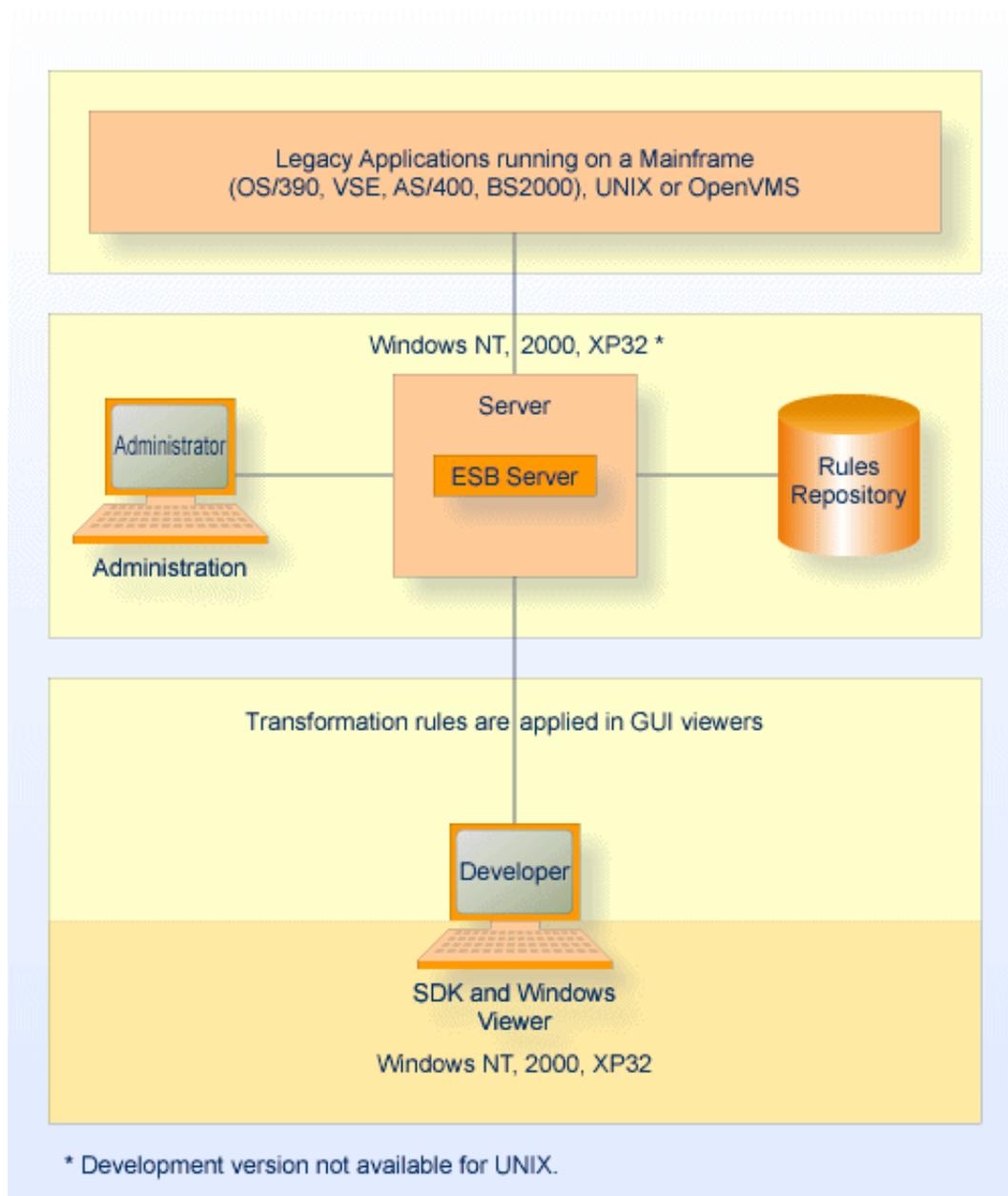
See also: Communication Properties for Open Systems in the Administration documentation.

Possible Setup Scenarios

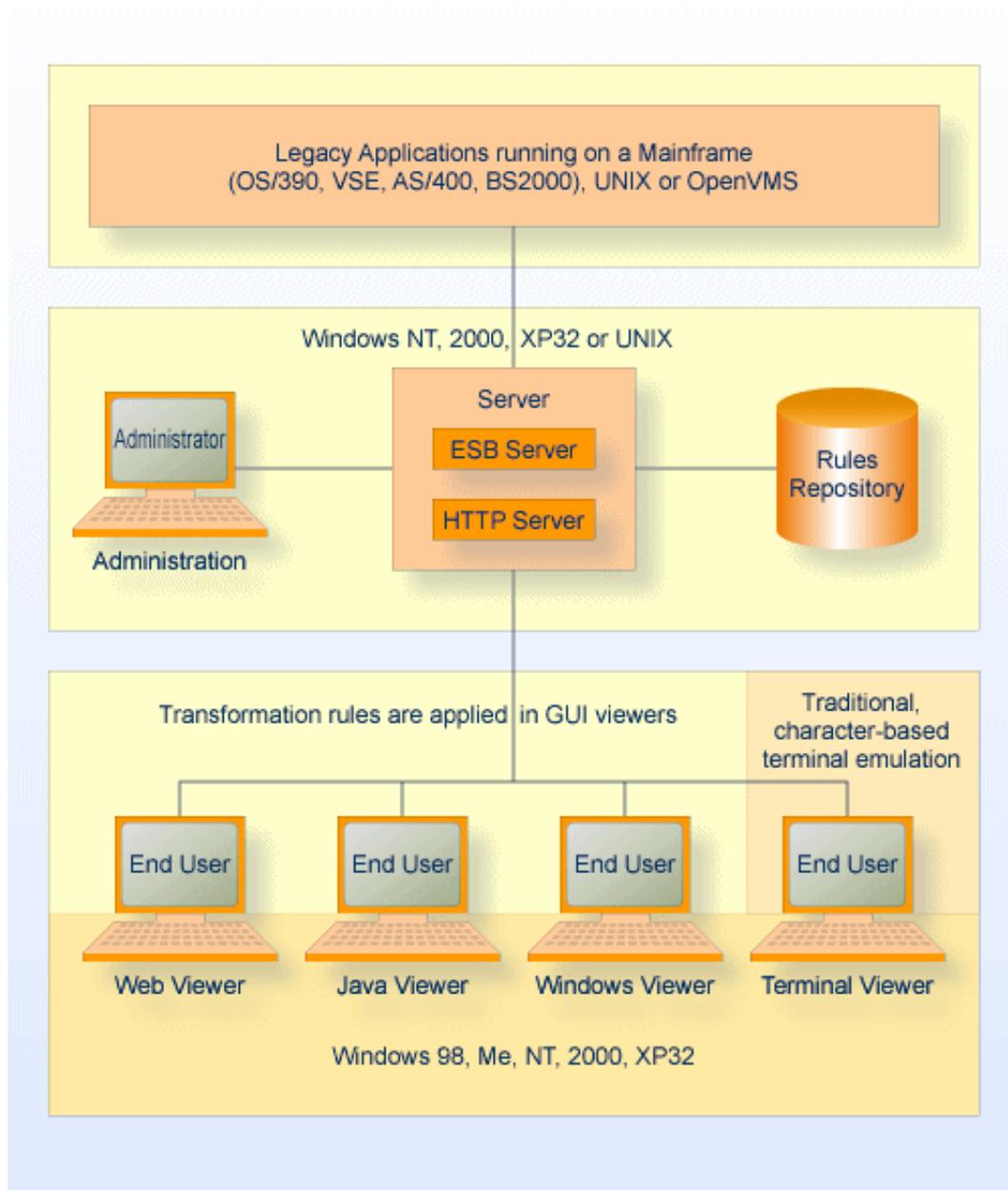
Entire Screen Builder can be installed in different configurations. The diagrams in this section show the components and architecture for the following scenarios:

