BETTER ON-LINE SOLUTIONS

BOSâNOVA CLIENT 32

Online User Guide

Document Release Date—15.1.2000

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BOSâNOVA CLIENT 32 DESCRIPTION

BOSâNOVA Client 32 is a full 32-bit emulation software application. BOSâNOVA Client 32 runs on Windows 95/98 or Windows NT 4.0/2000 and integrates BOS terminal and printer emulations with the most commonly-used PC applications and utilities for the AS/400.

BOSâNOVA Client 32 includes the following modules:

- **Display/Printer Emulation** provides 5250 display and printer emulation
- **LAN (802.2 LLC) APPC Router** provides the E32appc.dll required by 32-bit applications using an APPC interface to communicate with the host via an LLC connection
- **Twinax (TDLC) APPC Router** provides the E32appc.dll required by 32-bit applications using an APPC interface to communicate with the host via a Twinax line using a built-in Twinax adapter
- **Advanced Server for SAA Virtual Router** provides Windows-based LU6.2 connections to the AS/400
- **DTF** (Data Transfer Functions) —see **What's New in BOSâNOVA Client 32** below.
- **BOS-ODBC/400 Driver** provides AS/400 to PC database connectivity.
- **Host Explorer**—see **What's New in BOSâNOVA Client 32** below.
- **BOSâNOVA IFS for Windows 95** enables you to work with AS/400 folders as if they were PC folders (see Appendix A, p. 65).
- **Macro Organizer and Macro Editor**— see **What's New in BOSâNOVA Client 32** below
- **User Administration**—see **What's New in BOSâNOVA Client 32** below
- **Printer Driver Editor**—enables you to modify custom printer drivers

The following modules are available with the 16-bit version of BOSâNOVA Client only:

- **ATF** (Advanced Transfer Functions) provides flexible and powerful SQL-based bi-directional data transfer between the host and the PC.
- **Remote Command** supports sending host commands from a PC to an AS/400 without requiring an emulation session.

What's New in BOSâNOVA Client 32?

BOSâNOVA Client 32 now includes:

- **DTF** (Data Transfer Functions) is a 32-bit Windows utility for transferring data between a PC and a host (see Appendix B, p. 71).
- **Host Explorer** is a utility for viewing your AS/400's folders (libraries) and virtual printers as if they were another drive on your PC (see Appendix C, p. 76).
- **Macro Organizer** and **Macro Editor** are tools which allow you to manage and modify existing macros.

- **User Administration** is a set of administrative tools for managing network installations. It includes the **User Policy Editor** which provides the system administrator an efficient way to assign user privileges and limitations, and the **Remote Configuration** which allows configuration of parameters for all network users from one PC (see Appendix D, p. 77).

For information about the major differences between BOSâNOVA Client 32 and previous 32-bit or 16-bit versions of BOSâNOVA Client, see both the Readme file in the CD-ROM root directory and the online Help. In addition, check the Readme files in the BOSâNOVA Client 32 installation folder for late-breaking information about this release.

BOSâNOVA Client 32 Features

- supports up to 32 simultaneous display and/or printer emulation sessions
- features native 32-bit implementation for Windows 95/98 and Windows NT/2000
- includes MorphExpress for converting host screens to true GUI screens without changing the host application
- supports Text Assist
- supports 3477FC devices (132-column display with color)
- supports PC and Terminal styles for keyboards, allowing you to work with either a 101/102-key keyboard or the BOS 122-key keyboard (see p. 34)
- supports the euro symbol
- includes comprehensive keyboard mapping and customization, using Shift, Caps Lock, Alt, Ctrl, function keys, etc.
- includes Print Preview, for displaying the print output before sending the print job to the printer
- includes Printer Session Properties, for modifying printer session settings
- includes PDE (Printer Driver Editor) for modifying custom printer drivers
- includes full-screen mode
- includes customizable "floating" toolbars Internet Explorer-type toolbar buttons
- supports user-definable macros including the option to set automatic sign-on and sign-off macros
- supports hot-keys for toggling between emulation sessions
- includes BOSâNOVA EHLLAPI/DDE Interface 32 which provides an application programming interface (API) for enhancing interaction between PC applications and host sessions
- includes **DTF** (Data Transfer Functions), a 32-bit Windows utility for transferring data between a PC and a host (see Appendix B, p. 71)
- includes **Host Explorer**, a utility for viewing your AS/400's folders (libraries) and virtual printers as if they were another drive on your PC (see Appendix C, p. 76)

- includes **Macro Organizer** and **Macro Editor**, tools which allow you to manage and modify existing macros
- includes **User Administration**, a set of administrative tools for managing network installations. It includes the **User Policy Editor** which provides the system administrator an efficient way to assign user privileges and limitations, and the **Remote Configuration** which allows configuration of parameters for all network users from one PC (see Appendix D, p. 77).

Upgrade Information

If you are upgrading from BOSâNOVA Client for Windows (16-bit), see *Upgrade Information (from 16-bit versions)* in online Help. If you are upgrading from a previous version of BOSâNOVA Client 32, see *Upgrade Information (from previous 32-bit versions)* in online Help.

For Windows NT Users!

When running Windows NT on a PC, to upgrade from a previous 32-bit version of BOSâNOVA Client 32 to this version, you must have **administrative privileges**.

Online Help and Additional Documentation

This online User Guide provides all installation instructions plus comprehensive troubleshooting information.

In addition to this guide, the following documentation is provided:

- **Installation Guide**, provided with the CD-ROM, guides you through the installation process. It includes host and PC system requirements, installation instructions, licensing information, uninstalling instructions, and troubleshooting information.
- **Online Help** describes configuring and using BOSâNOVA Client 32. It explains product features, provides step-by-step instructions, and contains troubleshooting information. Access online Help from the emulation toolbar or by pressing F1 from any dialog box.
- **The Readme file** contains all up-to-the-minute information about the current version of BOSâNOVA Client 32.

SYSTEM REQUIREMENTS

Host System Requirements

Host:	• AS/400
	Via an AS/400, you can connect to:
	  • System/3*x*
	  • IBM mainframe
	• Advanced System/36

Operating System:	OS/400 V2R3 or higher
In addition, the host must be:	• able to support at least one additional workstation • configured to support the type of terminal or Client Access workstation to be emulated • able to support the APPC connection type

PC Requirements

PC:	• Windows 3.1*x* 486 DX/2 66 MHz minimum • Windows 95/98 486DX/2 66 MHz minimum • Windows NT 4.0 Pentium 66 MHz minimum • Windows 2000 Pentium MMX 150 MHz minimum
Memory:	• Windows 3.1*x* 8 MB minimum • Windows 95/98 8 MB minimum (16 MB recommended) • Windows NT 4.0 16 MB minimum (32 MB recommended) • Windows 2000 32 MB minimum (64 MB recommended)
Hard Disk:	System folder: 7 MB minimum free space (12 MB rec.) User folder: 10–18 MB minimum free space (depends on applications installed)
Operating System:	• Windows 3.1*x* • Windows 95/98 • Windows NT 4.0/2000

INSTALLING BOSâNOVA CLIENT 32

The BOS CD-ROM is the source for all installations of BOS emulation products. This CD-ROM is used for new installations, updates, and installation of evaluation versions.

Licensing

Licensing is an integral part of the installation. Early in the process you will be prompted to enter the CD-Key. Without it, you can only install an evaluation version.

There are two types of licenses:

- **Single License**: an individual license, generally for a standalone PC. It is possible to have multiple single licenses, but each must be installed on a different PC. A unique CD-Key must be entered for each installation.
- **Company License**: a site license. There are three:
  - For a specified number of users
  - For an unlimited number of users
  - According to the AS/400 processor model

  Installation requires a special file provided either on a diskette included in the packaging, or separately from your BOS distributor. This file must be copied to the folder in which BOSâNOVA Client is installed. At runtime, your company name and the number of users licensed to use the software are displayed in the startup window.

Note!

Thirty-day evaluation versions of BOSâNOVA products are available from the BOS Product Catalog, located on the BOS CD-ROM, or from the BOS Web site (http://www.bosweb.com). Evaluation versions do not require a CD-Key.

To install an evaluation version, when prompted to enter your CD-Key, leave the field blank and select **Evaluation version**. Alternately, select **Evaluate a BOS Product** from the Welcome screen.

Installing BOSâNOVA Client 32

1. Close all applications.
2. Insert the BOS CD-ROM; the Welcome screen appears. Click **Install Your BOS Product**. In the Setup Welcome screen, click **Next**.
3. Read the License Agreement. To install BOSâNOVA Client, you must click **Yes** to accept the License Agreement.
4. Enter your name and the company name. Click **Next**.
5. Enter the CD-Key; the 14-character CD-Key appears on the label on the license certificate accompanying the BOS CD-ROM. After the first six characters are entered in the first field, the cursor moves to the second field. After four characters are entered in the second field, the cursor moves to the third field. After the final four characters are entered in the third field, **Next** is enabled. Click **Next**.
6. If you have a company license, you are prompted for the diskette (or network path) containing the company license file.
7. Select BOSâNOVA Client 32 from the list of BOS products and click **Next**.

> ***Note!***
> If reinstalling, the next screen gives you the choice of updating (by clicking **Next**) or adding a new installation (by clicking **New Install**). If this is a first time installation, this screen is skipped. For information about reinstalling or multiple installations, see p. 8.

8. Select the installation type:
   - **Standalone**: (a non-network installation): Install BOSâNOVA Client 32 directly to your PC. This setup can be performed an unlimited number of times to different installation folders.
   - **Network Server**: (for system administrators): This installation requires two steps:
     a) Install BOSâNOVA Client from the BOS CD-ROM to the network server installation folder.
     b) Each network user then performs Network User Setup.

     The system administrator can change parameters and policies for all users. See User Administration on p. 77.
   - **Setup for Citrix MetaFrame** (for thin client/server computing—Windows NT 4.0): For this setup, a company license is required.
9. From the installation mode screen, select one of the following:
   - If you select **Typical**, you receive a standard (default) installation with only the necessary components.

- If you select **Custom**, you are prompted for the destination (installation) folder, the program folder, the host language and the user interface language, and which modules to install.

10. Select the connection type from the list. Contact your system administrator if you are unsure of your PC's connection type.
11. The shortcut screen allows you to create shortcuts on your desktop. Select the desired checkboxes and click **Next**.
12. Review the installation setup and click **Next**.

> ***Warning for Citrix MetaFrame Installations!***
>
> Even if prompted to do so earlier, **wait to reboot** the PC until after completion of step 16.

13. After the files are copied to your installation folder, Setup prompts you to register your installation of BOSâNOVA Client 32. The registration process involves five screens. Follow the prompts to complete the information and send it (via Internet or fax) to BOS.
14. If prompted to do so, reboot your PC.
15. To view late breaking news about this release, select **View the Readme file now**. To run the Administrator, select **Run the Administrator now**. Click **Finish**.
16. **For Citrix MetaFrame installations**: In the command prompt, type **`change user/execute`** and press Enter. Only then, if prompted, reboot the PC.
17. **For Network Server installations**: on completion of this installation, you (the system administrator) must provide the users with the information necessary for network user setup. Network users must:
    a) Close all applications.
    b) Run **Netsetup.exe** from the BOSâNOVA Client 32 network server installation folder.
    c) Follow the prompts.

Installing on Windows 3.1*x* (16-bit)

1. Close all applications on your PC.
2. Insert the BOS CD-ROM in the drive.
3. Open the Windows File Manager. From the CD-ROM root directory, run Setup.exe.
4. Read the first screen and click **Next**.
5. From the list of applications, select **BOSâNOVA Client for Windows** and follow the prompts.
6. When you get to the License screen, click **Yes**. BOSâNOVA Client Setup then launches the installation program.
7. Select the modules to install and follow the prompts. Refer to the separate online user guide entitled *BOSâNOVA Client for Windows*.

Installing 16-bit Version on Windows 95/NT

> ***Warning!***
>
> We strongly recommend that you only run BOSâNOVA Client 32 in any 32-bit Windows environment (i.e., Windows 95/98 or Windows NT/2000). If, however, you must install the 16-bit version (BOSâNOVA Client for Windows), proceed as follows:

1. Close all applications.
2. Run Setupw.exe from the **Win31x** folder of the BOS CD-ROM.
3. Read the first screen and click **Next**.
4. From the list of applications, select **BOSâNOVA Client for Windows** and follow the prompts.
5. When you get to the License screen, click **Yes**. BOSâNOVA Client Setup then launches the installation program.
6. Select the modules to install and follow the prompts. Refer to the separate online user guide entitled *BOSâNOVA Client for Windows*.

Multiple Installations and Updates

You can install BOSâNOVA Client 32 more than once to the same PC (for Standalone installations) or server (for Network Server installations) as long as you use a different installation folder each time. For example, you might want to install BOSâNOVA Client 32 in more than one language or with different module combinations. Each installation creates a new installation set number in the Registry.

To update or make changes, you must rerun Setup. If you run Setup after BOSâNOVA Client 32 has already been installed, you are prompted to select one of the following:

Replace previous installation
The entire installation is replaced.

Add new components
You can select new components to be installed.

Change language support
You can change both the host language and the user interface language while preserving all other definitions.

Change license
You can replace one license with another. (Only appears if Setup is run on a system with a previous installation from a company license.)

> ***Note!***
> The first time you run Setup, update the older version with the components that are **presently** installed; this preserves data files and configuration. After the latest version is installed, run Setup again to add components.

Changing the BOS License

In two circumstances, installation may involve changing a license:

- If the CD-Key is different from the CD-Key used during the original installation ***and*** an upgrade is allowed, **Change License** appears as a fourth upgrade option.
- If more than one computer is using the same single installation CD-Key, a license violation message will appear. Restart Setup, type the new CD-Key, and select **Change License**.

