INTEGRATED SOFTWARE SOLUTIONS

Advanced Installation Topics

B.A.S.I.S. ET693™

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Table of Contents

Chapter 1: Introduction

The Advanced Installation Topics Guide focuses on those aspects of the B.A.S.I.S. installation that are not part of normal procedures. Topics covered include:

- Installing SQL Server databases
- How to perform a remote installation
- How to use SNMP with B.A.S.I.S.
- Ports used by B.A.S.I.S.
- B.A.S.I.S. Services

The Installation Guides

Document Name	Item Number	Document Description
Advanced Topic Installation User Guide	E870	A guide that encompasses a variety of advanced topics including database installation and configuration.
Installation Guide	E810	A comprehensive guide that includes instructions for installing the B.A.S.I.S. software. This guide also includes information on the current SQL Server version and the browser-based client applications
Upgrade Guide	E861	A short and sequential guide on upgrading and configuring an access control system that utilizes SQL or SQL Server Express system.

Advanced Installation Topics

Chapter 2: Transparent Data Encryption

Overview

Transparent data encryption (TDE) performs real-time I/O encryption and decryption of the database and database log files. (Standard B.A.S.I.S. log files are not encrypted.)

The encryption uses a database encryption key (DEK), which is stored in the database boot record for availability during recovery. The DEK is a symmetric key secured by using a certificate stored in the master database of the server or an asymmetric key protected by an EKM module. TDE protects data "at rest," meaning the data and log files. It provides the ability to comply with many laws, regulations, and guidelines established in various industries.

For detailed information, refer to "Understanding Transparent Data Encryption" http://msdn.microsoft.com/en-us/library/bb934049.aspx.

Important: TDE does not provide encryption across communication channels. For more information about how to encrypt data across communication channels, refer to "Encrypting Connections to SQL Server" http://msdn.microsoft.com/en-us/library/ms189067.aspx.

Enabling TDE

To utilize TDE for the B.A.S.I.S. database, the system should have Windows Server 2008 and SQL Server 2008 R2 installed.

To enable TDE, refer to the section, "Using Transparent Database Encryption" in the article, "Understanding Transparent Data Encryption" http://msdn.microsoft.com/en-us/library/bb934049.aspx.

Note: Encryption is CPU intensive. Therefore, servers with high CPU usage will suffer performance loss.

Backing up a TDE Protected Database

To back up a TDE protected database, refer to step 2 of the section, "Creating a TDE protected database" in the article, "Moving a TDE Protected Database to Another SQL Server" http://msdn.microsoft.com/en-us/library/ff773063.aspx

When enabling TDE, you should immediately back up the certificate and the private key associated with the certificate. If the certificate ever becomes unavailable or if you must restore or attach the database on another server, you must have backups of both the certificate and the private key or you will not be able to open the database.

Moving a TDE Protected Database

For information on moving a TDE protected database to another SQL server, refer to http://msdn.microsoft.com/en-us/library/ff773063.aspx.

If you need to move the database, the database can be attached or restored on another SQL server.

Attach the Database to Another SQL Server

1. Detach the TDE protected database by using Management Studio. In Object Explorer, right-click the database, point to tasks, and then select **Detach**.
2. Move or copy the detached database files from the source server to the same location on the destination server.
3. Move or copy the backup of the server certificate and the private key file from the source server to the same location on the destination server.
4. Create a database master key on the destination instance of SQL Server.
5. Recreate the server certificate by using the original server certificate backup file. The password must be the same as the password that was used when the backup was created.
6. Attach the database that is being moved by using Management Studio. In Object Explorer, right-click the database, and then select **Attach**.

Restore the Database on Another SQL Server

1. Back up the TDE protected database by using Management Studio. In Object Explorer, right-click the database, point to tasks, and then select **Backup**.
2. Move or copy the backup database file from the source server to the same location on the destination server.
3. Move or copy the backup of the server certificate and the private key file from the source server to the same location on the destination server.
4. Create a database master key on the destination instance of SQL Server.
5. Recreate the server certificate by using the original server certificate backup file. The password must be the same as the password that was used when the backup was created.
6. Restore the database that is being moved by using Management Studio. In Object Explorer, right-click the database, and then select **Restore**.