- Development Environment
- Production Environment

Development Environment



Production Environment



Installing Entire Screen Builder on a PC

This section provides the following information:

- Prerequisites
 - Installing Entire Screen Builder
 - Shortcuts in the Start Menu
 - Program Folders
 - Environment Variables
 - Registry
 - Migrating Transformation Rules
 - Using the Demo Application
 - Merge Tool for Entire Connection
-

Prerequisites

The following is required in order to install and run Entire Screen Builder on a PC:

Operating System	<p>Server: Microsoft Windows NT 4.0 with service pack 5 or a higher service pack, or Microsoft Windows 2000 (Windows Clustering and Windows 2000 Datacenter are not supported), or Microsoft Windows XP Professional * .</p> <p>Viewer: Microsoft Windows NT 4.0 with service pack 5 or a higher service pack, or Microsoft Windows 2000, or Microsoft Windows 98, or Microsoft Windows Me, or Microsoft Windows XP Professional * , or Microsoft Windows XP Home Edition * .</p> <p>* Fast-user switching is not supported for XP.</p>
Browser	<p>Microsoft Internet Explorer 5 or 6 for the Web Viewer and Terminal Viewer. Netscape Navigator 4.7.3 for the Java Viewer. Any HTTP server.</p>
HTTP Server	<p>For tunneling: Microsoft Internet Information Server 4, Sun-Netscape iPlanet Web Server Enterprise Edition Version 4.1 or Apache 1.3. If tunneling is not used: any HTTP server. A HTTP server is not required for the Windows Viewer or if you open the HTML page for the other types of viewer from your local disk or LAN.</p>
Online Documentation	<p>Microsoft Internet Explorer 5 or 6 for viewing the Entire Screen Builder documentation in HTML help format. You can download the latest version from the Microsoft web site. Adobe Acrobat Reader for viewing and printing the Entire Screen Builder documentation in PDF format. The Adobe Acrobat Reader is provided on the Entire Screen Builder CD-ROM.</p>

See Installing the Entire Screen Builder Server in the UNIX Environment for further prerequisites.

Installing Entire Screen Builder

During installation, you have to specify the location of the file containing your Entire Screen Builder license key. You should have a license file that is provided by Software AG either on a storage medium such as a diskette in the Entire Screen Builder box or by E-mail. If you have received your license file by E-mail, save it to your local hard disk before starting the installation.

Note:

If you are installing Entire Screen Builder on a laptop and you have received your license file on a diskette, please note that some laptop configurations do not allow you access to the CD-ROM drive and the diskette drive simultaneously. In such cases, you must copy the license file to a location that is accessible while the CD-ROM drive is in use, such as your laptop's hard disk, before you start the installation.

Depending on the license file you specify during installation, one of the following is installed:

- Production version with GUI viewers (server and client components)
- Production version with Terminal Viewer (server and client components)
- Development version with GUI viewers (SDK, server and client components). Only available for Windows.

Note:

Although the Terminal Viewer is installed with the development version, it cannot be used at this time.

Ensure that the file containing the license key is in a location that will be accessible during installation, such as on the file system or in a diskette drive. In general, Software AG recommends you to place the license file on the file system before starting the installation.

If you want to install both production versions (i.e. the GUI viewers **and** the Terminal Viewer), you have to install one product version first and then load the license file for the second version using the System Management Hub. See License Files in the Administration documentation.

During installation, the number of licensed processors is compared with the number of processors on the target machine. The number of licensed processors must be equal to or greater than the number of processors on the target machine.



It is not required to install Entire Screen Builder as described below if you only want to install a production version on a UNIX system.

In order to install Entire Screen Builder successfully, you must have administrator rights for your PC as the installation process requires access rights to system resources.

 **To install Entire Screen Builder**

1. Close any active Windows applications.
2. Insert the Entire Screen Builder CD-ROM into your CD drive.
The setup program is automatically started and guides you through the installation.
If the automatic startup option is disabled on your system, execute Setup.exe which can be found in the root directory of the CD-ROM.
3. Follow the instructions in the resulting dialog box.
Note:
The SDK is always installed with the development version. It is not shown in the Custom Setup list.
4. After installation, you may have to reboot your computer. When this is required, the corresponding dialog box will appear asking whether you want to reboot now or later.

Software AG's System Management Hub, which is used to administrate the Entire Screen Builder Server, is automatically installed when you install Entire Screen Builder. See the Administration documentation for further information.

If you want to install an Entire Screen Builder production version on a UNIX system, proceed as described in the following section:

- Installing the Entire Screen Builder Server in the UNIX Environment.

If your legacy applications run with Natural UNIX or Natural OpenVMS, proceed as described in the following sections:

- Installing Entire Screen Builder on Natural UNIX Hosts
- Installing Entire Screen Builder on Natural OpenVMS Hosts

After installation, it is recommended that the developer proceeds as follows:

1. Use the System Management Hub to define all host sessions.
2. Use the SDK to define all transformation rules.
3. Invoke the Windows Viewer from the SDK to check whether the rules are applied as desired.

See the GUI Viewers and Terminal Viewer documentation for information on how to make the different viewers available to all users in your environment.

Under Windows NT, 2000 and XP, Entire Screen Builder events can be checked using the Windows Event Viewer.

Shortcuts in the Start Menu

If you do not specify otherwise during installation, "Software AG Entire Screen Builder 4.3.1" appears in the Programs folder of the Windows Start menu. This folder contains all shortcuts for invoking the Entire Screen Builder components.