INSTALLING THE ODBC DRIVER

1. Close all applications.
2. Insert the BOS CD-ROM; the Welcome screen appears. Click **Install Your BOS Product**. In the Setup Welcome screen, click **Next**.
3. Read the License Agreement. To install the ODBC drivers, you must click **Yes** to accept the License Agreement.
4. Enter your name and the company name. Click **Next**.
5. Enter the CD-Key; the 14-character CD-Key appears on the label on the license certificate accompanying the BOS CD-ROM. After the first six characters are entered in the first field, the cursor moves to the second field. After four characters are entered in the second field, the cursor moves to the third field. After the final four characters are entered in the third field, **Next** is enabled. Click **Next**.
6. Select **ODBC Driver** from the list of BOS products and click **Next**.
7. Select the setup type and click **Next**:
   - **Standard**: installs the ODBC drivers to your PC.
   - **File Server**: installs the drivers to a network server from which they can be installed to other PCs.
   - **Shared ODBC Server**: installs a shared version on a server. Then, each user must install the Shared ODBC Client version.
   - **Shared ODBC Client**: copies necessary files to a client PC.
8. Select the components to install and click **Next**.
9. Select the ODBC version and click **Next**; different applications and platforms require different versions.
10. Select the installation directory and click **Next**.
11. Select the Program folder and click **Next**.
12. Review settings; to accept them, click **Next**. To change any settings, click **Back**.
13. After Setup copies the files and installs the driver, you can choose to view the Readme file and/or configure a data source (which opens the configuration program for the ODBC driver).
14. When prompted, restart the PC.

CONFIGURATION MODULES

BOSâNOVA Client 32 includes several modules or components which help you configure and maintain the software. These are:

- Setup (to install the software)
- **The Administrator** (to set and maintain overall parameters)
- **The Emulation Configurator** (to define emulation sessions)
- **Printer Driver Editor** (to customize the printer driver)
- Printing Configuration Advisor (to define PC and host parameters and manage print jobs)
- LAN (802.2 LLC) APPC Router Configurator (to define parameters for this router)
- Twinax (TDLC) APPC Router Configurator (to define parameters for this router)
- Advanced Server for SAA Router Configurator (to define parameters for this router)

Following are explanations of the Administrator and the Emulation Configurator. See online Help for explanations of the other configuration modules.

THE ADMINISTRATOR

The Administrator provides an overall view of various parameters relating to your installation of BOSâNOVA Client 32. The Administrator also enables you to run certain administrative procedures.

Starting the Administrator

The Administrator can be accessed directly from the installation procedure. Otherwise:

- from Start Menu|Programs|BOSâNOVA Client 32, select

or
- right-click **Start**, click **Open**, double-click **Programs|BOSâNOVA Client 32,** and double-click

Using the Administrator

The **top pane** of the Administrator uses a Windows-style tree structure to display the parameters and installed modules. This structure will be intuitive to you if you are familiar with Windows Explorer. To use this structure:

- If an item has a **plus sign (+)** next to it, it contains nested items. Click the plus sign to expand the item (display the nested folders).

- If an item has a **minus sign (–)** next to it, it is already fully expanded. Click the minus sign to collapse that part of the tree.
- The names of the parameter sets appear in black, while the current status values appear in blue. Values always appear in <angle brackets>.
- When you **select** a parameter set or module in the top pane, buttons and controls for configuring or running that parameter set or installed module appear in the **bottom pane**.

The Administrator parameters and modules are organized as follows:

Installation Parameters

When Installation Parameters—in the top pane of the Administrator—is expanded, the following parameters are displayed:

Product Version
The version of BOSâNOVA Client 32. Technical Support will ask you for this number if you contact them for help.

Installation Type
Standalone or Network User.

Installation Path
The path to which BOSâNOVA Client 32 is installed. To change this, you must uninstall BOSâNOVA Client 32 (from the Windows Control Panel, Add/Remove Programs); then reinstall BOSâNOVA Client 32 from the original CD-ROM or diskettes to a different destination directory.

Installation Set
The set number if you have installed BOSâNOVA Client 32 more than once on the same PC.

Product ID
The product ID of BOSâNOVA Client 32. Technical Support will ask you for this number if you contact them for help.

Administrative Parameters

When Administrative Parameters—in the top pane of the Administrator—is expanded, the following parameters are displayed:

Host Language/Country
The host language, the EBCDIC code page used, and the supported keyboard language. These values were defined when you installed BOSâNOVA Client 32; if you encounter problems with host applications in other languages, you must reset these values by running Setup from the original CD-ROM or diskettes. Follow the **Update** procedure and reset the values on the Language Support screen.

License

This displays the license type. To change the license by you must run Setup from the original CD-ROM or diskettes. Follow the Update procedure and reset the values on the License CD-Key screen.

User Administration

This is displayed only in Network Server installations. For information on User Administration, see Appendix D, p. 77.

Connectivity

When Connectivity—in the top pane of the Administrator—is expanded, the following parameter is displayed:

Connection Type

The following types of connections are supported:

LAN (802.2 LLC) APPC Router

Provides the E32appc.dll required by 32-bit applications using an APPC interface to communicate with the host via an LLC connection.

Twinax (TDLC) APPC Router

Provides the E32appc.dll required by 32-bit applications using an APPC interface to communicate with the host via a Twinax line using a built-in Twinax adapter.

Advanced Server for SAA

Uses the Advanced Server for SAA virtual router. Select this ***only*** if Advanced Server for SAA is installed on your PC.

> ***Note!***
>
> If the selected license type is Advanced Server for SAA, this is the only connection type which will be available.

NetSoft Router for Windows 95/NT

NS Router for Windows 95/NT, only; this is not the same as the NS Router version for Windows 3.1!

External Router with E32APPC Interface

This is the SNA Server client, version 2.11 or higher, for Windows 95/NT.

Microsoft SNA Server

This is the SNA Server client, version 2.11 or higher, for Windows 95/NT.

Run

If the connection type is BOS's Advanced Server for SAA, LAN (802.2 LLC) APPC Router, or Twinax (TDLC) APPC Router, you can start the router by clicking **Run** in the bottom pane. (This button is disabled for all other connection types.)

Configure

Click to open a dialog box to configure the selected connection type.

> ***Note!***
> For Twinax (TDLC) APPC Router: if the Twinax Wizard has not yet been run, this will launch it. Otherwise, this will run the Configurator.

Use This Router as a Default 32-bit APPC Router

> ***Note!***
> This checkbox applies to the following routers only: LAN (802.2 LLC) APPC Router, Twinax (TDLC) APPC Router, and Advanced Server for SAA Router.

If you are using a third-party APPC application like ODBC, select this checkbox to use the router.

When this checkbox is selected, the application copies E32appc.dll to the Windows 95 system directory or the Windows NT System 32 directory and renames the existing .dll file. When you deselect the checkbox, the original .dll is restored.

> ***Note!***
> To change the connection type, you must first deselect this checkbox.

Installed Modules

When Installed Modules—in the top pane of the Administrator—is expanded, all currently installed components of BOSâNOVA Client 32 are displayed:

Display/Printer Emulation

5250 display and printer emulation.

> ***Note!***
> Display/Printer Emulation is always installed.

Data Transfer Functions

Data transfer between the PC and the host.

LAN (802.2 LLC) APPC Router

Provides the E32appc.dll required by 32-bit applications using an APPC interface to communicate with the host.

Twinax (TDLC) APPC Router

Provides the E32appc.dll required by 32-bit applications using an APPC interface to communicate with the host via a Twinax line using a built-in Twinax adapter.

AS4SAA Virtual Router

Advanced Server for SAA Virtual Router.

Host Explorer

For viewing AS/400 folders and virtual printers as if they were a drive on your PC.

IFS for Windows 95

BOSâNOVA IFS (Integrated File System) provides access to AS/400 folders from Windows 95/98.

After selecting a module, one or more of the following buttons appear in the bottom pane of the Administrator:

Click **Run** to run:

- the BOSaNOVA emulation
- SQL file transfer
- one of three routers: LAN (802.2 LLC) APPC Router, Twinax (TDLC) APPC Router, or Advanced Server for SAA Virtual Router
- the Host Explorer

Click **Configure** to configure:

- the BOSaNOVA emulation
- IFS for Windows 95
- one of three routers: LAN (802.2 LLC) APPC Router, Twinax (TDLC) APPC Router, or Advanced Server for SAA Virtual Router

Click **Transfer** or **Scheduler** for Data Transfer Functions.

Diagnostics

When Diagnostics—in the top pane of the Administrator—is expanded, the following parameter is displayed:

Troubleshooting Information

BOS Technical Support may ask you to create a file containing troubleshooting information, which can be sent, along with any trace files (.trc and .bts) and recorded screen files (.scn), to Technical Support.

Click **Collect Technical Information** in the bottom pane to open the User Information dialog box.

> ***Note!***
>
> You must close all sessions before running Diagnostics.

THE EMULATION CONFIGURATOR

Use the Emulation Configurator to change the parameters that control the look and operation of BOSâNOVA Client 32's emulation. After installation is complete, run the Configurator to define sessions.

> ***Note!***
> You can access the Emulation Configurator while the emulation is running. However, you cannot add sessions, change sessions, or make any changes in the Diagnostics tab while sessions are open.

Starting the Emulation Configurator

When the Emulation is Closed

- From Start Menu|Programs|BOSâNOVA Client 32, select

or
- Right-click **Start,** click **Open**, double-click **Programs|BOSâNOVA Client 32**, and double-click

From the Emulation

- Click from the emulation toolbar or
- Select **File|Run Configurator** from the emulation menu bar.

Using the Emulation Configurator

Configurator parameters are divided among the following two tabs:

Sessions Tab

For adding, modifying, or deleting display and printer emulation sessions. See online Help for details.

Advanced Properties Tab

For adding, modifying, or deleting display and printer emulation sessions as well as defining sets of global parameters (parameters that can affect all sessions).

The **top pane** of the tab uses a Windows-style tree structure to display the number and type of currently-defined sessions and the sets of global parameters affecting all the sessions. This structure will be intuitive to you if you are familiar with Windows Explorer in Windows 95/98 or Windows NT.

To use this structure:

- If an item is preceded by a **plus sign (+)**, it contains nested items. Click the plus sign to expand the item (display the nested folders).
- If an item is preceded by a **minus sign (–)**, it is already fully expanded. Click the minus sign to collapse that part of the tree.
- The names of the parameter sets appear in black; the current status values appear in green. Values always appear in angle brackets (< >).
- When you select a parameter set in the top pane, buttons and controls for configuring that parameter set appear in the **bottom pane**.

The parameter sets are divided into the following categories:

Sessions
Settings for all defined display and printer sessions.

Keyboard
For setting the keyboard type and viewing or customizing keyboard mapping and other settings.

Mouse
For defining mouse actions.

Sign-on Screen
For defining any automatic startup or macro action.

MorphExpress
For defining the GUI display.

Display Properties
For defining the color and cursor style.

Session Preferences
For defining the display font and ruler type.

Options
For setting various emulation options.

Diagnostics
For performing diagnostics (such as running an APPC trace).

> ***Note!***
> The trace files (*.trc) and/or screen files (*.scn) are automatically attached to the information file that you can generate using the Administrator (Diagnostics|Troubleshooting Information|Collect Technical Information). Then send this information file to Technical Support for troubleshooting.

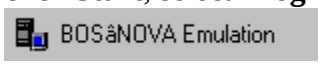
For details, see online Help.

BOSâNOVA EMULATION

The BOSâNOVA emulation is the environment in which you run your host applications. The host application appears in a window together with optional toolbars, the BOSâNOVA Client 32 menu bar, customizable macros, and customizable display enhancements.

Starting a Display or Printer Emulation

There are two ways to start an emulation:

- click **Start**, select **Programs|BOSâNOVA Client 32**; then select 

or
- Right click **Start,** click **Programs|BOSâNOVA Client 32,** double-click **Open**, and double-click

In addition, you can start BOSâNOVA Client 32 automatically by adding it to the Windows Startup folder. To do this, copy BOSâNOVA Client 32 Display Emulation (Bsmdemul.exe in your BOSâNOVA Client 32 folder) to your Startup folder (Start Menu|Programs|StartUp).

> ***Note!***
> After starting BOSâNOVA Client 32, you must open a session in order to start working. If you select **File|Save Workspace**, you can then automatically open all required sessions by selecting **File|Restore Workspace** when you start BOSâNOVA Client 32 again.

