

# **BSCLIB for Windows**

## **Sync Adapter Version Installation Guide**

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## **Technical Support**

Serengeti Systems provides technical support for as long as you use BSCLIB at no additional cost to you. Support is available via the Internet from our web site or via e-mail, or by telephone.

- ? Visit the Serengeti Web Page (<http://www.serengeti.com>) and click on Technical Support to access our online technical database. You'll find answers to many of the most commonly asked questions at your fingertips.
- ? For fast response to your technical support issue, sum up your question or problem in writing and submit this via e-mail to [Support@Serengeti.com](mailto:Support@Serengeti.com). We'll respond to you by e-mail or a telephone call (if appropriate) as quickly as we can.
- ? If you cannot find the answers you're searching for online or you do not have e-mail access, you may call us at (512) 345-2211 and ask for technical support during our normal business hours of 9AM to 5PM Central Time Monday through Friday.

## **BSCLIB for Windows**

BSCLIB operates under Microsoft Windows 98, Windows Me, or Windows NT Workstation or Server, and Windows 2000 Professional, Server, or Advanced Server.

This installation guide applies to the single port version of BSCLIB that uses the SSI SyncPlus or SSI SyncPCI synchronous adapters. This guide is designed to step you through the installation process and to describe the key components of BSCLIB. You may also wish to refer to the “readme.1st” file for more information.

BSCLIB is supplied in two forms. If you are a software developer you initially receive the BSCLIB Software Developers Kit (SDK) to create an application program that utilizes BSCLIB to connect with a BSC communications network. Please refer to the [BSCLIB Programmer's Guide](#) for information on how to write programs for the BSCLIB API. If you are an end-user or distributor of such an application, you receive the BSCLIB Run-Time package that permits the application to be used on another PC.

### **Software Installation**

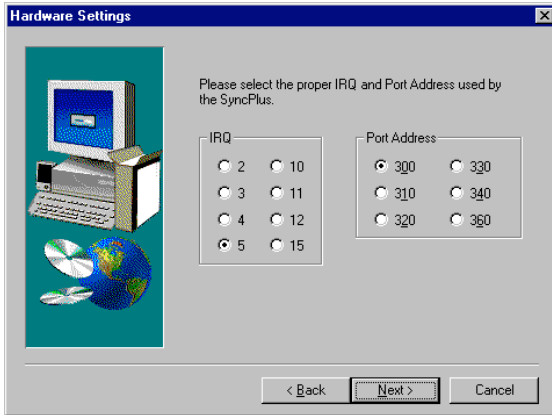
Follow the steps below to install BSCLIB for Windows.

- ? First, follow the instructions in the [Sync Adapter Installation Guide](#) to install the hardware you'll be using with BSCLIB. When the hardware is installed proceed with the next step.
- ? When installing BSCLIB on a Windows NT or Windows 2000 system, you must have Administrator privileges.
- Insert the BSCLIB CD-ROM into a drive and the installation should begin automatically. Follow the instructions on the screen.

- If the installation fails to start automatically, select “Start | Settings | Control Panel | Add/Remove Programs” using the Start menu and follow the instructions on the screen.
- ? Setup displays a welcome dialog and then displays the License Agreement. Read this agreement carefully before continuing.
- ? Setup asks you for your Name, Company Name, and Serial Number. Enter this information and click **Next**.
- ? Setup allows you to change the default installation directory and Program Folder for BSCLIB. Typically, the default directory is acceptable.
- ? Choose the hardware type to be used by BSCLIB. The installation dialog is shown below.



- ? If you are using the SSI SyncPlus, select the IRQ and I/O port address setting. During installation you should make choices that match the settings on the adapter and do not conflict with other hardware in your machine.



If you are running Windows 95/98, you must reboot the machine before running a BSCLIB application for the first time.

## **Software Removal**

To remove the BSCLIB software, click on the **Uninstall BSCLIB** icon in the BSCLIB program folder or click on **Add/Remove Programs** in the Control Panel and follow the instructions on the screen. All programs and files that were originally installed on your machine are removed. Any files residing in the installation directory created after installation are not removed.