The following table indicates the shortcuts that can be installed with a specific license:

Shortcut	Development Version	Production Version
Readme	X	X
Online Documentation	X	X
Windows Viewer	X	X
SDK	X	
System Management Hub	X	X

Note:

Shortcuts for the Web Viewer, Java Viewer and Terminal Viewer are not available since the HTML pages for these viewers have to be customized individually.

Program Folders

By default, Entire Screen Builder (development version and production versions) is installed in the following program folder:

`\Program Files\Software AG\Entire Screen Builder 4`

Program Folder	Contents
..\Entire Screen Builder 4	readme.txt
..\Entire Screen Builder 4\bin	EXE and DLL files.
..\Entire Screen Builder 4\data	Configuration file nswconfig.xml with information on the defined host sessions (including key schemes and color schemes) and the "profiles" folder with information on the defined user and group profiles. All of this information is defined with the System Management Hub.
..\Entire Screen Builder 4\help	Online documentation nsw431US.chm.
..\Entire Screen Builder 4\images	Image files used by the System Management Hub.
..\Entire Screen Builder 4\java viewer	NWWClient.jar, ExampleJavaEndUserPage.htm and NoJava122.htm.
..\Entire Screen Builder 4\repository	Local repository folders and files. Empty after installation.
..\Entire Screen Builder 4\samples	Several subfolders containing a demo application and samples for data transfer, script files and user exits.
..\Entire Screen Builder 4\scripts	Script files. The two subfolders for production and test purposes are empty after installation.
..\Entire Screen Builder 4\tables	Translation tables.
..\Entire Screen Builder 4\temp	For internal use. Empty after installation.
..\Entire Screen Builder 4\terminal viewer	NSWTerminalViewer.cab and ExampleTerminalViewer.htm.
..\Entire Screen Builder 4\traces	Traces. Empty after installation.
..\Entire Screen Builder 4\web viewer	NWWClientFull.cab, ExampleAdministratorPage.htm and ExampleEndUserPage.htm. NWWClientFull-unsigned can be used if you want a signing different from VeriSign.
..\Entire Screen Builder 4\windows viewer	EWVViewer.exe and DLL files for the Windows Viewer.
..\Entire Screen Builder 4\xml	XML templates for the System Management Hub.

Environment Variables

Entire Screen Builder does not change any environment variables.

Registry

In the Windows registry, the Entire Screen Builder installation procedure sets up keys in:

- `HKEY_LOCAL_MACHINE/SOFTWARE/Software AG/Entire Screen Builder`
When you uninstall Entire Screen Builder, these keys are automatically removed.
- `HKEY_CURRENT_USER/Software/Software AG/Entire Screen Builder`
Entire Screen Builder uses these keys to store runtime information (e.g. last scope selected). You can delete these keys after uninstalling Entire Screen Builder.

Migrating Transformation Rules

It is not necessary to migrate the transformation rules when you upgrade from Entire Screen Builder Version 4.x.x to Entire Screen Builder Version 4.3.1.

If you want to use the transformation rules defined with Entire Screen Builder Version 3.1.1, proceed as follows:

1. Backup the current transformation rules.
2. Start the SDK of Entire Screen Builder Version 4.3.1. From the **Options** menu, choose **Configuration**. Make sure that the entry for the repository folder points to the Entire Screen Builder Version 3.1.1 repository.
3. Recompile all extended rules with the SDK of Entire Screen Builder Version 4.3.1.

Rules no longer supported are ignored.

Using the Demo Application

The demo application can be invoked from the mainframe, UNIX and OpenVMS version of Natural. The following program folders of Entire Screen Builder pertain to the demo application:

Program Folder	Contents
..\Entire Screen Builder 4\samples\sampleconf	Rules folder for the demo application.
..\Entire Screen Builder 4\samples\sampleconf\natlib	Natural objects for the mainframe version of Natural, including the files Natdemo.ncd, Employees.ncm and Vehicles.ncm (see below).

The demo application is based on the Vehicles and Employees files. Therefore, the file IDs of these files must be known. To use the demo application, proceed as described below.

The demo application requires that the Natural message line is located at the bottom of the screen. If it is located at another position, use the Natural command %MB before starting the demo application.

Note for UNIX and OpenVMS:

The demo application is installed during the installation of the UNIX and OpenVMS components. See the following sections for further information: Installing Entire Screen Builder on Natural UNIX Hosts and Installing Entire Screen Builder on Natural OpenVMS Hosts

To upload the demo application (only required for the mainframe version of Natural)

- Upload the file Natdemo.ncd using Natural's NATLOAD utility (see the Natural documentation for further information). This transfers the demo application to the Natural library NSWDEMO.

To upload the data definition modules (only required for the mainframe version of Natural)

1. In the Natural command line, enter NTCPC.
This displays the main menu of the NTCPC utility.
2. Enter "D" in the "Code" field and press ENTER.
This displays the "Data Definition Module" screen.
3. Enter "U" in the "Code" field.
4. In the "DDM Name" field, enter "employees".
5. Make sure that the field "Accept existing DBID/FNR" is set to "N".
6. Press ENTER.
An upload window appears.
7. Change to the folder ..\Entire Screen Builder 4\samples\sampleconf\natlib.
8. Select the file Employees.ncm.
9. Choose the **Upload** button.
A Natural window is now shown, displaying default values for DBID and FNR.
10. Change the values for DBID and FNR according to your requirements and press ENTER.
11. Repeat the above steps to upload the file Vehicles.ncm (enter "vehicles" in the "DDM Name" field).

▶ **To define a session for host access**

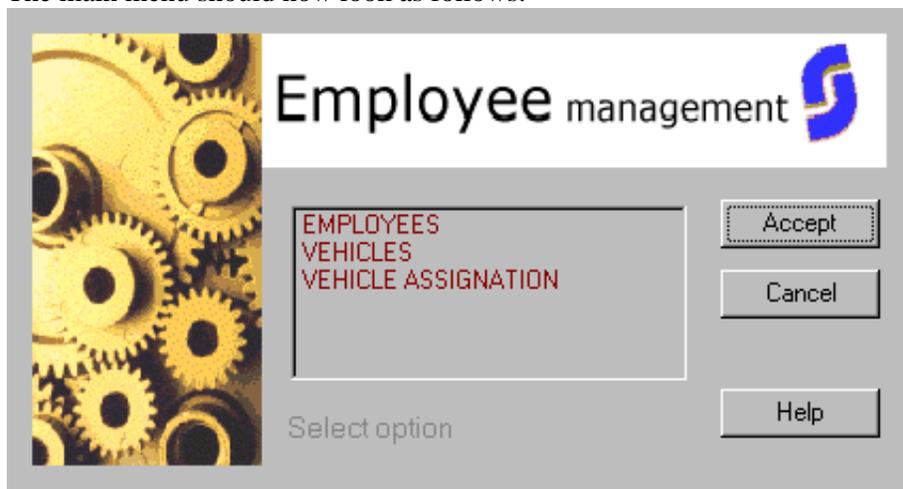
1. Start the System Management Hub.
2. Define a session which allows you to invoke Natural.
See the Administration documentation for further information.