Opening a Session

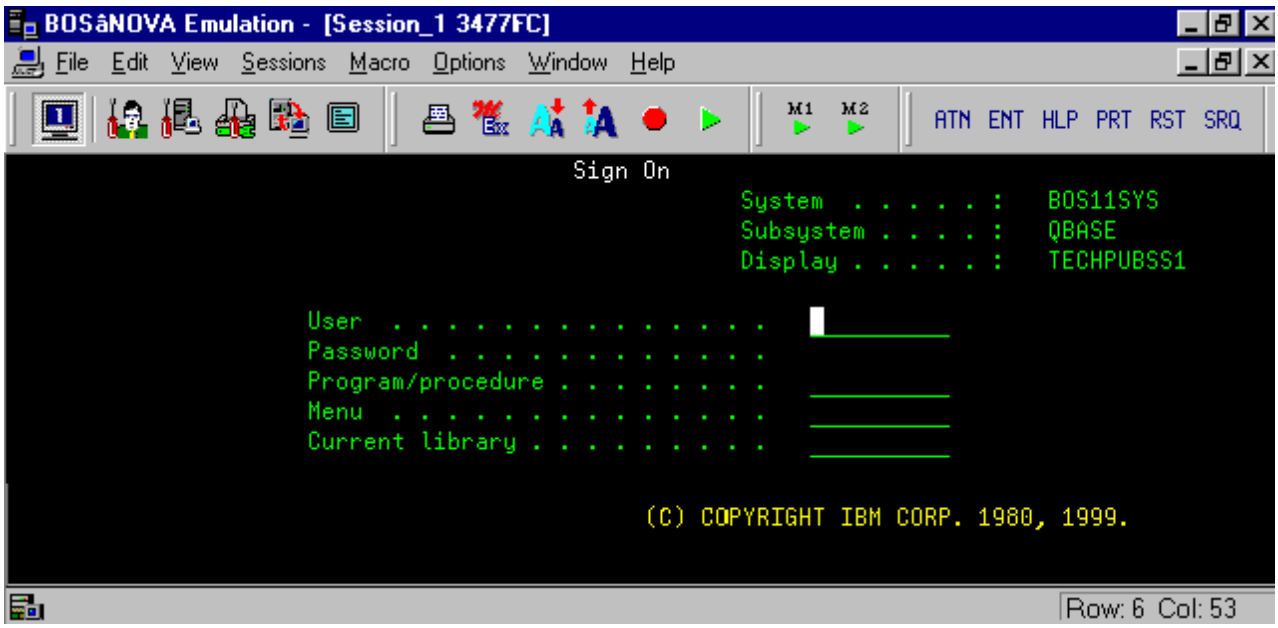
From the emulation, you can open a display session or printer session in the following ways:

- Click the desired display session icon—for example, —or printer session icon—for example, .
- Select **Sessions|Activate Session** and select the desired session.
- Select **Sessions|Activate All** to activate all sessions.
- If you selected **File|Save Workspace** the last time you ran BOSâNOVA Client 32 select **File|Restore Workspace** to automatically open all sessions.

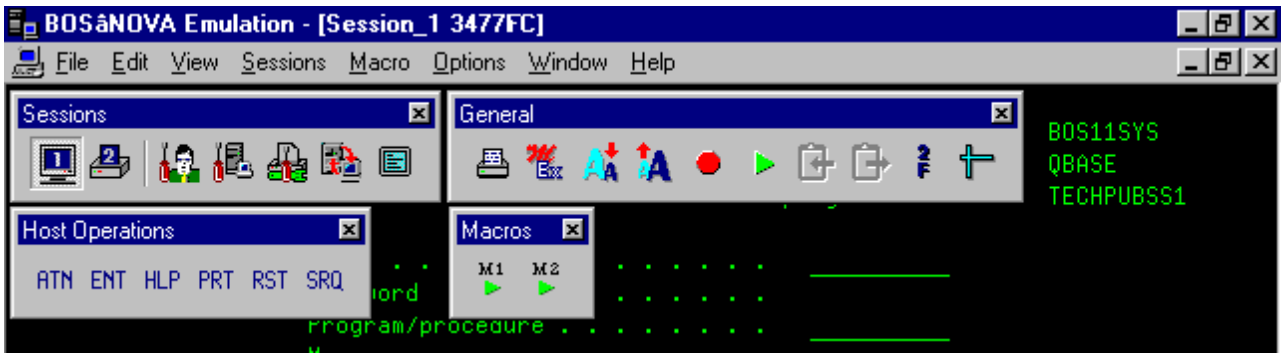
> **Note!**
> All defined sessions that are not open appear in the Activate Session cascade menu and are listed according to the session name. A session without a defined session name is listed by its number and device model type; for example, Session_2 3477.

Display Session Diagram

A compressed image of a display emulation screen is shown below.



The single BOSâNOVA Client 32 toolbar (shown above) is actually four separate toolbars, as shown below. The General, Host Operations, and Macros toolbars can be customized. Two additional toolbars are not shown: the Printer and the Function Keys toolbars. (see p. 35)



Display Emulation Toolbar Icons

> ***Note!***
> Details concerning the icons, and procedures associated with them, can be found in online Help.

Shows the active emulation session (when lit).

Shows the active printer session (when lit).

Runs the Administrator.

Runs the Emulation Configurator.

Displays Print Screen setup (configuration).

Runs the Data Transfer Function.

Toggles between normal display mode and full-screen mode. In full-screen mode, the Windows' menu, status, and task bars are not displayed.

Performs a Print Screen.

Calls MorphExpress. When selected, display sessions appear as GUI applications that include menus, buttons, frames, tables and other Windows interface features.

Decreases the font size in the active display session.

Increases the font size in the active display session.

Records a macro: everything entered at the keyboard (characters, symbols, or command keys) is recorded. Recording continues until the macro is stopped. While recording, a two-button toolbar appears containing Pause and Stop buttons.

Plays the selected pre-recorded macro.

Copies according to the copy default style set in the Edit menu.

Pastes according to the paste default style set in the Edit menu.

Toggles between full display of attributes and hidden attributes.

Toggles between different ruler styles and a hidden ruler.

ATN ENT HLP PRT RST SRQ Host operations toolbar functions.

M1 M2 Macros toolbar. Buttons only appear if macros are defined.

Closing a Session

To close a session:

- click the **Close** button ( ) at the right of the title bar to close the session window or
- select **Sessions|Close Session** and select the desired session

To close all sessions, select **Sessions|Close All**.

> ***Note!***
> All open sessions appear in the Close Session cascade menu and are listed according to session name. A session with no session name defined is listed by its number and device model type; for example, Session_2 3477.

Stopping an Emulation Session

When you exit the BOSâNOVA emulation, all sessions are closed. To do this:

- Select **File|Exit** or
- Click on the window title bar.

> ***Note!***
> If you log out of the host session without closing your host application, the session may remain defined at the host side even if BOSâNOVA Client 32 is closed. To prevent this, select **Check for Sign-on Screen on exit** in the Advanced Properties tab in the Configurator. This displays a warning if a session is closed when the host Sign-on screen is not the current screen.
>
> Alternately, you can assign an automatic exit macro. See online Help.

Printer Emulation Sessions

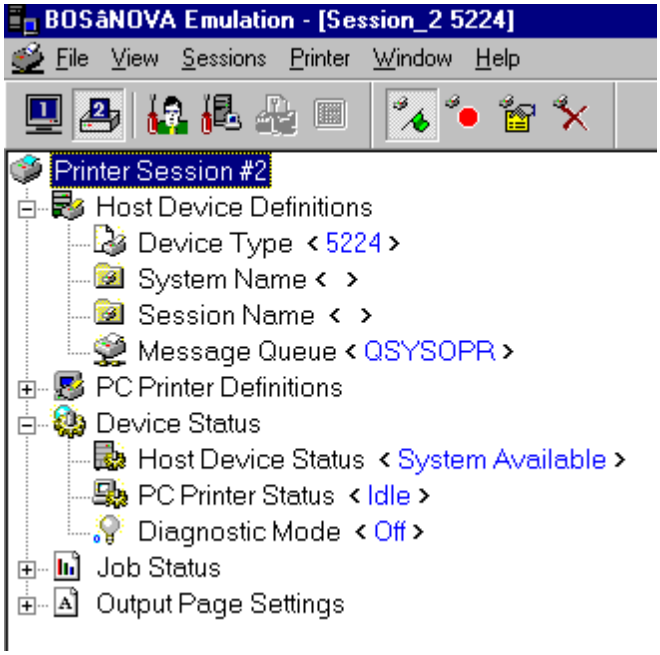
BOSâNOVA Client 32 uses a Windows-style tree structure to display printer sessions and their status information. This structure will be intuitive to you if you are familiar with Windows Explorer in Windows 95/98 or Windows NT.

- If an item is preceded by a **plus sign (+)**, it contains nested items. Click the plus sign to expand the item (that is, to display the nested folders).
- If an item is preceded by a **minus sign (–)**, it is already expanded. Click the minus sign to collapse the nested folders under the item.
- The names of the status parameters appear in black, while the current status values appear in blue. Values always appear in angle brackets (< >).
- You cannot change values directly on the screen. However, you can right-click anywhere to open a popup menu; then select Properties.

Printer Emulation Diagram

The following diagram shows a sample printer session status screen.

> ***Note!***
> Some parameters do not apply to all connection types.



Printer Emulation Toolbar Icons

Toolbar icons are listed below:

Shows the active emulation session (when lit).

Shows the active printer session (when lit).

Runs the Administrator.

Runs the Emulation Configurator.

Displays Print Screen setup (configuration).

Starts the printer. If the print queue has been paused or stopped, this resumes printing.

Stops the printer and any jobs currently in the print queue. A host error message will appear indicating that the print queue has been stopped. Jobs in the queue remain there; "Ready" jobs are released once the Start button is pressed or Printer|Start is selected.

Opens Printer Session Properties for viewing or setting print job parameters.

Cancels the current job in the print queue. Other jobs continue.

Printer Session Properties

You cannot change values directly on the screen. Make changes in the Printer Session Properties dialog box, which can be opened in one of three ways:

- In a print emulation screen:
  1. Right-click to display the popup menu.
  2. Select **Properties**.
- From the print emulation menu bar, select **Printer|Properties**
- From the printer emulation toolbar, click

General and Page Setup tabs are described below. Refer to *Printer Session Properties* in online Help for more information.

General Tab

This tab contains parameters that define the printer driver and job timeout settings.

Print Test Page

Sends a test page to the local printer. The print session is emulating a host print device, but the output is directed to a PC printer.

Printer Driver

BOSâNOVA Client 32 enables you to print using your default Windows printer driver or to bypass Windows printing by defining your own custom printer driver.

Timeout Settings

The default job timeout is 10 seconds. This is the maximum amount of time that can elapse between buffers that are received from the host. If no buffer is

received within this time period, BOSâNOVA Client 32 assumes that the end of the print job has occurred. During troubleshooting, you may need to increase this number. To restore the default value, click **Set Default Timeout**.

Custom Driver Considerations

In order to decide whether to use the default Windows driver or a custom driver, you must understand how BOSâNOVA Client 32 handles print jobs.

- **Windows driver**: A data buffer (ASCII or EBCDIC) arrives at the driver and is then output as a graphics buffer to the printer queue. Each output buffer is approximately 40K.
- **Custom driver**: A data buffer arrives at the custom driver and is then output as the same strings (ASCII or EBCDIC) plus commands for that printer driver. This output is then routed to the Windows driver, where it is again output to the printer queue as data strings plus printer commands. Because no graphic processing is involved, each buffer is approximately 3K.

> ***Note!***
> If you are printing straight ASCII text, for example, and require speed and high throughput, you might consider using a custom driver. Custom drivers can be modified using the Printer Driver Editor.

Page Setup Tab

See online Help for more information.

> ***Note!***
> If your screen display is not clear, click the + or – box in front of an entry several times to refresh the screen.

Copying Between Sessions or Applications

Most Windows applications use the Clipboard to transport text, graphics, and other data. You can also use the clipboard to copy data from a session into another session or another application.

1. In an active display emulation session, mark the on-screen text you want to copy by clicking-and-dragging with the mouse.
2. To copy:
   - select one of the copy methods from the Edit menu (Copy Continuous, Copy by Line, Copy Table, or Copy Bitmap), or
   - press <Ctrl+C>, or
   - click on the toolbar.

> **Note!**
> If you use either the toolbar or the keyboard to copy, the copy will be executed according to the copy method currently selected in the Edit menu.

3. If you are copying to a different session or application, switch to the other session or application.
4. Before pasting the copied text, position the insertion point for the text or data. (To position the insertion point, point and click with the mouse.)
5. To paste:
   - select one of the paste methods from the Edit menu (Paste Continuous, Paste with Tab, Paste by Fields, or Paste by Block), or
   - press <Ctrl+V>, or
   - click on the toolbar.

> **Note!**
> If you use either the toolbar or the keyboard to paste, the paste will be executed according to the paste method currently selected in the Edit menu.

The Macro Organizer and Macro Editor

With the Macro Organizer, you can manage and modify recorded **macros** in an easy-to-use interface. The Macro Organizer interface displays a list of existing macros on the left side and buttons for managing the macros on the right side.

The Macro Editor provides a convenient way for adding, removing, or substituting macro commands or text strings in a selected macro. The Macro Editor displays the text strings and commands of the selected macro in the order they were recorded or entered in the Macro Organizer. For details, refer to online Help.

Using Macros

Macros are strings of keystrokes (characters, symbols, or command keys) entered at the keyboard and saved for repeated use. They provide a simple way to enter repetitive command data into a host session screen. Macros are stored in the Windows Registry.

> ***Note!***
> If you have macros from another BOS emulation product, you will not be able to use them; you must re-record the desired macros in BOSâNOVA Client 32.

Recording a Macro

To record a macro, you must be in a display emulation session (see Opening a Session, p. 18).

1. Click from the toolbar or select **Macro|Record Macro**. The Record toolbar appears, containing the Pause and Stop buttons.
2. Enter any keystrokes for the macro
3. To stop recording, click or select **Macro|Stop Macro**. The Record popup toolbar closes.

> ***Note!***
> If you exit the emulation before stopping record mode, the recorded key sequences are lost.

4. The Save Macro As dialog box appears. Enter a name for the macro and click **Save**.

> ***Note!***
> If you record a macro with a key sequence that is already in use, the new key sequence automatically replaces the existing key sequence.

Viewing a Macro

1. Select **Macro|Macro Organizer**. The Macros Organizer opens.
2. Select a macro from the list and click **View**.
3. This opens the View Macro dialog box. The macro appears as commands and text strings.
4. When you have finished viewing, click **Close**.

Playing a Macro

To play a macro, you must be in a display emulation session.