## **If You Are Not a Software Developer**

If you are an end-user, not the developer, of a BSCLIB application, you need not read further from this point. The following technical information is intended primarily for programmers charged with developing BSCLIB application programs.

**BSCLIB Software Development Kit**

The BSCLIB Software Development Kit (SDK) is shipped to software developers only. The SDK includes a single Run-Time license for use on your development system.

**AS STATED IN THE BSCLIB LICENSE AGREEMENT, A UNIQUELY SERIALIZED COPY OF BSCLIB, LICENSED TO YOU BY SERENGETI SYSTEMS, MUST ACCOMPANY EACH COPY OF YOUR BSCLIB APPLICATION THAT IS DISTRIBUTED.**

The BSCLIB SDK files are installed into “\Program Files\Bsclib” directory and the “BSCLIB SDK” Program Group by default. After installation is complete, the following files will reside on your machine:

README.1ST	Updated information on BSCLIB
WINTEST.EXE	Sample BSCLIB application
WINTEST.INI	Configuration file for WINTEST.EXE
ERRDEFS.TXT	Error description file for WINTEST.EXE
EMUBSC.EXE	Background BSC protocol emulation
RMLIB.DLL	Record manager dynamic link library
KILLBSC.EXE	Program to terminate EMUBSC process
XBSC.DLL	XBSCDRVR dynamic link library
XBSC_VXD.VXD	XBSCDRVR device driver (Win 95)
XBSCDRVR.SYS	XBSCDRVR device driver (Win 98/NT/2000)
WINTEST	Directory for WINTEST project files:
CONFIG.C	Source module for WINTEST.EXE
DIALOGS.H	Source module for WINTEST.EXE
EXTDEFS.H	Source module for WINTEST.EXE
INITFUNC.C	Source module for WINTEST.EXE
LOOKERR.C	Source module for WINTEST.EXE
MENUCTRL.C	Source module for WINTEST.EXE
MTEST.C	Source for multi-point example program
MTEST.MDP	Project file for multi-point program
RCVFILE.C	Source module for WINTEST.EXE
RESOURCE.H	Source module for WINTEST.EXE
SDEFS.H	Source module for WINTEST.EXE
SNDFILE.C	Source module for WINTEST.EXE
TRACESUB.C	Source module for WINTEST.EXE

WINDEFS.H	Source module for WINTEST.EXE
WINTEST.C	Source module for WINTEST.EXE
WINTEST.DEF	Definition file for WINTEST.EXE
WINTEST.H	Source module for WINTEST.EXE
WINTEST.ICO	Icon definition file for WINTEST.EXE
WINTEST.INI	Configuration file for WINTEST.EXE
WINTEST.MDP	Project file for WINTEST.EXE
WINTEST.RC	Resource file for WINTEST.EXE

## **BSCLIB Run-Time**

The BSCLIB Run-Time is shipped to end-users or distributors of BSCLIB application programs. A separate and unique BSCLIB Run-Time license is required for each instance of an application that uses any part of BSCLIB. The Run-Time files are installed into the “\Program Files\Bsclib” directory and the “BSCLIB RT” Program Group by default. After installation is complete, the following files will reside on your machine:

README.1ST	Updated information on BSCLIB
EMUBSC.EXE	Background BSC protocol emulation
RMLIB.DLL	Record manager dynamic link library
KILLBSC.EXE	Program to terminate the EMUBSC process
XBSC.DLL	XBSCDRVR dynamic link library
XBSC_VXD.VXD	XBSCDRVR device driver (Win 95)
XBSCDRVR.SYS	XBSCDRVR device driver (Win 98/NT/2000)

## **Registry Entries**

Software developers may be interested in the information that is added to the Windows Registry as a result of installing BSCLIB. Experienced users can directly add or modify the device entry in the Registry to avoid a complete reinstallation of BSCLIB if there is a change in the BSCLIB configuration.