▶ **To define the rules repository**

1. Start the Entire Screen Builder SDK.
2. From the **Options** menu, choose **Configuration**.
3. In the resulting "Configuration" dialog box, set the rules folder to:
 `..\Entire Screen Builder 4\samples\sampleconf`
4. Choose the **OK** button.
5. Quit the Entire Screen Builder SDK.
6. In the System Management Hub stop and start the Entire Screen Builder Server.

▶ **To invoke the demo application**

1. Start the Entire Screen Builder SDK.
2. Connect to the session you have defined.
The session appears in the Windows Viewer.
3. Navigate to Natural.
4. Logon to the library NSWDEMO.
5. Start the demo application by entering "menu" on the NEXT prompt.
The main menu should now look as follows:



Merge Tool for Entire Connection

A merge tool will be available with the next version of Entire Connection. Using this tool, you can transfer session settings, color schemes and keyboard schemes from your Entire Connection share file to Entire Screen Builder.

Installing the Entire Screen Builder Server in the UNIX Environment

In this version, the Entire Screen Builder Server on UNIX only supports the communication methods TN3270, BS2000 and OpenSystems.

During the installation, you will be asked to provide a license key. You should have a license key that is provided by Software AG either on a storage medium such as a diskette in the Entire Screen Builder distribution kit or by email.

Depending on the license file you specify during installation, one of the following is installed:

- Production version with GUI viewers (server and client components)
- Production version with Terminal Viewer (server and client components)

If you want to install both production versions, you have to start the installation twice. To install the second production version, stop the Entire Screen Builder Server first, install the second production version and then start the Entire Screen Builder Server again.

Note that the Entire Screen Builder Server can only be installed as a production version under UNIX. The development version is only available under Windows.

This section provides the following information:

- Differences between the Windows and UNIX Versions
 - Prerequisites
 - Setting Up the Entire Screen Builder Server
 - Entire Screen Builder Server Directories
 - Working with the Entire Screen Builder Server in the UNIX Environment
-

Differences between the Windows and UNIX Versions

The following table lists the differences between the UNIX and Windows versions of the Entire Screen Builder Server.

	Windows	UNIX
Server configuration information	Stored in the Windows registry.	Stored in the file ewvreg.reg . The environment variable WINREG_FILE points to this file.
Event log	Stored in the Windows Event Viewer.	Stored in the file ewvserver.txt which is located in the directory \$EWVDIR/\$EWNODE/events .

Prerequisites

Memory	20 MB.
Disk Space	A complete version of the Entire Screen Builder Server requires 16 MB storage on the target disk.
Supported Operating Systems	Sun Solaris Version 8 (64 bit), Sparc and UltraSparc.
Other Software Products	System Management Hub Version 2.1.2.28 or above. Any HTTP server.

The UNIX parameter "Number of file descriptors" must be set to "unlimited". The maximum number of file descriptors can be checked with one of the following UNIX commands:

```
ulimit -a
```

or

```
ulimit -n
```

To set the parameter to "unlimited", use the following UNIX command:

```
ulimit -n unlimited
```

Setting Up the Entire Screen Builder Server

Setting up the Entire Screen Builder Server on UNIX consists of the following steps:

1. Stop the Entire Screen Builder Server
2. Establish the Environment and Install the Product

Step 1: Stop the Entire Screen Builder Server

This step is only required, if there is a previous version of the Entire Screen Builder Server under UNIX.

Stop the **ewvserver** process in one of the following ways:

- Recommended. Stop the Entire Screen Builder Server from the System Management Hub. See Starting and Stopping the Entire Screen Builder Server.
- Invoke the shell script **ewvserver.sh** from the command line:

```
ewvserver.sh stop
```

Step 2: Establish the Environment and Install the Product

Read the file **setup_ux.txt** in the root directory of the Entire Screen Builder CD-ROM. Follow the instructions in this file in order to establish the environment for installing Software AG products and to install the product. The Entire Screen Builder-specific settings are shown below:

EWVDIR	Home directory for the product.
EWVVERS	Current version of the product.
EWVNODE	Name of the node on which Entire Screen Builder is installed.
WINREG_FILE	Contains the configuration file used by the server.
LD_LIBRARY_PATH	Must point to \$EWVDIR/\$EWVVERS/bin .

Verify the correct installation of the application as follows:

- Invoke the System Management Hub and create a new session (Telnet TN3270 or Open Systems). See Host Sessions in the Administration documentation.
- Start the Entire Screen Builder Server from the System Management Hub. See Starting and Stopping the Entire Screen Builder Server.
- Under Windows NT or 2000, open the HTML page **http://<UnixServer>/ESB/webviewer/ExampleAdministratorPage.htm** with the Microsoft Internet Explorer to start the Entire Screen Builder Web Viewer.
- When the Entire Screen Builder Web Viewer is shown in the Internet Explorer, fill all required edit boxes and choose the **Connect** button.

Entire Screen Builder Server Directories

The following directories are created when Entire Screen Builder is installed in the UNIX environment:

Directory	Description
ewv	Top-level directory.
v4xxx	Directory with all components for the current Entire Screen Builder version.
v4xxx/INSTALL	Shell scripts and environment files to install the product.
v4xxx/bin	Entire Screen Builder executable and library files.
v4xxx/conf-templates	Template files (ewvreg.reg and ewvargus.reg).
v4xxx/data	Configuration file nswconfig.xml.
v4xxx/help	Online documentation Nsw431US.chm.
v4xxx/images	Images for the System Management Hub.
v4xxx/javaviewer	NWWClient.jar and ExampleJavaEndUserPage.htm.
v4xxx/samples	Miscellaneous samples for user exits and scripts.
v4xxx/sampleconf	Demo application and samples.
v4xxx/sampleuserexit	Sample user exit files for the Entire Screen Builder Server. This folder is only installed for the developer.
v4xxx/tables	Translation tables.
v4xxx/terminalviewer	NSWTerminalViewer.cab and ExampleTerminalViewer.htm.
v4xxx/tunneling	All files used for tunneling.
v4xxx/webviewer	NWWClientFull.cab, ExampleAdministratorPage.htm and ExampleEndUserPage.htm.
v4xxx/windowsviewer	EwvViewer.exe.
v4xxx/xml	XML templates for the System Management Hub.
<systemname>	Directory with the specific configuration for this node.
<systemname>/configuration	Configuration file ewvreg.reg.
<systemname>/data	Configuration file nswconfig.xml with information on the defined host sessions (including key schemes and color schemes) and the "profiles" folder with information on the defined user and group profiles. All of this information is defined with the System Management Hub.
<systemname>/events	The file ewvserver.txt with information on each event that occurred on the server.
<systemname>/repository	Rules repository.
<systemname>/scripts	Script files. The two subfolders for production and test purposes are empty after installation.