- From the Sessions toolbar:
  1. Click . The Macro list opens.
  2. Select a macro from the list and click **Play**.
- From the Macro menu:
  1. Select **Macro|Play Macro**. A cascade menu appears with all defined macros.
  2. Select a macro from the list.
- From the Macros toolbar, click the desired macro icon from the toolbar.

Deleting a Macro

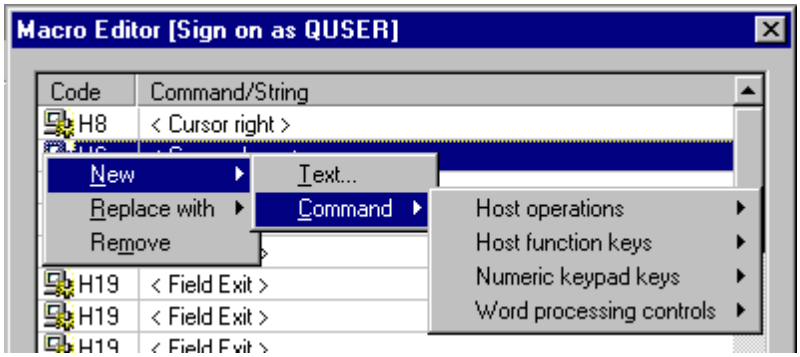
1. Select **Macro|Macro Organizer**. The Macros Organizer opens.
2. Select a macro from the list and click **Remove**.
3. Confirm the delete action by clicking **Yes**.
4. Select another macro to delete or click **OK** to close the dialog box.

Editing a Macro

1. In the emulation menu bar, select **Macro|Macro Organizer**.
2. In the Macro Organizer, select a macro and click Edit to open the Macro Editor.

> ***Note!***
>
> A red asterisk indicates that this macro was assigned as the automatic sign-on macro. A blue asterisk indicates that this macro was assigned as the automatic exit macro. Do not rename, remove, or edit these macros! For details, see online Help.

3. Use the right-click popup menus—pictured below—to edit the macro:



To add a text string:

a) Right-click the string or command before which to add the new one and select New|Text. If you don't select a command/string, the new string will appear at the end of the macro.

b) Type the new text and click OK. The new text string appears above the selected command/string or at the end of the macro if you didn't select one.

To add a new command:

a) Right-click the string or command before which to add the new one and select New|Command. If you don't select a command/string, the new command will appear at the end of the macro.

b) In the cascading menu, select the command category and then the appropriate command. Click OK. The new command appears above the selected command/string or at the end of the macro if you didn't select one.

To replace the selected string or command:

a) Right-click the string or command and select Replace with|Text or Replace with|Command.

b) For a text string: Type the new text and click OK. The new text string appears in place of the selected one.
For a command: In the cascading menu, select the command category and then the appropriate command. Click OK. The new command appears in place of the selected one.

To remove the selected string or command:

a) Right-click the string or command and select Remove.

b) When prompted, click Yes. The selected string or command disappears.

4. When you have finished editing the macro, click OK. You are returned to the Macro Organizer interface.

Exporting a Macro

1. In the emulation menu bar, select Macro|Macro Organizer and then click **Export**. A standard Windows Save As dialog box appears.
2. Select the destination for the macro and click **Save**.

Importing a Macro

1. In the emulation menu bar, select Macro|Macro Organizer and then click **Import**. A standard Windows dialog box appears.
2. Select the macro file (*.mxf) and click **Open**. The macro is copied to the Registry.

Refer to online Help for details concerning imported macros and naming conflicts.

CUSTOMIZING YOUR EMULATION SESSIONS

Keyboard

Accessing Keyboard Customization

- From an emulation session: select **Options|Keyboard Customization** from the emulation menu bar.
- From the Administrator:
  1. In the top pane, select **Installed Modules|Display Emulation**; in the bottom pane, click **Configure**.
  2. Select the **Advanced Properties** tab. In the top pane, select **Keyboard**; in the bottom pane, click **Keyboard Customization**.

Customizing Your Keyboard

1. From the Advanced Properties tab in the Configurator, select **Keyboard**.
2. In Keyboard style, select **Terminal** or **PC** (that is, the style of the keyboard you use).
3. In Keyboard type, select the keyboard you are using from the list (**BOS 122-Key** or **Standard 101/102-Key**). If you are using the BOS 122-key keyboard, you must install its driver (see Installing the BOS 122-key Keyboard Driver, p. 34).
4. To view the default keyboard settings, click **Keyboard Customization** (for details, see Keyboard Customization in online Help).

> ***Note!***
> For most users, the default keyboard settings are appropriate. If so, proceed to step 12. If, however, you want to change these settings, continue with step 5.

5. To change the default keyboard settings, set the following parameters (for details, see *Keyboard Customization* in online Help):
   - Keyboard Mapping Name: when you install BOSâNOVA Client 32, there are two PC keyboard options on the list: BOS 122-Key and Standard 101/102-Key. Select the type of keyboard you have.

> ***Note!***
> The following parameters apply to all the keyboard mappings in the list (if you change a parameter, it changes in ***all*** listed keyboard mappings).

   - Keyboard Lock: Shift Lock or Caps Lock and Set Num Lock at session startup.
   - Enter and Field exit: <Field exit>=ENTER, <Enter>=RCONTROL or <Field exit>=RCONTROL, <Enter>=ENTER.

- Word Processor Key Combination: None, Alt+Key, or Ctrl+Key.
- Session Toggle Key Combination: No key, Alt+Num, or Ctrl+Num.
- Key Sound: select **Enable** to hear a click when typing a key.

6. To view the current Host-to-PC keyboard mapping, click **Edit** to open the Mapping Editor (see p. 31 or *Mapping Editor* in online Help).

> ***Note!***
> For most users, the default Host-to-PC keyboard mappings are appropriate. If they are appropriate for you, proceed to step 12. To change these mappings, continue with step 7.

7. In Categories, select a host action category (**Characters on PC and Host keyboard**, **Emulation controls**, **Host function keys**, **Host operations**, **Macros**, or **Numeric pad keys**).
8. Select an action from the [Host actions list] edit box. (The title on this edit box is the category you selected in Categories.) The PC key to which that host action is currently mapped appears in PC Key and is highlighted by a blue border on the keyboard display.
9. On the keyboard display, delete the current mapping of the highlighted key by left-clicking it.
10. Remap the selected host action by left-clicking the new key to which you want to map it. This opens Mapping for PC key. Click the button with the desired key combination (Norm, Shift+, Ctrl+, or Alt+). If this key combination is already mapped, a prompt will ask if you want to change the existing mapping. Click **Yes** to accept the change and return to Mapping Editor. The new mapping appears in PC Key.

> ***Note!***
> You can remap from a PC key to a host action by right-clicking the key you want to map. The popup menu displays the current mapping of the selected PC key combinations: Norm, Shift+, Ctrl+,and Alt+. Follow the cascading menus to delete the current mapping or to remap the key combination to a different host action.

11. When done, click **Save As**. This opens Keyboard mapping will be saved as. In Name, type a name for your customized keyboard mapping. In Description, you can type a more detailed description of this mapping. Click **OK** to save the keyboard mapping.
12. When you have finished, click **OK** to save the keyboard mapping. Continue to click **OK** in each dialog box to save the changes and close the dialog box until you exit the Configurator. The keyboard changes take effect as soon as you return to the emulation.

Mapping Editor

Use the Mapping Editor dialog box to define the mapping between host actions and PC key combinations.

To map from host actions to PC keys, use the edit boxes at the top of the dialog box and left-click with the mouse.

To map from PC keys to host actions, use the keyboard display and right-click with the mouse.

> ***Note!***
> All the following parameters apply to the selected keyboard mapping name that appears in square brackets [ ] in the title bar of the Mapping Editor dialog box.

Categories

Select one of the following categories:

- **Characters on PC and Host keyboard**: This category includes all the keys for letters, numbers, and symbols.
- **Emulation controls**: This category includes emulation actions like <Jump to next host session> and <Play macro>.
- **Host function keys**: This category includes the host command keys like <Cmd1>.
- **Host operations**: This category includes host actions like <Attn>, <Clear>, and <Field><+>.
- **Macros:** This category includes recorded host macros like <Sign off> and <Sign on as QUSER>.
- **Numeric pad keys**: This category includes the numbers on the numeric keypad.

[Host Actions List]

The title of this middle edit box changes according to the category you selected in Categories. This edit box lists all the host action options in the selected category. Select the host action you want to map to a PC key.

PC Key

Displays the PC key(s) to which the selected host action is currently mapped.

Keyboard display: The keyboard in the bottom half of the dialog box displays the current mapping of the keyboard mapping name shown on the title bar of the popup dialog box. Right-click a key: it will be highlighted with a blue border. The popup dialog box shows the key to which the selected host action is currently mapped. From the keyboard display, you can perform the following functions:

- Display the current mapping of any key by holding the cursor over it for a few seconds.
- Delete the current mapping of the highlighted key by left-clicking it.
- Remap the selected host action by left-clicking the new key to which you want to map it. This opens Mapping for PC key (see below).
- Remap from a PC key to a host action by right-clicking the key you wish to map. The popup menu displays the current mapping of the highlighted PC key combinations: <Norm>, <Shift>+, <Ctrl>+, and <Alt>+. Follow the cascading menus to delete the current mapping or to remap the key combination to a different host action.

OK

When you select **Standard 101/102-Key** or **BOS 122-Key** keyboards, OK is unavailable; when you customize and save the new mapping, you may then view this customized keyboard mapping without making any changes, and then click **OK**.

Save As

To save a customized keyboard mapping, click **Save As** to open the Keyboard mapping will be saved as dialog box.

Cancel

If you do not want to change the keyboard mapping or if you have made changes to the mapping that you do not want to save, click **Cancel**.

Mapping for PC Key

The PC key you left-clicked appears in square brackets [ ] in the title bar. The host action you selected appears in angle brackets < > in the instruction.

Click a key combination button:

- **<Norm>**: To map the selected host action to the normal key character.
- **<Shift>+**: To map the selected host action to <Shift> + the key character.
- **<Ctrl>+**: To map the selected host action to <Ctrl> + the key character.
- **<Alt>+**: To map the selected host action to <Alt> + the key character.

If this key combination is already mapped, you will be prompted to change the existing mapping. Click **Yes** to accept the change and return to Mapping Editor. The new mapping will appear in PC Key.

Deleting a Keyboard Mapping

You can remove a customized keyboard mapping from the Keyboard Mapping Name list by deleting it. If you want to remove it from the list, but not delete it, first Export it to a file; you can Import it later if necessary. (See Exporting a Keyboard Mapping, below).

> ***Note!***
>
> You cannot delete BOS122-Key or Standard 101/102-Key keyboards because they are the standards from which you map your customized keyboards.

1. Open the Keyboard Customization dialog box. (See Accessing Keyboard Customization, p. 29).
2. In Keyboard mapping name, select a customized keyboard mapping.
3. Click **Delete** to remove the keyboard mapping and return to Keyboard Customization.
4. Click **OK** to save the changes and exit the Configurator.

Exporting a Keyboard Mapping

You can save a keyboard mapping to a file and send it to others on the network.

1. Open the Keyboard Customization dialog box. (See Accessing Keyboard Customization, p. 29).
2. In Keyboard mapping name, select a customized keyboard mapping.
3. Click **Export** to open the Save As dialog box.
4. In File name, enter the Keyboard mapping name. In Save as type, select **Keyboard mapping files (*.kbm)**. Click **Save** to save the file and return to the Keyboard Customization dialog box.
5. Click **OK** to exit the dialog box.

Importing a Keyboard Mapping

You can open a keyboard mapping that has been saved to a file (for example, by the system administrator). You can also make changes to it.

1. Open the Keyboard Customization dialog box. (See Accessing Keyboard Customization, p. 29).
2. In Keyboard mapping name, select a customized keyboard mapping.
3. Click **Import** to open the Open dialog box.
4. Find the file and click **Open**. The customized keyboard mapping opens directly in Mapping Editor.

> **Note!**
> The imported keyboard mapping overrides the keyboard type and style settings for all the keyboard mappings listed in Keyboard Mapping Name. If you need to change these settings, see Customizing Your Keyboard, p. 29.

5. Make any changes and click **Save As** to save the new mapping.
6. Enter the new customized keyboard mapping name and click **OK**. Click **OK** to accept the changes and exit the Emulation Configurator.

Installing the BOS 122-key Keyboard Driver

> **Note!**
> The BOS122-key keyboard is available for Windows 95/98 only, not for Windows NT.

1. From the Windows Control Panel, select **Keyboard**.
2. In the General tab, select the keyboard type and click **Change**. This opens the Select Device dialog box.
3. Click **Have Disk**.
4. Enter the full path of the BOSâNOVA Client 32 installation folder or click **Browse** to search.
5. Windows automatically searches for .inf files. Select the file **Oemsetup.inf** and click **OK**.
6. Click **OK** again. The BOS 122-key keyboard appears as the keyboard model.
7. Click **OK** to install the driver.
8. Click **Close** to close the Keyboard Properties dialog box and return to the Control Panel.

Toolbars

There are six toolbars in BOSâNOVA Client 32. Define which toolbars are displayed and which icons they contain on the Toolbar dialog box. Select **View|Toolbars** to open the Toolbar dialog box.

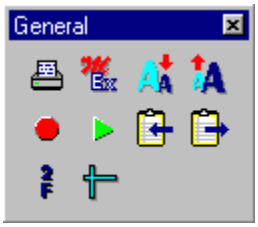
The toolbars below are shown as they would appear when "floating"—that is, when they have been dragged into the emulation screen area. When toolbars appear under the menu bar, they do not have titles.