**IMPORTANT**

Using Registry Editor incorrectly can cause serious, system-wide problems that may require you to reinstall Windows to correct them. Serengeti Systems cannot guarantee that any problems resulting from the use of Registry Editor can be solved. Use this tool at your own risk.

The structure of the Registry entries for the Windows 95/98 version of BSCLIB is shown below:

- + HKEY\_LOCAL\_MACHINE
  - + Software
    - + Serengeti Systems
      - + xbscdrvr
        - + Parameters
          - HwIrq1 : REG\_DWORD : *irq*
          - HwPort1 : REG\_DWORD : *port*
          - HwType1 : REG\_DWORD : *type*
          - License : REG\_SZ : *license*
          - SerialNumber : REG\_SZ : *serial number*

The structure of the Registry entries for the Windows NT/2000 version of BSCLIB is shown below:

- + HKEY\_LOCAL\_MACHINE
  - + SYSTEM
    - + CurrentControlSet
      - + Services
        - + xbscdrvr
          - DisplayName : REG\_SZ : xbscdrvr
          - ErrorControl : REG\_DWORD : 0x1
          - Group : REG\_SZ : Extended Base
          - Start : REG\_DWORD : 0x3
          - Type : REG\_DWORD : 0x1
        - + Parameters
          - HwIrq1 : REG\_DWORD : *irq*
          - HwPort1 : REG\_DWORD : *port*
          - HwType1 : REG\_DWORD : *type*
          - License : REG\_SZ : *license*
          - SerialNumber : REG\_SZ : *serial number*



- + EventLog
  - + System
    - + xbscdrvr

- EventMessageFile : REG\_SZ : "...xbscdrvr.sys"
- TypesSupported : REG\_DWORD : 0x7

**HwIrq1** : *irq*    **Hardware IRQ**

The "Hardware IRQ" entry specifies the IRQ setting of the adapter installed in your system . The following is a list of IRQs supported by each hardware type:

SSI SyncPlus

2, 3, 4, 5, 10, 11, 12, 15

SSI SyncPCI

Not used, ignored

**HwPort1** : *port*    **Hardware port address**

The "Hardware port address" entry specifies the I/O port address of the adapter installed in your system. The following is a list of port addresses allowed for each hardware type:

SSI SyncPlus

0x300, 0x310, 0x320, 0x330, 0x340, 0x360

SSI SyncPCI

Not used, ignored

**HwType1** : *type*    **Hardware type**

The "Hardware type" entry specifies the type of adapter installed in your system. BSCLIB supports the following hardware types:

5 - SSI SyncPlus

7 - SSI SyncPCI

### Registry Example

For example, the Windows 95/98 Registry information for an SSI SyncPlus at address 0x310 and IRQ 5 might appear as follows:

```
+ HKEY_LOCAL_MACHINE
  + SYSTEM
    + CurrentControlSet
      + Services
        + xbscdrvr
          - DisplayName : REG_SZ : xbscdrvr
          - ErrorControl : REG_DWORD : 0x1
          - Group : REG_SZ : Extended Base
          - Start : REG_DWORD : 0x3
          - Type : REG_DWORD : 0x1
        + Parameters
          - HwIrq1 : REG_DWORD : 0x5
          - HwPort1 : REG_DWORD : 0x310
          - HwType1 : REG_DWORD : 0x5
          - License : REG_SZ : Acme Widgets
          - SerialNumber : REG_SZ : 820143
```

### EMUBSC ? BSC Protocol Handler Program

The **Emubsc** process is the background BSC protocol handler that is normally loaded automatically when a BSCLIB application issues an INSTALL command. When loaded in this way, **Emubsc** runs as an icon only

Under certain conditions when directed by Serengeti Technical Support, you may be instructed to load **Emubsc** directly by clicking on its icon. It would typically be loaded using the following syntax:

```
emubsc -d -v
```

The **-d** and **-v** switches and other **Emubsc** switches are described below:

**-d                    Debug mode**

The **-d** switch activates the debug option that writes internal debug information to a file named “emubsc.1”.