<code><systemname>/tables</code>	Translation tables for the current system.
<code><systemname>/temp</code>	For internal use. Empty after installation.
<code><systemname>/traces</code>	Traces files when the server is running in trace mode.

`<systemname>` is the name of the machine. This directory is created automatically during the installation. The folders and files in `<systemname>` are the working folders and files used by the Entire Screen Builder Server and the administration tool at runtime.

Working with the Entire Screen Builder Server in the UNIX Environment

In the UNIX environment, the Entire Screen Builder Server works only in production mode. This means that the rules have to be created with the Entire Screen Builder SDK under Windows.

Once the rules have been created, you must copy the entire repository (defaults.ini, *.bdd, images, etc.) to the directory `$EWVDIR/$EWVNODE/repository` in the UNIX file system.

Since UNIX distinguishes between lowercase and uppercase, each file name in the repository must be in lowercase. To convert all file names to lowercase, change to the directory `$EWVDIR/$EWVNODE/repository` and run the shell script `up2lofn.sh`.

To use the new rules, you have to stop the Entire Screen Builder Server and then start it again. See Starting and Stopping the Entire Screen Builder Server in the Administration documentation.

Installing Entire Screen Builder on Natural UNIX Hosts

If the host system on which you run your applications is a UNIX system, additional software for Entire Screen Builder has to be installed on the host.

Starting with Natural UNIX Version 4.1.2.6, the Entire Screen Builder UNIX modules are shipped on the Natural UNIX CD-ROM.

In general, Entire Screen Builder uses the default system parameter values provided with the UNIX system.

The following topics are covered below:

- Prerequisites
- Entire Screen Builder Directories
- Setting Up the Entire Screen Builder Components
- Entire Screen Builder Configuration Files
- Working with the Entire Screen Builder UNIX Components

Prerequisites

Memory	No specific memory requirements.
Disk Space	A complete version of Entire Screen Builder requires 6 MB storage on the target disk.
Supported Operating Systems	The same platforms as supported by Natural UNIX.
Other Software Products	Natural Version 4.1.2.6 or above.

Note:

A linker (for example, ld or cc) and the command "make" must be available in the system.

Entire Screen Builder Directories

The following directories are created when Natural Version 4.1.2 or above is installed on a UNIX system:

Directory	Description
nat	Top-level Natural directory.
v4xxx	Directory with all components for the current Natural version.
v4xxx/nsw	Directory with some Entire Screen Builder components for the current version.
v4xxx/INSTALL	Shell scripts and environment files to install the product.
v4xxx/nsw/bin	Entire Screen Builder executable files (nswusr , nswsrvd , nswusr.tr and nswsrvd.tr).
v4xxx/nsw/node_name	Contains the template files (services.dat , nswservices , etc.).
v4xxx/bin/build	Contains the library (libnsw.a) to link with Natural.
v4xxx/bin/build.tr	Contains the trace library (libnsw.a) to link a trace version with Natural.
nat/<systemname>	Contains the configuration files (services.dat , nswservices , etc.).

Setting Up the Entire Screen Builder Components

Setting up Entire Screen Builder on UNIX consists of the following steps:

1. Stop the Entire Screen Builder Daemons
2. Read the READ_NSW Files
3. Establish the Environment
4. Create the Entire Screen Builder Services
5. Install the Product and the Demo Application

Step 1: Stop the Entire Screen Builder Daemons

- Stop the **nswsrvd** process using the following command:
nswsrvd.sh <service-name> stop
Repeat this command for each Entire Screen Builder service that has been started.

Step 2: Read the READ_NSW Files

- Access the **nat/v4xxx** directory and read the **READ_NSW.1ST** and **READ_NSW.FIX** files for any version-specific installation considerations concerning the particular platform.

Step 3: Establish the Environment

Before continuing with the installation, ensure that the environment definitions, as described in **setup_ux.txt** in the root directory of the Entire Screen Builder CD-ROM, are correct and set. The Entire Screen Builder-specific settings are shown below:

NSWDIR	Home directory for the product.
NSWNODE	Name of the node on which Entire Screen Builder is installed.
NSWSERV	Text file containing the authorized users for every service.
NSWTIMEOUT	Number of seconds waiting for an answer from the PC side.

Step 4: Create the Entire Screen Builder Services

- Add the services in the `/etc/services` file:
`nswdemo <port-number1>/tcp #NSW Service for Entire Screen Builder`

Step 5: Install the Product and the Demo Application

When you install the product, the directory `$NATDIR/$NSWNODE` is created. The template files located in `$NATDIR/$NATVERS/nsw/node-name` are then copied to this new directory.

Note:

You need to be familiar with Adabas and Natural administration tasks.

During the installation, a demo application is created. Before you install the product, it is recommended that you prepare for using the demo application as follows:

1. Ensure that the appropriate Natural and Adabas environment variables are defined. For example, **\$NATDIR** and **\$NATVERS** for Natural, and **\$ADADIR** and **\$ADAVERS** for Adabas.
2. Determine which database identification (DBID) and which two file numbers are to be used for FNAT and FUSER. For more information, see the Natural documentation for UNIX.
3. If you run the demo application under Natural Security, determine which DBID and FNR are to be used for FSEC. Also, ensure that the appropriate definitions have been made in Natural Security: NSWDEMO must be defined with the correct permissions in order to be accessed by the appropriate users.
4. This demo application is based on the Vehicles and Employees files. Therefore, the file IDs of these files must be known before starting to install the application.

To install the product and the demo application, proceed as follows:

1. Enter the following commands:

```
cd $NATDIR/$NATVERS/INSTALL  
nswinstall.bsh
```

Follow the instructions provided by the installation script.

- During installation, the owner and permissions for the **nswsrvd** and **nswusr** files will be changed. Therefore, you must have superuser privileges.

Note:

For security reasons, the installation process must not be continued with this user (root).

- The installation script asks if you want to link a new Natural nucleus for Entire Screen Builder now. Answer "YES" to invoke the subshell script shown below which links a new Natural nucleus for Entire Screen Builder.

```
make natural nsw=yes ada=dyn
```

- The shell script creates the Natural library **SYSEXNSW** in the Natural user file, and the messages file. It also copies the NSWDEMO.SAG parameter module to the corresponding Natural profile directory and invokes the NATPARM utility in order to modify the parameter module according to the characteristics of the demo application.