> ***Notes!***
>
> Toolbar functions are duplicated in menu items or by keyboard hotkeys.
>
> Toolbar buttons can be displayed with visible borders or with borders that are only visible when the mouse cursor is over it, as is the style used by Microsoft Internet Explorer. In the Toolbars dialog box, select **Set MSIE style** for Internet Explorer style buttons.

Sessions

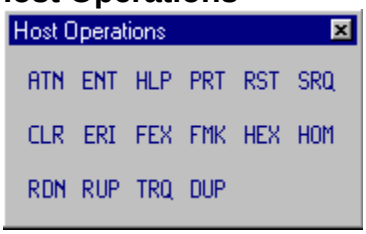
Contains an icon for each defined session plus icons for accessing the Configurator and Print Screen setup, running ATF or DTF, and toggling between full-screen and normal display mode.

General



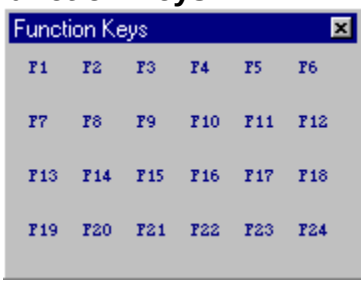
Contains icons for performing a print screen, changing fonts, playing macros, displaying print attributes, and changing the ruler cursor style.

Host Operations



Contains icons of these common host commands.

Function Keys



Contains icons for function keys.

Printer

Contains icons for starting and stopping print jobs. Appears only if the in-focus session is a printer emulation session.

Macros

Contains icons of all defined macros. If no macros have been recorded, this toolbar will not appear. To display with macro names, see the instructions in online Help.

Customizing Toolbars

1. From the emulation, select **View|Toolbars**.
2. Select the toolbar you want to modify and click **Customize**. This opens the Customize Toolbar dialog box (for details, see online Help).
3. Customize the toolbar:
   - To add a button, select it in the Available Buttons table on the left side of the dialog box, and click **Add**.
   - To remove a button, select it in the Toolbar Buttons table on the right side of the dialog box, and click **Remove**.
   - To display tooltips (small popup descriptions of interface elements that appear when the cursor is on an interface element), select **Show ToolTips**.
   - To display toolbars in the same style used by the Microsoft Internet Explorer—that is, without a visible border until the mouse cursor rests on it—select **Set MSIE style**.

4. When you have made all changes, click **Close** to return to the Toolbars dialog box.

> ***Note!***
> Changes are not saved until you click **OK** in the Toolbars dialog box. This saves the changes and returns you to the emulation. Click **Reset** to return the values to the previously saved settings.

5. Click **OK** to save the changes and close the Toolbars dialog box. The modifications appear as soon as that toolbar is displayed.

Arranging Toolbar Icons

You can arrange the order of icons in toolbars in two ways.

- From the Customize Toolbar dialog box:
  1. Select **View|Toolbars**.
  2. Select a toolbar and click **Customize** to open the Customize Toolbar dialog box (for details, see online Help).
  3. Select an icon in Toolbar Buttons (on the right side of the dialog box); click **Move Up** or **Move Down** to reposition it. Toolbar buttons are arranged according to the order in which they appear in the Toolbar Buttons table.
  4. When you have finished, click **Close**.
  5. Click **OK** in the Toolbars dialog box to save the changes and return to the emulation screen.
- On the toolbar:
  1. <Alt>+click on a toolbar icon (that is, click a toolbar icon with the left mouse button while holding down the <Alt> key).
  2. Drag the icon to a new location on the toolbar and release the mouse.
  3. If you drag the icon off the toolbar, it will be removed; to restore it, go back to the Customize Toolbar dialog box.

Moving Toolbars

Windows 95/98 and Windows NT support “floating toolbars”—that is, you can click-and-drag toolbars to different places on your screen.

- Click a toolbar and drag it onto the session area. When you release the mouse button, the toolbar changes into a toolbox. The icons remain arranged in the same order.
- Click a toolbar and drag it to the bottom of the session area. When you release the mouse button, the toolbar automatically positions itself at the bottom of the screen.
- Click a toolbar and drag it to either side of the session area. When you release the mouse button, the toolbar becomes a vertical toolbar along the side of the screen.

Viewing Options

You can control various viewing options in BOSâNOVA Client 32:

- To determine which toolbars are displayed, select **View|Toolbars** in the emulation menu bar. This opens the Toolbars dialog box.
- To display the status bar, select **View|Status Bar** in the emulation. If a check mark appears next to this menu item, the status bar appears at the bottom of the display session screen. To turn off the status bar, select **View|Status Bar** again.
- To convert the host display to a Windows-style display, select **View|MorphExpress** in the emulation. MorphExpress changes the look of the display session, converting it into a true GUI application.

> ***Note!***
> MorphExpress only appears in the View menu if a display session is active.

Hotkeys

BOSâNOVA Client 32 supports the following hotkeys.

> ***Note!***
> The hotkey examples given here are for 101/102 keyboards only.

<Alt> + <Page Up>	jumps from one session to another
<Alt> + <Insert>	zooms to a full screen/unzooms to a split screen for the present session
<Alt> + <Page Down>	cycles between the different ruler cursor styles
<Alt> + <F3>	starts recording a macro
<Alt> + <F5>	starts playing a macro
<Alt> + <F8>	toggles between Test mode (in which host attributes are displayed) and normal mode
<Alt> + <Print Scrn>	performs a print screen to the local PC printer

MorphExpress

MorphExpress is an automated tool that converts your original host screen into a GUI screen by:

- analyzing your host screens
- automatically detecting commands and menus and converting them from plain text to GUI buttons
- adding panels and graphic elements
- converting subfiles into tables and options into buttons

Displaying the MorphExpress Screen

Click on the toolbar to toggle between the GUI display and your previous color scheme choice (Color or Mono).

The original (non-MorphExpress) color tables are always saved.

Configuring MorphExpress

1. From the Advanced Properties tab in the Configurator, select **MorphExpress** in the top pane and click **GUI Customize** in the bottom pane to open GUI Logic Configuration (for details, see online Help).
2. Set the parameters to define the way MorphExpress recognizes and converts screen elements.
3. Click **OK** in each dialog box to save the changes and close the dialog box until you exit the Configurator. The changes take effect as soon as you return to the emulation.

Customizing GUI Controls

1. From the Advanced Properties tab in the Configurator, select **Display Properties** in the top pane and click **Display Properties** in the bottom pane to open the Display Properties dialog box.
2. In Display Mode, select **MorphExpress** and click **Customize** to open the MorphExpress Options dialog box, where you define how the controls look.
3. Make changes and click **OK**. To save the changes, click **OK** in each dialog box until you exit the Configurator. The changes take place automatically in all display sessions.

Customizing GUI Colors

1. From the Advanced Properties tab in the Configurator, select **Display Properties** in the top pane and click **Display Properties** in the bottom pane to open the Display Properties dialog box.
2. Under Display Mode, select **MorphExpress**; under Color scheme name, select the palette from the dropdown list.
3. Select a background color for controls from the BackColor dropdown palette.
4. Select a background color for input fields from the BackColor dropdown palette. (If you use a contrasting color, the input fields are more noticeable.)
5. Click **Apply** to make the changes. You can see how the selections look in the sample (the top half of the dialog box). When you are satisfied with the color schemes, click **OK** to close the Configurator.

DTF (DATA TRANSFER FUNCTIONS)

DTF is included with BOSâNOVA Client 32. Use DTF to transfer data to and from an AS/400 host. For details, refer to the online Help.

LAN (802.2 LLC) APPC ROUTER

The LAN (802.2 LLC) APPC Router is included with BOSâNOVA Client 32. This router provides the E32appc.dll required by 32-bit applications using an APPC interface to communicate with a host. For details, refer to the online Help.

TWINAX (TDLC) APPC ROUTER

The Twinax (TDLC) APPC Router is included with BOSâNOVA Client 32. This router provides the E32appc.dll required by 32-bit applications using an APPC interface to communicate with a host via a Twinax line using a built-in Twinax adapter. For details, refer to the online Help.

AS4SAA VIRTUAL ROUTER

The Advanced Server for SAA Virtual Router is included with BOSâNOVA Client 32. For details, refer to the online Help.

HOST EXPLORER

Use the Host Explorer to view your AS/400 folders and virtual printers as if they were another drive on your PC. For details, refer to Appendix C, p. 76.

IFS FOR WINDOWS 95

BOSâNOVA IFS (Integrated File System) provides access to AS/400 folders from Windows 95. With IFS, you can work with AS/400 files and folders as if they were PC files and folders. For details, refer to Appendix A, p. 65.

PRINTER DRIVER EDITOR

Use the Printer Driver Editor to modify custom printer drivers for your specific needs. For details, refer to online Help.

UNINSTALLING BOSâNOVA CLIENT 32

To uninstall BOSâNOVA Client 32 you must run the Uninstall program. **Do not use the Windows Explorer to delete files or folders!**

> ***Note!***
> Before you uninstall BOSâNOVA Client 32, you must first disable BOSâNOVA IFS for Windows 95, if it is running.

1. From the Control Panel (Settings|Control Panel), double-click the **Add/Remove Program** icon.
2. From the list at the bottom of the Install/Uninstall dialog box, select the BOSâNOVA Client 32 set that you want to uninstall (for example, **BOSâNOVA Client 32 Set 2**).
3. Click **Add/Remove**.
4. After InstallShield has finished preparing the Uninstall program, close the Install/Uninstall dialog box.
5. Click **Next** to proceed with Uninstall and follow the prompts.

TROUBLESHOOTING

Tips for Laptop Users

Because most laptop computers don't have a separate numeric keypad, we recommend that you do **not** use the **Set Num Lock at session startup** feature.

Reboot Warning

When installing BOSâNOVA Client 32, a reboot warning is issued if DLLs used by BOSâNOVA Client 32 are in use while it is being installed. This can occur if another application is running while BOSâNOVA Client 32 is being installed. To resolve this warning, reboot your PC after installation is finished.

Installing on Windows NT

If you are installing BOSâNOVA Client 32 on Windows NT, you must have **administrative privileges**. If you try to reinstall BOSâNOVA Client 32 without administrative privileges, you will receive an error message.

Printer Session

In a printer session, if you selected **Current Windows Driver** (General tab) and you saved print output in ASCII format (Diagnostics tab|Save to ASCII file), do ***not*** click **Collect Technical Support Information** because the resulting file may be too large.

Running a Trace

If you are experiencing problems with an emulation session, you can run a trace. A trace writes session information to a file which can then be sent to Technical Support for analysis.

There are several types of traces: APPC traces—run from a particular session defined in the Emulation Configurator—are written to a file with the extension .trc. Screen captures (or recorded screens) are snapshots of the display session screens saved in a file with the extension .scn. Traces run from a printer session determine if the printing problem originates in the printer emulation or elsewhere in the system.

When you finish preparing the requested trace or screen capture files, collect the technical information to send to Technical Support for analysis.

To run a trace:

- from the Configurator:
    1. Close all open sessions.

2. Open the Configurator.
3. In the top pane, expand **Diagnostics** and select **Record APPC Trace**.
4. In the bottom pane, select **Record APPC Trace** and specify a filename and location.
5. Run an emulation.
6. When the error occurs again, close the emulation. The data is written to the file specified in step 4 (default extension .bts).
7. In the top pane of the Administrator, expand **Diagnostics** and select **Troubleshooting information**. In the bottom pane, click **Collect Technical Information** to open the User Information dialog box. Follow the prompts and complete the information. Include it along with the trace file on a diskette, and send the diskette to Technical Support for analysis.

- from a printer session:
  1. In the Printer session, right-click.
  2. Select **Properties**.
  3. Select the **Diagnostics** tab. Select **Activate Diagnostic Mode** and select the output option.
  4. Prepare the information file to send to Technical Support for analysis.

- from the Administrator (Technical Information File):
  1. Close all sessions.
  2. Run the Administrator.
  3. In the top pane, expand **Diagnostics** and select **Troubleshooting information**.
  4. In the bottom pane, click **Collect Technical Information** to open the User Information dialog box (for details, refer to online Help).
  5. Complete the information and save the user information file (default name Bsinfo.bts).
  6. The user information file automatically includes any trace and screen captures. Send the field (as an e-mail attachment) to Technical Support for analysis..

Contacting Technical Support

Before Contacting Technical Support

1. Refer to the appropriate topic in this Troubleshooting section. The problem may be something you can solve on your own.
2. If you can't solve the problem by yourself, run the Administrator. In the top pane, expand **Diagnostics** and select **Troubleshooting information**; in the bottom pane, click **Collect Technical Information** to open the User Information dialog box. Fill in the form before contacting Technical Support; if contacting us via fax, include a printout of this form. Otherwise, have it handy when you call us.

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Error Messages

Many of the error messages in BOSâNOVA Client 32 are self-explanatory; they include possible causes of the problem and suggest solutions. When multiple solutions are suggested, always try them in the order presented. If the solutions do not work or if you do not understand the message, contact Technical Support.

The errors below can be accessed via bookmarks in the panel to the left.

Installation Error Messages (INS)

INS100

Error:
`An error occurred during the mode data process` *name*.

Cause 1:
A connection error may have occurred while files were being copied.
Action:
Reboot the PC and try again.

Cause 2:
The CD-ROM may be corrupted or damaged.
Action:
Contact your BOS dealer for another CD-ROM.

INS101

Error:
`Uninstall Setup failed to initialize. You may not be able to uninstall this product.`

Cause 1:
A Windows error may have occurred.
Action:
Reboot and try again.

Cause 2:
There may not be enough disk space to run Setup.
Action:
Check your system.

Cause 3:
You may not have the privileges to install.
Action:
Contact your system administrator.