**-m *size*            Maximum size of “emubsc.1” file**

By default when **Emubsc** is writing to “emubsc.1” the file is not allowed to become larger than approximately 100K bytes. The **-m** switch permits you to change the maximum size of “emubsc.1” ? for example, **-m50** establishes the maximum file size to be 50K bytes.

**-t                    Block response time-out**

The **-t** switch is provided to change an internal time-out used when waiting for a reply to a transmitted data block. The BSC protocol defines that this time-out is three seconds, but the **-t** switch enables you to change this time-out if necessary within your environment. For example, **-t5** changes the block response time-out to five seconds.

**-v                    Run in window**

The **-v** switch should only be used in conjunction with the **-d** switch and causes debug messages to be visible in a window as they are written to disk.

**KILLBSC ? Remove BSC Protocol Handler Program**

This utility is used to terminate **Emubsc**. It should not be necessary to use this utility during normal operation. The optional command line switches for **Killbsc** are described below.

**-f                    Forced kill**

The **-f** switch may be used to force the termination of **Emubsc** when it is not in the idle state.

### **-s                      Silent mode**

The **-s** switch enables the silent mode that suppresses all output to the process window.

### **RMLIB.DLL ? Record Manager Dynamic Link Library**

The RMLIB.DLL is your application's gateway to the functionality of BSCLIB. Any language that can link to Windows dynamic library files (DLL's) can be used to develop BSCLIB applications. This DLL supports both single and multi-threaded applications.

### **XBSC.DLL ? Sync Adapter Device Driver Interface**

The XBSC.DLL is automatically loaded when your BSCLIB application begins. This DLL contains the interface to BSCLIB's device driver.

### **XBSC\_VXD.VXD ? Device Driver (Win 95)**

The BSCLIB installer copies the XBSC\_VXD.VXD device driver file into the \WINDOWS\SYSTEM directory. Once installed, BSCLIB's XBSC\_VXD.VXD device driver is automatically loaded when you start a BSCLIB application.

### **XBSCDRVR.SYS ? Device Driver (Win 98/NT/2000)**

The BSCLIB installer copies the XBSCDRVR.SYS device driver file into the \WINNT\SYSTEM32\DRIVERS directory. Once installed, BSCLIB's XBSCDRVR device driver is automatically started when load a BSCLIB application.

## **WINTEST ? Example Point-to-Point BSCLIB Application**

A fully functional example program, **Wintest**, and its complete C source code are provided with the BSCLIB Software Development Kit. This menu-driven program exercises most of the features of BSCLIB.

The project file “wintest.mdp” may be used to compile and link the program using Microsoft Visual C/C++ version 4.0 or later. It demonstrates the correct compiler and linker options to use when developing a program that uses BSCLIB.

The resulting program is useful as both a demonstration and test program for BSCLIB in a point-to-point or contention mode BSC environment. You can exercise virtually all of BSCLIB's functions from menus within the program. All inputs to the BSCLIB API are displayed before each call to the library. The BSCLIB result codes are displayed immediately after a call returns. This is a valuable learning aid for new BSCLIB programmers.

Studying the source code for this example program is the best way to learn how to write a program that uses BSCLIB. The source file includes two high level functions (SNDFILE.C and RCVFILE.C) that utilize several BSCLIB function calls to demonstrate how to send and receive files between BSCLIB and a remote BSC system. These high level functions can be copied directly into your own application to reduce your development time.

## **MTEST ? Example Multi-Point BSCLIB Application**

The C source code and project file for **Mtest**, a multi-point BSCLIB application is provided with the BSCLIB Software Development Kit. This console application exercises most of the features of BSCLIB.

The project file “mtest.mdp” may be used to create the executable program using Microsoft Visual C/C++ version 4.0 or later. It demonstrates the correct compiler and linker options to use when developing a console program that uses BSCLIB. The resulting program is useful as both a demonstration and test program for BSCLIB in a multi-point or poll/select BSC environment.



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