The following parameters are modified automatically (you can check their values):
OPRB, UDB, LFILE, FNAT, FUSER.

2. Catalog the application **SYSEXNSW** by entering the following commands:

- **natural**
- **logon SYSEXNSW**
- **catall**

Note:

For further information, see Using the Demo Application.

Entire Screen Builder Configuration Files

When the Entire Screen Builder installation has finished, the directory `$NATDIR/$NSWNODE` contains the following configuration files:

nsw.sh	Shell script to start the Natural application.
nswservice	Contains the authorized users for every service.
nswsrvd.sh	Shell script to start and to stop the NSW daemon.
services.dat	Contains the configuration for the NSW daemon.

Working with the Entire Screen Builder UNIX Components

The Entire Screen Builder UNIX components are used to start the Natural applications linked with the Entire Screen Builder library.

The following topics are covered below:

- Starting a New Natural Application
- Starting and Stopping the Entire Screen Builder Daemon

Starting a New Natural Application

Any Natural application can be used with Entire Screen Builder.

To start a new Natural application with Entire Screen Builder, proceed as follows:

- Create a new parameter file using the Natural Parameter Utility (see the Natural documentation) and modify the STACK command as follows:

```
logon <library>; <start-program>;fin
```

Add the new service as follows:

1. Insert a new line in the file `/etc/services`:
`<service-name> <port-number>/tcp # Comment`
2. Create a new shell script (similar to `nsw.sh`) to startup the Natural application:
`$NATDIR/$NATVERS/bin/natnsw parm=<new-parameter-file> etid=$$
>/dev/null 2>&1 &`
3. Insert a new line in the file `$NATDIR/$NSWNODE/services.dat`:
`<service-name> <user> $NSWDIR/bin/nswusr <security>
$NATDIR/$NSWNODE /<shell-script>`

<i>service-name</i>	Services used as entered in the previous step. These service names are optional. You can use other names and more service names.
<i>user</i>	Owner of the processes that will be started (usually sag).
nswusr	Entire Screen Builder application server.
<i>security</i>	Enter one of the following characters: A : Security is enabled. User and password will be checked by nswusr and the user must be authorized in the nswservice file. C : Security is enabled. User and password will be checked by an external program. See Natural UNIX User Exits. D : Security is disabled. User and password will not be checked. U : Security is enabled. User and password will be checked by nswusr .
<i>shell-script</i>	Name of your shell script for starting the Natural application. The provided nsw.sh is just a template that has to be modified to suit your specific needs.

4. Add the following entries to the authentication file **\$NSWSERV**:

```
<service-name>:<user1>, <user2>
```

where *user1* and *user2* are authorized users. If several users are authorized, separate the users in the list with commas. These users must already be defined in the system.

This service is now available for use with a PC. See Using the Demo Application for further information.

Starting and Stopping the Entire Screen Builder Daemon

The Entire Screen Builder daemons are responsible for accepting new sessions. These daemons can be started and stopped using the following command:

```
nswsrvd.sh <service-name> [start|stop]
```

Installing Entire Screen Builder on Natural OpenVMS Hosts

If the host system on which you run your applications is an OpenVMS system, additional software for Entire Screen Builder has to be installed on the host.

Starting with Natural Version 4.1.2.12, the Entire Screen Builder OpenVMS modules are shipped on the Natural OpenVMS CD-ROM.

In general, Entire Screen Builder uses the default system parameter values provided with the OpenVMS system.

The following topics are covered below:

- Prerequisites
- Entire Screen Builder Directories
- Setting Up the Entire Screen Builder Components
- Entire Screen Builder Configuration File
- Setting Up and Activating the NSWSRVD Daemon

Prerequisites

Memory	No specific memory requirements.
Disk Space	A complete version of Entire Screen Builder requires 6 MB storage on the target disk.
Supported Operating Systems	OpenVMS Version 7.2
Other Software Products	Natural Version 4.1.2.12 or above

Entire Screen Builder Directories

The following directories are created when Natural Version 4.1.2.12 or above is installed on an OpenVMS system:

Directory	Description
NATDIR	Top-level Natural directory.
<natvers>	Directory with all components for the current Natural version.
<natvers>/INSTALL	Shell scripts and environment files to install the Natural product.
<natvers>/BIN	Entire Screen Builder executable files NATFENSW<nnnp>.EXE , NATNSW<nnnp>.EXE and NSWSRVD<nnnp>.EXE
<natvers>/FNAT	Contains the Natural demo application SYSEXNSW for Entire Screen Builder.
NATURAL/<nswnode>	Contains the configuration files NSWSRVD_<service name>.COM , NSWSRVD_<service name>.LOG , SERVICES.DAT and START_NSWSRVD.COM .

The files **NSWSRVD_<service name>.COM** and **NSWSRVD_<service name>.LOG** are created when the Entire Screen Builder daemon **NSWSRVD<nnnp>.EXE** is started with the procedure **START_NSWSRVD.COM**.

<service name> is the UCX service as defined in the file **SERVICES.DAT**.

<nnnp> indicates the version number and patch level of the corresponding Natural version.

Setting Up the Entire Screen Builder Components

Setting up Entire Screen Builder on OpenVMS consists of the following steps:

1. Stop the Entire Screen Builder Daemons
2. Read the READ_NSW Files
3. Establish the Environment
4. Define the TCP Port Number

Step 1: Stop the Entire Screen Builder Daemons

- Stop the **nswsrvd** process using the following command:
nswsrvd.sh <service-name> stop
 Repeat this command for each Entire Screen Builder service that has been started.

Step 2: Read the READ_NSW Files

- Access the **nat/v4xxx** directory and read the **READ_NSW.1ST** and **READ_NSW.FIX** files for any version-specific installation considerations concerning the particular platform.

Step 3: Establish the Environment

Besides the logical names NATDIR and NATVERS as defined by Natural, Entire Screen Builder needs the following logical names which are created during the installation of Natural:

NSWNODE	Contains the system name.
VAXC\$PATH	Contains the "PHYSICAL DEVICE SPECIFICATION" of NATDIR:[<natvers>.BIN]

Example:

```
Define VAXC$PATH="ALF9$DKB500:[NATURAL.V41212.BIN]"
```

In addition, the logical names NATOW and NATFE are redefined during activation to point to the Entire Screen Builder images **NATNSW<nnnp>.EXE** and **NATFENSW<nnnp>.EXE**.

Step 4: Define the TCP Port Number

The UCX service with the TCP port number must be defined in the system as follows:

```
$ UCX SET SERVICE NSWDEMO /PORT=22370 /FILE="" /USER="" /PROC=""
```

Instead of **NSWDEMO** and the above port number, you can also specify other values. For example, you can create or define the TCP service name **NSWAPPL1** with the port number 25000.