INS102

Error:
`The specified directory is write-protected. Check write access to this directory.`

Cause:
You do not have write privileges to this folder.
Action:
Select another folder and try again.

INS103 **Error:**
`Error creating directory.`

Cause:
The path (drive or folder) is write-protected or the drive name is invalid.

Action:
Select another folder or ask your system administrator to change the folder's write-protection.

INS104 **Error:**
`Cannot install to the system root folder.`

Cause:
The system root folder is reserved.

Action:
Select a different folder and try again.

INS105 **Error:**
`The folder you have selected` *`folder_name`* `is the system root folder. Files cannot be installed to this folder; select a different folder.`

INS106 **Error:**
`Cannot install to this folder.`

Action:
Select another folder or ask your system administrator to change the folder's protections.

INS107 **Error:**
`The folder you have selected` *folder_name* `is the` *name* `product folder. Files cannot be installed to this folder; select a different folder.`

INS108 **Error:**
`The specified directory is invalid.`

Action:
Check the path and try again.

INS109 **Error:**
`The file path is too long. Enter a different file path.`

Cause:
The path may exceed Windows' 250 character maximum.

Action:
Check the path and try again.

INS110 **Error:**
`The specified directory doesn't contain policy setting files.`

Cause:
You are attempting to install a customized version which requires policy setting files.

Action:
Contact your system administrator.

INS111 **Error:**
`Setup can't continue. Login with system administrator privileges.`

Cause:
You are installing on Windows NT and do not have system administrator privileges.

Action:
Log out and log in again on the appropriate account. Contact your system administrator for details.

INS112 **Error:**
`This CD-Key can only be used for updating the existing version.`

INS113 **Error:**
`Product with license code` *number* `can't be updated.`

Cause:
Your CD-Key does not match the actual CD-ROM.

Action:
Contact your BOS dealer for the appropriate CD-Key or CD-ROM.

INS114 **Error:**
`LaunchApp failed. Couldn't find` *filename*`.`

Cause:
An internal error occurred; the CD-ROM may be corrupted.

Action:
Contact your BOS dealer.

INS115 **Error:**
`Unable to update. The version on your drive is a newer version than the one in Setup.`

Action:
If you have another CD-ROM, try again; otherwise, contact Technical Support.

INS116 **Error:**
`The Company License information you entered is incorrect. Insert the Company License diskette into the driver selected below.`

Cause:
Your installation is a site license which requires a company license file.

Action:
Contact your system administrator for the file.

INS117 **Error:**
`You have entered an invalid license code. Try again.`

INS119 **Error:**
`One or more previous Citrix MetaFrame installations of` *filename* `already exist on your drive or on the network drive. Before selecting Standalone Setup, uninstall previous Citrix MetaFrame installations.`

Cause:
Citrix MetaFrame does not support multiple installation in Standalone mode.

Action:
Uninstall the previous versions and rerun Setup.

Administrator Errors (ADM)

ADM01

Error:
`Wrong password verification.`

Cause:
In MS SNA Server configuration, the password verification you entered is incorrect.

Action:
Enter the correct password verification.

ADM02

Error:
`Unable to load library <library name>.`

Cause:
The load library is missing or was deleted.

Action:
Check that the library path is correct. Rerun the Administrator.

ADM03

Error:
`Cannot execute <filename>. File not found.`

Cause:
The executable file is not correctly installed.

Action:
Check that you have selected the appropriate operation to perform.

Error:
`You must enter the host alias name.`

Cause:
The host alias name parameter is undefined.

Action:
Define the host alias name.

Emulation Configurator Errors (BPC)

BPC001

Error:
`Registry x corrupted.`

Cause:
This key is missing from the Registry or is incorrectly defined.

Action:
Install BOSâNOVA Client 32 and select **Update** and **Revert Registry**.

BPC002

Error:
`Unable to load <module name>.`

Cause:
The module is missing or has been deleted.

Action:
Install BOSâNOVA Client 32 and select **Update** and **Update Executable Files**.

BPC003

Error:
`Error using DLL <DLL name>.`

Cause:
Internal error.

Action:
Contact Technical Support.

BPC004

Error:
`x memory allocation failure!`

Cause:
Not enough Windows resources.

Action:
Close other applications; if this doesn't help, restart Windows.

BPC005

Error:
`Unknown product ID has been detected.`

Cause:
Registry has been corrupted.

Action:
Install BOSâNOVA Client 32 and select **Replace** or **Install to a new directory**.

BPC006

Error:
`Key x not valid.`

Cause:
Registry has been corrupted.

Action:
Install BOSâNOVA Client 32 and select **Update** and **Revert Registry**.

Message or Text Errors (BSV)

BSV001

Error:
`Unable to open Registry Key.`

Cause:
This key is missing from the Registry or is incorrectly defined.

Action:
Check that Regedit.exe exists in the Windows folder. Then install BOSâNOVA Client 32 and select **Update** and **Revert Registry**.

BSV002

Error:
`Incorrect function call in Administrator mode.`

Cause:
Internal error.

Action:
Contact Technical Support.

BSV003

Error:
`Unable to retrieve` *`x`* `value from` *`y`* `Registry Key.`

Cause:
This key is missing from the Registry or is incorrectly defined.

Action:
Check that Regedit.exe exists in the Windows folder. Then install BOSâNOVA Client 32 and select **Update** and **Revert Registry**.

BSV004

Error:
`There is no installation Registry Key.`

Cause:
This key is missing from the Registry or is incorrectly defined.

Action:
Check that Regedit.exe exists in the Windows folder. Then install BOSâNOVA Client 32 and select **Update** and **Revert Registry**.

BSV005

Error:
`Unable to save` *`x`* `value into` *`y`* `Registry Key.`

Cause 1:
This key is missing from the Registry or is incorrectly defined.

Action:
Check that Regedit.exe exists in the Windows folder. Then install BOSâNOVA Client 32 and select **Update** and **Revert Registry**.

Cause 2:
Internal error

Action:
Contact Technical Support.

Driver Errors (BCD)

BCD001

Error:
`Internal error BCD001, code x.`

Cause:
Internal error.

Action:
Contact Technical Support.

BCD002

Error:
`GetProcAddress failed: x.`

Cause:
You may have an old version of the library file.

Action:
Install BOSâNOVA Client 32 and select **Update** and **Update Executable Files**.

BCD003

Error:
`Unable to load library filename) (code x)`

Cause:
The library file is missing or incorrect.

Action:
Install BOSâNOVA Client 32 and select **Update** and **Update Executable Files**.

BCD004

Error:
`Unable to open installation registry key (code x).`

Cause:
Internal error.

Action:
Contact Technical Support.

BCD005

Error:
`Unable to retrieve x value from y registry key (code x).`

Cause:
Internal error.

Action:
Contact Technical Support.

BCD006

Error:
`Can't allocate memory. Close unused applications or restart Windows.`

Cause:
Insufficient memory.

Action 1:
Close all unnecessary applications.

Action 2:
Restart Windows.

BCD007

Error:
`Unable to open registry key (code x).`

Cause:
Internal error.

Action:
Contact Technical Support.

BCD008

Error:
`Unable to create Data or Keyboard events.`

Cause:
This is an internal Windows error.

Action:
Restart Windows.

BCD009

Error:
`Unable to create Decode or Keyboard threads.`

This is an internal Windows error.

Action:
Restart Windows.

BCD010

Error:
`Unable to establish a connection to the host. Check that the connection type is defined correctly in the Configurator.`

Cause:
The connection type is wrong or incorrectly configured.

Action:
Correct the connection type in the Administrator (Connectivity)

BCD011

Error:
`Session x disconnected from host (APPC code: y).`

Cause:
EHNAPPC error.

Action:
See EHNAPPC Errors, p. 62

BCD012 **Error:**
`Cannot start session. Check session parameters (system name, session name, etc.).`

Cause 1:
Session parameters are incorrect.

Action:
Check the session parameters in the Configurator (Sessions tab).

Cause 2:
This session name is already active on the AS/400.

Action:
Change the session name in the Configurator (Sessions tab).

BCD013 **Error:**
`AS/400 error 2702: Device description not found.`

Cause:
Error returned from the AS/400.

Action:
Contact your system administrator.

BCD014 **Error:**
`AS/400 error 2703: Controller description not found.`

Cause:
Error returned from the AS/400.

Action:
Contact your system administrator.

BCD015 **Error:**
`AS/400 error 2777: Damaged device description.`

Cause:
Error returned from the AS/400.

Action:
Contact your system administrator.

BCD016 **Error:**
`AS/400 error 8901: Device not varied on.`

Cause:
Error returned from the AS/400.

Action:
Vary device on and rerun the session.

BCD017 **Error:**
`AS/400 error 8902: Device not available. Device is probably already in use.`

Cause:
A session with this name is already in use.

Action:
Run a session with a unique name.

BCD018 **Error:**
`AS/400 error 8903: Device not valid for pass-through. Check session name.`

Cause:
The defined session name has already been allocated to an APPC device or physical device.

Action:
Change session name in the Configurator (Sessions tab).

BCD019 **Error:**
`AS/400 error 8906: VLIC initiation failed.`

Cause:
Error returned from the AS/400.

Action:
Contact your system administrator.

BCD020 **Error:**
`AS/400 error 8907: APPC failure.`

Cause:
Error returned from the AS/400.

Action:
Contact your system administrator.

BCD021 **Error:**
`AS/400 error 8910: Controller not valid for pass-through.`

Cause:
Error returned from the AS/400.

Action:
Contact your system administrator.

BCD022 **Error:**
`AS/400 error 8912: Device not an APPC device.`

Cause:
Error returned from the AS/400.

Action:
Contact your system administrator.

BCD023 **Error:**
`AS/400 error 8916: No matching device found.`

Cause:
Error returned from the AS/400.

Action:
Contact your system administrator.

BCD024 **Error:**
`AS/400 error 8917: Not authorized to create object.`

Cause:
The user ID and password that are used do not have the required privileges.

Action:
Contact your system administrator.

BCD025 **Error:**
`AS/400 error 8918: Job canceled.`

Cause:
Someone performed an endjob on the AS/400.

Action:
Restart session.

BCD026 **Error:**
`AS/400 error 8920: Object partially damaged.`

Cause:
Error returned from the AS/400.

Action:
Contact your system administrator.

BCD027 **Error:**
`AS/400 error 8921: Communications error.`

Cause:
Error returned from the AS/400.

Action:
Contact your system administrator.

BCD028 **Error:**
`AS/400 error 8922: SNA negative response received.`

Cause:
Error returned from the AS/400.

Action:
Contact your system administrator.

BCD029

Error:
`AS/400 error 8923: Start-up record built incorrectly.`

Cause:
This is a probable emulation error.

Action:
Do an APPC trace and send it to Technical Support.

BCD030

Error:
`AS/400 error 8925: Device creation failed. Probably bad session name.`

Cause:
Error returned from the AS/400.

Action:
Contact your system administrator.

BCD031

Error:
`AS/400 error 8928: Change of device failed.`

Cause:
The session name was configured in a way that makes it impossible to change.

Action:
Define another session name.

BCD032

Error:
`AS/400 error 8929: Vary on or vary off operation failed.`

Cause:
The session name cannot be created.

Action:
Define a new, unique name, for example DSPS.

BCD033

Error:
`AS/400 error 8930: Check session parameters.`

Cause:
There is an incorrect or missing session parameter.

Action:
Check and correct session parameters in the Configurator (Sessions tab).

BCD034

Error:
`AS/400 error 8935: Pass-through rejected.`

Cause:
Error returned from the AS/400.

Action:
Contact your system administrator.

BCD035 **Error:**
`AS/400 error 8936: Security failure on pass-through attempt.`

Cause:
The user ID and/or password are not correct.

Action:
Redefine user ID and password in the Administrator or in Router configuration.

BCD036 **Error:**
`AS/400 error 8937: Automatic sign-on rejected.`

Cause:
The sign-on bypass request feature is disabled.

Action:
Enable this feature by setting the system value QRMTSIGN to *VERIFY on the AS/400.

BCD037 **Error:**
`AS/400 error 8940: Automatic configuration failed or not allowed.`

Cause:
AS/400 limitation on automatic configuration.

Action:
Enable automatic configuration or configure the device manually.

BCD038 **Error:**
`AS/400 error I904: Source system at incompatible release.`

Cause:
Error returned from the AS/400.

Action:
Contact your system administrator.

BCD039 **Error:**
`AS/400 error I901: Virtual device has less function than source device.`

Cause:
Error returned from the AS/400.

Action:
Contact your system administrator.

BCD040 **Error:**
`AS/400 error I903: Intermediate pass-through running.`

Cause:
Error returned from the AS/400.

Action:
Contact your system administrator.

BCD041 **Error:**
`AS/400 error I906: Automatic sign-on requested but not allowed.`

Cause:
The sign-on bypass request feature is disabled.

Action:
Enable this feature by setting the system value QRMTSIGN to *VERIFY on the AS/400.

BCD042 **Error:**
`Failure to establish host connection.`

Cause:
The connectivity supplier or router is unable to connect to the AS/400.

Action:
Check the status of the connectivity supplier or router.

BCD043 **Error:**
`AS/400 error 8934: Device defined for S/36 tried to connect to AS/400.`

Cause:
Not applicable at this time.

Action:
Not applicable at this time.

BCD044 **Error:**
`Version of <filename> file does not correspond to version of BSCLDRV.DLL file.`

Cause:
The version of this file is too old and cannot be connected to Bscldrv.dll.

Action:
Install BOSâNOVA Client 32 and select **Update** and **Update Executable** Files.

BCD050 **Error:**
`The underlying network subsystem is not ready for network communication.`

Cause:
Microsoft SNA Server configuration is incorrect.

Action 1:
From the Microsoft SNA Server folder, run the 5250 applet and reconfigure the SNA Server, if necessary (in the SNA Server Configurator).

Action 2:
Contact your system administrator.

BCD051 **Error:**
`WAPPC32 startup error. Check SNA Server version number.`

Cause 1:
You are using a version of SNA Server lower than 2.11.

Action:
Install a version of SNA Server 2.11 or higher.

Cause 2:
The SNA Client installation is incorrect.

Action:
Reinstall SNA Client.

BCD052 **Error:**
`Unable to open trace file <filename>.`

Cause:
The emulation is trying to create a file in a write-protected folder.

Action:
Define another trace folder in the BOSâNOVA Client 32 Configurator (Advanced Properties tab|Diagnostics|Record APPC Trace).

BCD060 **Error:**
`Unable to start connection to host.`

Cause:
The connection supplier or router is not connected to the AS/400.

Action:
Check the status of the connection supplier or router.

BCD061

Error:
`Unable to start router.`

Cause:
The router is not correctly configured.

Action:
Check the router configuration.

BCD070

Error:
`Failed to load <filename>.`

Cause:
The file is damaged or does not exist.

Action 1:
Check the file's status.

Action 2:
Install BOSâNOVA Client 32 and select **Update** and **Update Executable Files.**

BCD073

Error:
`Too many open files`

Cause:
Too many applications are currently open.

Action:
Close all unnecessary applications.

BCD075

Error:
`Sector not found.`

Cause:
Internal error.

Action:
Contact Technical Support.

BCD076

Error:
`General failure.`

Cause:
This is an internal emulation error.

Action:
Contact Technical Support.

BCD077

Error:
`Network access denied.`

Cause:
This is an internal emulation error.

Action:
Contact Technical Support.

EHNAPPC Errors

The following errors are a continuation of Driver Error BCD011.

1

Error:
`EHNAPPC_DEALLOCNORMAL`

Description:
Deallocation normal.

Cause:
Device already in use, device in “varied off” state, incorrect session name or session name limitation.

Action:
Check that there is no device active with this name, check session name limitation in AS/400, and restart the router. If this does not help, prepare Technical Information with APPC traces and contact Technical Support.

5

Error:
`EHNAPPC_RESOURCEFAILURERETRY`

Description:
Resource failure retry.

Cause:
This may indicate a router failure.

Action:
Restart the router.

6

Error:
`EHNAPPC_RESOURCEFAILURENORETRY`

Description:
Resource failure no retry.

Cause:
This may indicate a router failure.

Action:
Restart the router.

16

Error:
`EHNAPPC_PARMCHKBUFFERCROSSSEG`

Description:
Parameter check; buffer crossed segment.

Cause:
The cause is unknown.

Action:
Run the emulation with a trace. Perform Collect Technical Information (Administrator|Diagnostics|Troubleshooting Information|Collect Technical Information…), fill in the information and send the file (default, Bsinfo.bts) to Technical Support.

17

Error:
`EHNAPPC_PARMCHKTPNAMELENGTH`

Description:
Parameter check; transaction program name length.

Cause:
Incorrect TP name.

Action:
If the connection type is MS SNA Server, define the correct Common Local LU alias in the Administrator.

1C

Error:
`EHNAPPC_PARMCHKBADPARTNERNAME`

Description:
Incorrect system name.

Cause 1:
In the BOSâNOVA Configurator, the system name (Sessions tab) is incorrect.

Action:
Use the system name that is defined in router configuration (in the router Configurator) or clear the field to connect to the default.

29

Error:
`EHNAPPC_STATECHKNOTINRECEIVE`

Description:
State check; not in receive.

Cause:
Internal BOSâNOVA Client 32 error.

Action:
In the Configurator (Advanced Properties tab|Diagnostics), record an APPC trace. In the Administrator (Diagnostics|Troubleshooting Information), click **Collect Technical Information**, fill in the form, and send it to Technical Support.

32

Error:
`EHNAPPC_ALLOCERRNORETRY`

Description:
Allocation error; no retry.

Cause:
This indicates a security problem.

Action:
If your connection type is Microsoft SNA Server, define the correct user ID and password in the Administrator; otherwise, define the correct user ID and password in router configuration.

37 **Error:**
`EHNAPPC_ALLOCERRSECNOTVALID`

Description:
Allocation error; security not valid.

Cause:
This indicates a security problem.

Action:
If your connection type is Microsoft SNA Server, define the correct user ID and password in the Administrator; otherwise, define the correct user ID and password in router configuration.

63 **Error:**

`EHNAPPC_UNDEFINED`

Description:
Undefined.

Cause:
An incorrect system name was defined in session configuration.

Action:
Use the correct the system name or delete the current system name so that the default will be automatically used.

Other Module Errors

Refer to online Help to view error messages for the following modules:

- DTF (Data Transfer Functions)
- ATF (Advanced Transfer Function)
- LAN (802.2 LLC) APPC Router
- Twinax (TDLC) APPC Router
- AS4SAA Virtual Router (Advanced Server for SAA)
- Host Explorer
- IFS for Windows 95
- User Policy Editor
- Remote Configuration
- PDE (Printer Driver Editor)

APPENDIX A: BOSâNOVA IFS FOR WINDOWS 95

Introduction

BOSâNOVA IFS (Integrated File System) for Windows 95 is a Windows 95/98 utility that enables you to work with AS/400 folders as if they were PC folders.

With BOSâNOVA IFS, you can:

- use an AS/400 as a file server for your PC
- assign a root folder on an AS/400 to an available drive on your PC
- use IFS in Windows 95/98 and DOS applications
- copy folders and files to and from your PC and an AS/400
- change file attributes
- create, browse, rename, move, and delete PC and AS/400 folders and files

System Requirements

- Windows 95 or 98
- BOSâNOVA Client 32 installed and configured:
- OS/400 v3.10 or higher

Getting Started

To start using BOSâNOVA IFS for Windows 95, you must first configure it to work with your BOS client product and your host system.

1. In the top pane of the Administrator, expand **Installed Modules** and select **IFS for Windows 95**.
2. In the bottom pane, click **Configure** to run the IFS Configurator.
3. Select BOSâNOVA Client 32 and click **Enable IFS Support**. When prompted to restart Windows, click **Yes**.

   The BOSâNOVA IFS for Windows 95 icon appears in the bottom right of the taskbar.

   As pictured on the following page, the <system name> icon and <system name> folder appear in Windows Explorer under **Network Neighborhood\Entire Network\BOSâNOVA AS/400 Network**. Expand the <system name> folder to display the AS/400 folders.

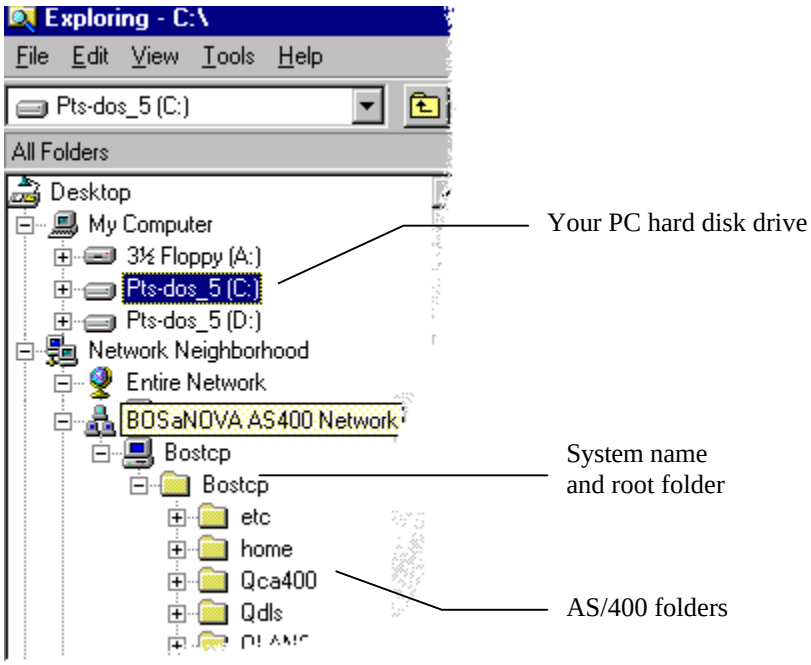

Figure 1: Windows Explorer with AS/400 Network Display

4. Since MS-DOS does not use universal naming conventions (UNC), you **must** map the AS/400 to a single-letter network drive to use BOSâNOVA IFS for Windows 95 with an MS-DOS application.

> ***Note!***
> We recommend that you set up the mapped drive even if you plan to use only Windows 95/98 applications.

5. In Windows Explorer, right-click the <system name> folder under the <system name> icon under BOSâNOVA AS/400 Network (refer to Figure 1 above). Select **Map Network Drive** from the shortcut menu.
6. In the Map Network Drive dialog box, select an available drive (default **I:**) for the AS/400 folders and files. Select **Reconnect at logon** and click **OK**.
7. In Windows Explorer, select **View|Refresh**. Expand the mapped drive to display the list of AS/400 folders.

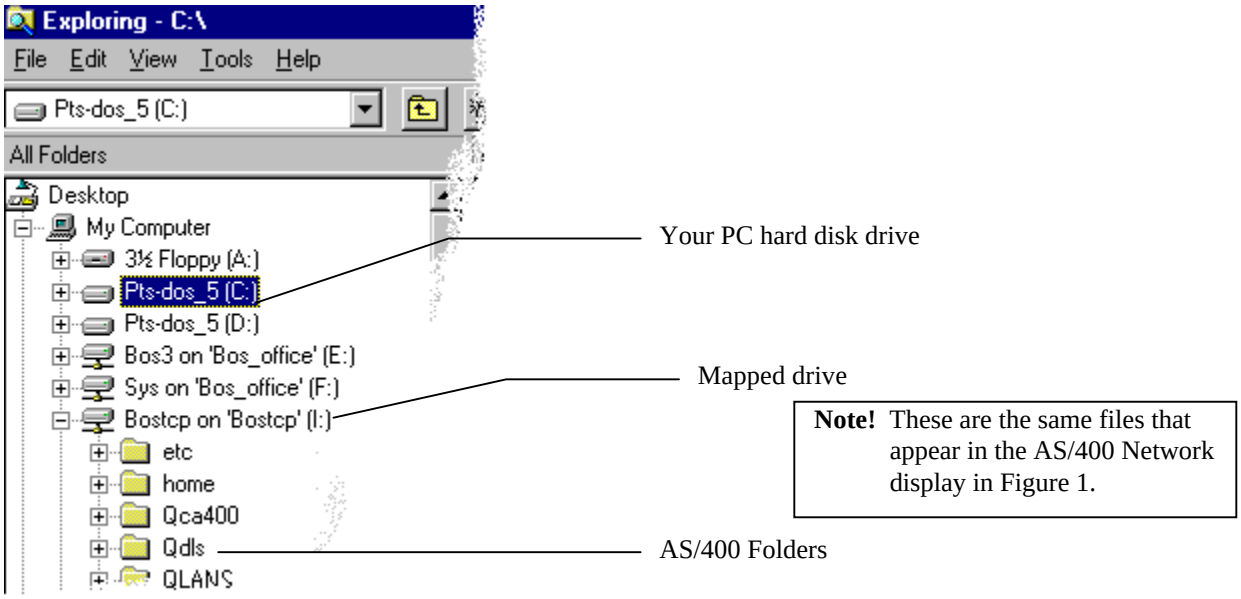

Figure 2: Windows Explorer with Mapped Drive **I:** Display

8. You may now create, browse, rename, move, and delete PC and AS/400 folders and files.

Disabling Long Filename Support

QDLS (IBM Document Library Services) is the standard IBM name for the root folder used in the earlier versions of IBM PC Support Shared Folders. With BOSâNOVA IFS for Windows 95, you can continue to use QDLS. Since QDLS does not support long filenames, you must first disable this default BOSâNOVA IFS for Windows 95 setting.

1. In the top pane of the Administrator, expand **Installed Modules** and select **IFS for Windows 95**.
2. In the bottom pane, click **Configure** to run the IFS Configurator.
3. Click **Advanced** to open the Advanced Options dialog box.
4. Deselect **Enable long filenames** and click **OK**. When prompted to restart Windows, click **Yes**.

BOSâNOVA IFS Configurator

Use the Configurator to control the operation of BOSâNOVA IFS for Windows 95. To open the IFS Configurator:

1. In the top pane of the BOSâNOVA Client 32 Administrator, expand **Installed Modules** and select **IFS for Windows 95**.
2. In the bottom pane, click **Configure**.

Use Connection as Defined in

BOSâNOVA Client 32 appears here (when BOSâNOVA IFS for Windows 95 is one of its modules).

Enable BOSâNOVA IFS Support

Sets up and starts BOSâNOVA IFS for Windows 95.

Disable BOSâNOVA IFS Support

(Available only when BOSâNOVA IFS for Windows 95 is enabled.) Removes BOSâNOVA IFS for Windows 95.

Enable Trace

(Available only when BOSâNOVA IFS for Windows 95 is enabled.) Creates a trace of the IFS activity. A trace file will be created as defined in the client you are using or, if not defined, as the default trace file in Windows\System. Send the trace file to BOS Technical Support.

Advanced

(Available only when BOSâNOVA IFS for Windows 95 is enabled.) Opens Advanced Options for starting and stopping IFS and modifying certain parameters.

Using BOSâNOVA IFS for Windows 95

Moving Folders and Files between the AS/400 and Your PC

To move folders and files between the AS/400 and your PC:

In Windows 95/98 Applications:

Use Windows Explorer to drag-and-drop or copy-and-paste folders and files to and from the AS/400 (from the mapped drive or from the <system name> folder in **Network Neighborhood\Entire Network\BOSâNOVA AS/400 Network\<system name>**) and your PC (usually **C:**\).