Entire Screen Builder Configuration File

The configuration file **SERVICES.DAT** is located in the directory **NATDIR:[<nswnode>]**, where the *<nswnode>* contains the node name (for example, **NATDIR:[ALF9]SERVICES.DAT**).

The content of this configuration file is one line for each defined TCP service:

```
<service name> <user name> natural <parm1> ...<parmn>
```

Example:

```
nswdemo sag natural parm=mypar bp=bp1
nswapp1 sag natural parm=app1 bp=bp1
nswapp2 sag natural parm=app2 bp=bp2
```

<i><service name></i>	Must be the same name as used in the TCP port number definition (see above).
<i><user name></i>	Not used.
natural	This is the program name which must not be changed.
<i><parm1 n></i>	Dynamic Natural parameters.

Note:

If the **NSWSRVD<nnnp>** daemon does not detect Natural's dynamic parameter ETID, the daemon automatically adds the ETID to the list of the dynamic parameters to be passed to Natural. The ETID added by the daemon has the format **ETID=<number>_<user name>**. It is truncated if the string exceeds 8 characters.

Setting Up and Activating the NSWSRVD Daemon

When TCP port number and service have been defined (UCX) and the **SERVICES.DAT** template file has been modified according to your requirements, you can start the NSWSRVD daemon to use Entire Screen Builder.

To start the daemon, invoke the DCL procedure **START_NSWSRVD.COM** as follows:

```
DCL-prompt> @START_NSWSRVD.COM [<service>] [<natvers>]
```

<service> contains the name of the service as defined with UCX.

<natvers> defines the Natural version and patch level.

If the parameters <service> and <natvers> are omitted, the defaults **nswdemo** and the current Natural version are used. The command procedure creates the temporary file **NSWSRVD_<service name>.COM** which sets up the environment and creates all logicals for Entire Screen Builder and starts the daemon.

Once the daemon has been started, the file **NSWSRVD_<service name>.LOG** is created. This file contains information (including the errors) about the daemon.

NSWSRVD_<service name>.COM and **NSWSRVD_<service name>.LOG** are located in the directory **NATDIR:[<nswnode>]**.

Note:

The account which starts the daemon must hold the privilege IMPERSONATE as the default privilege. It is not sufficient to have an authorized privilege.

HTTP Tunneling

The HTTP tunneling mechanism is frequently used in the Internet environment. It is used for sending and receiving the packets through the Web server (to traverse firewalls and/or proxies).

Entire Screen Builder supports tunneling with the following HTTP servers: Microsoft Internet Information Server, Sun-Netscape iPlanet Web Server Enterprise Edition and Apache Web Server.

The following topics are covered below:

- Setting Up Tunneling
 - Customizing the Viewers
-

Setting Up Tunneling

The following topics describe how to set up tunneling for the different HTTP servers:

- Microsoft Web Server under Windows
- Sun-Netscape iPlanet Web Server 4.1 under Windows
- Sun-Netscape iPlanet Web Server 4.1 on Solaris
- Apache Web Server 1.3 under Windows
- Apache Web Server 1.3 on Solaris

Microsoft Web Server under Windows

Copy the following files from the "HTTP-Tunneling\Windows" folder of the Entire Screen Builder CD-ROM to the scripts folder of your Microsoft Internet Information Server or Personal Web Server (this is usually installed in C:\Inetpub):

- APIERR.dll
- EsbIsapi.dll
- NMUtil.dll
- NSWTrace.dll

The following steps are required if you plan to use Entire Screen Builder's Web Viewer:

1. In your server's home directory (usually, this is C:\Inetpub\wwwroot), create the logical name (alias) "ESBWebviewer".
2. Copy all files from the program folder "..\Entire Screen Builder 4\Web Viewer" to the folder linked to the logical name that was created in the previous step.

The following steps are required if you plan to use Entire Screen Builder's Java Viewer:

1. In your server's home directory (usually, this is C:\Inetpub\wwwroot), create the logical name (alias) "ESBJavaviewer".
2. Copy all files from the program folder "..\Entire Screen Builder 4\Java Viewer" to the folder linked to the logical name that was created in the previous step.

For Entire Screen Builder's Windows Viewer, no setup steps are required.

Sun-Netscape iPlanet Web Server 4.1 under Windows

Copy the following files from the "HTTP-Tunneling\Windows" folder of the Entire Screen Builder CD-ROM to your iPlanet Web Server "bin" folder (usually, this is

"<drive>\Netscape\Server4\bin\https\bin\"):

- APIERR.dll
- esbnsapi.dll
- NMUtil.dll
- NSWTrace.dll

Modify the iPlanet/Netscape Web Server configuration file obj.conf as follows:

1. Add the following to the Init section:

```
Init fn="load-modules"
funcs="esbapiinit,esbapiwork,esbapiterminate"
shlib="<full_qualified_path>/esbnsapi.dll"
Init fn="esbapiinit" Server="<IpAddress_or_Name>"
ServerPortNumber="22367"
```



Make sure to write each of the above directives in one line.

The first directive loads the DLL (or shared library on UNIX).

The second directive defines the init function and the parameters passed to it (server IP address and port to be used).

2. Add the following after the default object section:

```
<Object ppath="<document-root>/esbtunnel">
Service fn="esbapiwork" method="(GET|POST|HEAD)"
</Object>
```

This defines the way the DLL is accessed. It must not be changed.

The value for <document-root> can be found in the NameTrans directives of the default object section.

There must not be a folder named "esbtunnel" below your <document-root>.

3. Optionally - translate the name of your image folder by adding a NameTrans directive like the following after the last "NameTrans fn="pfx2dir"" directive:

```
NameTrans fn="pfx2dir" from="/images"
dir="<full_path_to_your_images>"
```

The following steps are required if you plan to use Entire Screen Builder's Web Viewer:

1. Create a folder called ESWebviewer below your <document-root>.
2. Copy all files from the folder "..\Entire Screen Builder 4\Web Viewer" to the new folder.

The following steps are required if you plan to use Entire Screen Builder's Java Viewer:

1. Create a folder called ESJavaviewer below your <document-root>.
2. Copy all files from the folder "..\Entire Screen Builder 4\Java Viewer" to the new folder.

For Entire Screen Builder's Windows Viewer, no setup steps are required.

Sun-Netscape iPlanet Web Server 4.1 on Solaris

If the Entire Screen Builder Server is not installed on the Solaris machine, extract the files from the cpio file in the "HTTP-Tunneling\Solaris" folder of the Entire Screen Builder CD-ROM:

```
cpio -icvBd < ewvtunneling.cpio
```

If the Entire Screen Builder Server is installed on the Solaris machine, take the files from the directory **\$EWVDIR/\$EWVVERS/tunneling**.