In MS-DOS Applications:

In Start|Programs, select **MS-DOS Prompt** to open the DOS box. Use DOS commands (for example, DIR, COPY) or a special DOS navigation utility (such as

Norton Commander) to copy and delete directories and files between the AS/400 (the mapped to drive) and your PC (usually **C:**\).

Browsing or Searching Folders and Files from the AS/400

To browse or search folders and files:

In Windows 95 Applications:

Click **Start|Find** to browse folders or files on the AS/400 as you would for folders and files on your PC.

In MS-DOS Applications:

In Start|Programs, select **MS-DOS Prompt**. Use DOS commands (for example, DIR, COPY) or a special DOS navigation utility (such as Norton Commander) to search directories and files on the AS/400.

Uninstalling BOSâNOVA IFS

To disable BOSâNOVA IFS for Windows 95, but continue working with BOSâNOVA Client 32:

1. In the top pane of the Administrator, expand **Installed Modules** and select **IFS for Windows 95**.
2. In the bottom pane, click **Configure** to run the IFS Configurator.
3. In the Configurator, click **Disable BOSâNOVA IFS**. When prompted to restart Windows, click **Yes**.

> ***Note!***
> Before you uninstall BOSâNOVA Client 32, you must disable BOSâNOVA IFS for Windows 95.

Troubleshooting

Known Limitations

This version of BOSâNOVA IFS for Windows 95 has the following limitations:

- Only one root folder for each system can be mapped as a network drive.
- You cannot run .exe files from the AS/400.
- You cannot access AS/400 folders from 16-bit Windows applications.
- In File|Properties, only the Modified date and time is shown for a file.
- You cannot browse directories in Norton Commander for Windows.
- When you copy a long filename from your PC to the AS/400, the filename appears in all capital letters.
- When you attempt to move a folder, an error message occurs if the folder contains any read-only files. (All other files are moved successfully, however.)
- An anti-virus program installed on your PC may prevent copying files from your PC to an AS/400.

Running a Trace

You may be asked by a Technical Support Representative to run a trace to send to Technical Support.

1. In the top pane of the Administrator, expand **Installed Modules** and select **IFS for Windows 95**.
2. In the bottom pane, click **Configure** to run the IFS Configurator.
3. In the Configurator, select **Enable trace** and click **Advanced** to open the Advanced Options dialog box.
4. Click **Stop IFS**, then **Start IFS**, then **Close**. Start the operation that didn't run properly. When the error occurs again, stop the operation.
5. Run the Configurator, click **Advanced**, and click **Stop IFS**. A trace file will be created as defined in the client you are using or, if not defined, as the default trace file in Windows\System. Send the trace file to BOS Technical Support.

APPENDIX B: DTF (DATA TRANSFER FUNCTIONS)

Introduction to DTF

DTF (Data Transfer Functions) is a 32-bit Windows utility for transferring data in either direction between a PC and a host (AS/400 or System/3x).

DTF is included as part of BOS emulation software (for example, BOSâNOVA Client 32, BOSâNOVA TCP/IP, BOSâNOVA Plus 32, etc.). The data is transferred via APPC, TCP/IP, or HLLAPI connections. The connection type depends on the BOS client you have installed.

Data transfers are managed by file transfer profiles. These are files with an **.h2p** (host-to-PC) or **.p2h** (PC-to-host) extension that contain information about the data and how it is to be transferred, for example, the source and destination paths, the transfer type, and conversion information.

After you create a DTF profile, you have a number of options to use for transferring the data: DTF interface (interactive mode), DTF background mode, Profile lists (batch mode), and the Scheduler. In addition, the Send utility provides a tool for transferring strings and running script files in display sessions via HLLAPI.

DTF contains four components:

- The DTF Wizard helps you create new DTF profiles.
- The DTF interface displays DTF profiles in a Windows-like tree structure. In the DTF interface, you can:
    - View profiles and profile lists
    - Create profiles
    - Change profile parameters
    - Create profile lists
    - Change profile lists
    - Run data transfers in interactive mode. (See also Running DTF in Background Mode, in online Help.)
- The Scheduler lets you define automated transfers to run on a specified schedule or as triggered by a dynamic event.
- The Send utility lets you send strings or commands to the host.

With DTF, you can create a list of profiles and then run these multiple transfers in background mode. For details about running data transfers, refer to the online Help.

If you have used ***via*** BOSaNOVA for data transfer, you will be familiar with many of the terms and procedures in DTF. For information about **new** terminology and procedures in DTF, see Tips for via BOSaNOVA Users, in online Help.

If you have used ATF for data transfer, you will be familiar with many of the terms and procedures in DTF. For information about **new** terminology and procedures in DTF, see Tips for ATF Users, in online Help.

Getting Started

> ***Note!***
> For DTF via HLLAPI, the ***via*** BOSaNOVA host software must be installed on the host system. If it is not already installed, contact your BOS distributor.

1. Verify that you have the correct system requirements installed and configured on your PC and host systems.
2. In the BOS Emulation Configurator|Sessions tab, configure one or more display sessions. You **must** set the short HLLAPI name for each target session.
3. Activate the target session and logon.
4. Get to the screen with the command line and position your cursor in the command line.

> ***Note!***
> **For AS/400 users!** If you do not have access to the command line, you must get to the file transfer screen of the target session.

5. In the BOS emulation, click or select **File|Run File Transfer** to open DTF Open Profile.
6. Continue with the instructions in online Help for the type of transfer you want to run:
   - Transferring Data from an AS/400 to a PC
   - Transferring Data from a PC to an AS/400
   - Transferring Data from a System/3x to a PC
   - Transferring Data from a PC to a System/3x

The DTF Wizard

Use the DTF Wizard to create a new DTF profile. A DTF profile contains information about the data and how it is to be transferred. The parameters that appear in the wizard depend on the host type (AS/400 or System/36) and transfer direction (host-to-PC or PC-to-host) you selected in DTF Open Profile; they are also affected by the connection type used (APPC, TCP/IP, or HLLAPI). For details about each step in the DTF Wizard, click **Help** in the wizard screen.

The DTF Interface

The DTF interface displays the selected data transfer profile or profile list. It provides all the controls for creating DTF profiles and profile lists, viewing the host file, and running data transfers.

Menu Bar

Use the menus in the menu bar to perform all the functions available in DTF.

Toolbar

Use the buttons on the toolbar to perform many of the common functions found in the menus. ToolTips define the buttons.

Panes

The **top pane** of the DTF interface uses a Windows-style tree structure to display the parameters of the displayed profile or profile list. This structure will be intuitive to you if you are familiar with Windows Explorer in Windows 95/98 or Windows NT/2000.

To use this structure:

- If an item has a **plus sign (+)** next to it, it contains nested items. Click the plus sign to expand the item (display the nested folders).
- If an item has a **minus sign (–)** next to it, it is already fully expanded and all the nested items are displayed. Click the minus sign to collapse that part of the tree.
- The names of the parameter sets appear in black; current status values appear in blue. Values always appear in <brackets>.
- When you select a parameter set in the top pane, buttons and controls for defining or changing that parameter set appear in the **bottom pane**.

> ***Note!***
>
> To access online Help for the displayed dialog box, select **Help|Context-sensitive Help**, press **F1**, or click ?.

The parameters are divided into the following categories:

General
Host type, transfer direction, transfer type, code page conversion information.

Host
Information for finding and identifying the source or destination on the host and for defining how the transferred data will be written on the host.

PC
Information for finding and identifying the source or destination on the PC and for defining how the transferred data will be written on the PC.

Advanced
Advanced parameters affecting the data transfer.

The Scheduler

With the Scheduler, you can run tasks automatically, according to the time and other conditions. You can choose to run file transfers at set periods of time, or based on certain **string triggers** which occur on the host emulation screen. You can schedule to send strings or run script files via the Send utility. You can schedule other Windows applications to run in conjunction with file transfers.

Create a task using the Scheduler Wizard, which prompts you for all required information.

The Scheduler Interface

The Scheduler interface resembles the DTF interface, with a top pane containing a tree structure of all created tasks and their parameters.

The Menus

The Scheduler menu bar contains the following menus:

File
Create new, open, close, save, and hide Scheduler.

Task
Suspend and resume tasks. Also contains options for setting the frequency and intervals of the scheduled tasks.

Log
Display details and write log to a file.

Help
Displays this online Help topic.

The Toolbar

The Scheduler toolbar contains the basic tools for working with tasks.

	Clears the Scheduler interface and writes a new task. Click **Add Task** to launch the Scheduler Wizard.
	Opens an existing Scheduler file. These files have the extension .dts and are stored, by default, in the DTF installation folder.
	Saves the current Scheduler contents to a file with a .dts extension.
	Hides the Scheduler. To open the Scheduler again, click in the status area of the Windows task bar.
	Suspends the selected (highlighted) task in the tree. The task will remain suspended until resumed.
	Suspends all tasks in the tree. The tasks will remain suspended until resumed.
	Resumes all tasks. See online Help for other ways to resume tasks.
	Opens the online Help.

Scheduler Wizard

With the Scheduler, you define data transfer tasks to be run automatically. You can choose to run file transfers at set periods of time, or based on certain **string triggers** which occur on the host emulation screen. You can schedule to send strings or run script files via the Send utility. You can schedule other Windows applications to run in conjunction with file transfers. Use the Scheduler Wizard to define the tasks.

For details about each step in the Scheduler Wizard, click **Help** in the specific wizard screen.

The Send Utility

The Send utility is a BOS application for sending a simple string from the PC to a specified position on a specified display session or for processing a script file via the specified display session.

A **simple string** is a string which will be sent to the specified display session either at the current cursor position or another specified position.

A **script file** is a series of statements (commands) to be processed. The statements must follow a specific syntax and must be terminated with a carriage return/line feed combination (also referred to as EOL, or End-of-Line).

For details about Send syntax and usage, refer to online Help.

APPENDIX C: HOST EXPLORER

Introduction

With BOS's Host Explorer, you can view your AS/400 as if it were another drive on your PC. The Host Explorer is designed to look and function like Windows Explorer or Internet Explorer. It includes:

- access to all connected AS/400s, displaying libraries and files as if they were folders on another (PC) network drive
- drag-and-drop copying of folders or files
- the ability to send print jobs directly from your PC to AS/400 printer queues
- a full, customizable toolbar (with or without text labels)

Host Explorer Interface

The Host Explorer is designed to look and function like Windows Explorer or Internet Explorer.

Menu Bar

The active window contains a menu bar with the following menus: File, Edit, View, and Help. Most of the menu functions are standard Windows-type functions. For information on functions specific to BOS's Host Explorer, refer to online Help.

Toolbar

The active window contains a toolbar with standard buttons (Back, Up, Cut, Copy, Paste, Refresh, Delete, Properties, Views) and a Stop button for stopping the current activity, while keeping Host Explorer active.

You can hide the toolbar by deselecting **Standard Buttons** (View|Toolbar), or hide the button descriptions by deselecting **Text Labels** (View|Toolbar).

Tree View

When you first open Host Explorer, all drives appear in the tree view (left pane of the active window):

- **AS/400 Folders** appears at the end of your PC network list at the same level as My Computer. Expand folders by clicking them; folder contents appear in the right pane.
- **Printer** appears at the end of each AS/400's list of folders. Click the Printer folder to view (in the right pane) all the printer devices on that AS/400. You can connect appropriate PC printer drivers to AS/400 printer devices and then send print jobs directly from your PC to AS/400 printer queues. See **Printing from Your PC to an AS/400 Printer** in the online Help.

Status Bar

The bottom of the active window contains the Status Bar. This displays the current status of Host Explorer; for example, Reading (if trying to access the host), Ready, Pasting, etc.

APPENDIX D: USER ADMINISTRATION

BOSâNOVA User Administration—available only in a Network Server setup—is a set of administrative tools for managing network installations. It includes the User Policy Editor and Remote Configuration.

BOSâNOVA User Policy Editor

The User Policy Editor is accessed from the main interface of BOSâNOVA Client 32; from the Administrator, select **Administrative Parameters|User Administration|User Policy Editor**. See online Help for details.

User policies are the limitations and privileges assigned to a group or a specific user. With the User Policy Editor, the system administrator can create groups, name the groups, and assign users to groups. Once a group is created, policies can be assigned in Edit Policies. These policies give the system administrator the ability to manage both users within the network and users not connected to the network. With the User Policy Editor, the system administrator can:

- create groups and assign identical privileges and limitations to all members of the group. This saves the system administrator the repetitious task of assigning policies to each user separately.
- disable specific applications (such as file transfer) or limit use of the application (for example, limit the direction of file transfer).
- limit access to menus, buttons, and dialog boxes (for example, prevent access to Display Preferences or the Save Changes button in emulation options).
- inform users when policies are changed.

BOSâNOVA Remote Configuration

Remote Configuration is accessed from the main interface of BOSâNOVA Client 32; from the Administrator, select **Administrative Parameters|User Administration|Remote Configuration**. See online Help.

Remote Configuration enables the system administrator to:

- access and configure the BOS emulation software on a user's computer
- edit the remote computer's registry

There are two main reasons to use Remote Configuration:

- to limit user access to configuration modules. Use the User Policy Editor to limit users' access and then use Remote Configuration to do any necessary configuration.
- to access, check, and reconfigure BOS software for any user on the network, from the system administrator's computer.

Refer to the online Help for instructions regarding how to enable remote configuration in Windows 95/98; Windows NT usually has Remote Registry Service already installed.

> ***Note!***
>
> A system administrator working on a computer with Windows 95 cannot remotely configure a computer using Windows NT/2000.