Copy the following files from the above directory to your iPlanet Web Server "lib" directory (usually, this is "/usr/Netscape/Server4/bin/https/lib/"):

- libapierr32.so
- libesbnsapi32.so
- libnmutil32.so
- libnswmessages32.so
- libnswtrace32.so

Modify the configuration file obj.conf as described above for the Windows platform, but use the extension for shared libraries for Solaris:

```
shlib="<full_qualified_path>/libesbnsapi32.so"
```

Copy the Entire Screen Builder viewers as described above for the Windows platform.

Apache Web Server 1.3 under Windows

Copy the following files from the "HTTP-Tunneling\Windows" folder of the Entire Screen Builder CD-ROM to your Apache server "modules" folder (usually, this is "<drive>\Program Files\Apache Group\Apache\modules"):

- APIERR.dll
- esbapapi.dll
- NMUtil.dll
- NSWTrace.dll

Modify the Apache Web Server configuration file httpd.conf as follows:

1. Set the directive KeepAlive to On.
2. Set the directive KeepAliveTimeout to a value greater than 20.
This directive corresponds to Entire Screen Builder's tunneling poll time. See Overview of Client Control Properties.
3. Set the directive MaxKeepAliveRequests to 0 (zero) to allow an unlimited amount of requests during one session.

4. Add the following lines at the end:

```
#Load the esb handler
LoadModule esb_module modules/esbapapi.dll
# use server <IpAddress_or_Name> listening on port 22367 with
timeout 120 seconds
<Location /esbhandler>
    EsbParms <IpAddress_or_Name> 22367 120
    SetHandler esb-handler
</Location>
```

The first directive loads the DLL (or shared library on UNIX).

The second directive defines the server IP address and port to be used and the way the DLL is accessed.

There must not be a folder named "esbhandler" below your <document-root>.

5. Optionally - translate the name of your image folder by adding an Alias directive like the following:

```
Alias /images/ "<full_path_to_your_images>/"
```

You have to add the above Alias directive after the following:

```
# Aliases: Add here as many aliases as you need (with no limit).
The format is
# Alias fakename realname
```

The following steps are required if you plan to use Entire Screen Builder's Web Viewer:

1. Create a folder called ESBWebviewer below your <document-root>.
2. Copy all files from the folder "..\Entire Screen Builder 4\Web Viewer" to the new folder.

The following steps are required if you plan to use Entire Screen Builder's Java Viewer:

1. Create a folder called ESBJavaviewer below your <document-root>.
2. Copy all files from the folder "..\Entire Screen Builder 4\Java Viewer" to the new folder.

For Entire Screen Builder's Windows Viewer, no setup steps are required.

Apache Web Server 1.3 on Solaris

If the Entire Screen Builder Server is not installed on the Solaris machine, extract the files from the cpio file in the "HTTP-Tunneling\Solaris" folder of the Entire Screen Builder CD-ROM:

```
cpio -icvBd < ewvtunneling.cpio
```

If the Entire Screen Builder Server is installed on the Solaris machine, take the files from the directory **\$EWVDIR/\$EWVVERS/tunneling**.

Copy the following files from the above directory to your Apache Web Server "libexec" directory (usually, this is "/usr/local/apache/libexec/"):

- libapierr32.so
- libesbapapi32.so
- libnmutil32.so
- libnswmessages32.so
- libnswtrace32.so

Add your Apache Web Server "libexec" directory to your LD_LIBRARY_PATH environment variable.

Modify the configuration file http.conf as described above for the Windows platform, but use the extension for shared libraries for Solaris:

```
LoadModule esb_module modules/libesbapapi32.so
```

Copy the Entire Screen Builder viewers as described above for the Windows platform.

Customizing the Viewers

The following topics describe how to customize the different viewers:

- Windows Viewer
- Web Viewer
- Java Viewer

Tunneling is not available for the Terminal Viewer.

Windows Viewer

The following steps are required to configure Entire Screen Builder's Windows Viewer:

1. On your web server, create a logical name (alias) for the location in which the images are to be stored (usually "ESB_Repository").
2. Invoke the Windows Viewer. See Invoking the Windows Viewer in the GUI Viewers documentation.
3. In the resulting dialog box, select a connection and choose the **Edit** button.
The "Client Control Properties" dialog box appears.
4. On the "Server" property page, delete any previously defined server address. The text box must be empty.
5. Set the server port to zero.
6. Select the "HTTP" property page.
7. Specify the HTTP server address and the HTTP server port used for tunneling.
8. Make sure that the "HTTP tunneling" check box is selected.
9. Choose the **OK** button.

Web Viewer

Modify your customized HTML pages for the end user (for example, ExampleEndUserPage.htm which is provided in the Entire Screen Builder folder "web viewer") so that it contains the following:

```
<param name="SERVER" value=" ">
<param name="PORT" value="0">
<param name="HTTPSERVER" value="<Name_or_IPAddress_of_Server">
<param name="HTTPPORT" value="80">
<param name="REPOSITORY" value="ESB_Repository">
<param name="TUNNELING" value="1">
<param name="TUNNELINGTYPE" value="M">
<param name="TUNNELINGPOLLTIME" value="20">
```

The values for TUNNELINGTYPE are:

- "M", if a Microsoft Web Server is used (with ISAPI)
- "S", if a Sun-Netscape iPlanet Web Server is used (with NSAPI).
- "A", if a Apache Web Server is used.

TUNNELINGPOLLTIME is the time in seconds the viewer polls the tunneling server for new data (asynchronous messages and screens).

Note:

Normally, the HTTP port is 80.

See also: Customizing the Web Viewer in the GUI Viewers documentation.

Java Viewer

Modify your customized HTML pages for the end user (for example, ExampleJavaEndUserPage.htm which is provided in the Entire Screen Builder folder "java viewer") so that it contains the following:

```
SERVER=" "  
PORT=" 0 "  
HTTPSERVER=" <Name_or_IpAddress_of_Server> "  
HTTPPORT=" <Port_Number> "  
TUNNELING=" 1 "  
TUNNELINGTYPE=" M "  
TUNNELINGPOLLTIME=" 20 "
```

The values for TUNNELINGTYPE are:

- "M", if a Microsoft Web Server is used (with ISAPI)
- "S", if a Sun-Netscape iPlanet Web Server is used (with NSAPI).
- "A", if a Apache Web Server is used.

TUNNELINGPOLLTIME is the time in seconds the viewer polls the tunneling server for new data (asynchronous messages and screens).

Note:

Normally, the HTTP port is 80.

See also: Customizing the Java Viewer in the GUI Viewers documentation.