Chapter 3: Remote Installation of B.A.S.I.S.

Warning These features should only be used for client installations. Stanley does not recommend or support centralized installation or upgrading of servers because servers require additional care and attention.

Automatic Client Updates

Overview

The Client Update Server allows the B.A.S.I.S. server workstation to automatically update client workstations. When a client workstation opens an B.A.S.I.S. application, the application detects that the software version does not match the database. The application then allows the user to either cancel the login or update the client software. This functionality only exists for applications that are part of the B.A.S.I.S. installation suite.

Two services enable this functionality, one installed on the server workstation (LS Client Update Server service) and another installed on each client workstation (LS Client Update service). These services are only used to update client workstations. Server workstations must still be updated manually. The LS Client Update Server service is not running by default, but the LS Client Update service starts automatically.

Important: After enabling the automatic client updates feature, all Security Utility system modifications and license terms are accepted automatically on the client workstation being updated.

Note: At startup, Client Update application checks to see if server components are installed on the client workstation. If the application finds any server component other than the Communication Server, then the client update is cancelled and the user sees an error message.

For information on troubleshooting automatic client update functionality, refer to *Client Update Troubleshooting* in the *System Administration User Guide*.

This functionality only applies to new releases and cumulative hotfixes; incremental updates are not distributed by this service. This is because incremental updates are typically applied to a subset of client workstations, and therefore should not be forced onto all client workstations.
Hotfix packages always contain the base installation plus the hotfix. This would allow, for example, a client workstation with B.A.S.I.S. 6.4 to update directly to B.A.S.I.S. 6.5 Hotfix 1.

Server Performance Considerations and .MSI File Locations

Remember the following when deciding which workstation should host the LS Client Update Server service:

- The LS Client Update Server service can only be installed on one workstation in the system. Select the server that provides the best download performance to all client workstations in the system.
- The server must download the client installation package in less than 30 minutes, or the download will time out. A network speed of 70 ms or less (round trip), with a packet loss of 5% or less, will allow the client installation package to download in the required time.
- Ping the client workstations from the server workstation you are considering to confirm these performance specifications. If the performance is not adequate, select a different server location, or push the client installation package to the client workstations to prepare for the upgrade.
- The client installation package (.MSI file) is located on the server workstation at the root level of the installed B.A.S.I.S. directory. On the client workstations, the installation package is placed in the \ClientUpdate subdirectory of each client's installed B.A.S.I.S. directory.
- If using the Automatic Client Update process to install B.A.S.I.S. on a workstation that does not already have B.A.S.I.S., or on a client workstation running a version of B.A.S.I.S. earlier than 6.5, place the client installation package into the same directory as the other required LS Client Update service application files. For more information, refer to Manual Client Update Workflow on page 18.

Note: When the B.A.S.I.S. update installation completes, the client installation package (.MSI file) is deleted from the client workstation automatically.

LS Client Update Server service

This server workstation function is configured and enabled using the **Client Update** form in **System Administration > Administration > System Options**. For Distributed ID installations, these settings are configured on a per-system basis and the information is not replicated. For more information on configuring the LS Client Update Server service, refer to *Client Update Form Procedures* in the System Administration User Guide.

LS Client Update service

This client workstation service is responsible for installing B.A.S.I.S. so that users do not need Administrator privileges. The application also communicates with the server-side LS Client Update Server service when downloading and installing update packages.

The LS Client Update service is installed automatically with B.A.S.I.S. 6.5 or later, but the application can be run manually on workstations with versions of B.A.S.I.S. earlier than 6.5, or workstations with no installed

versions of B.A.S.I.S.. Manually running this application requires Administrator privileges.

Automatic Client Update Workflow

The workflow between the LS Client Update Server service and the LS Client Update service is as follows:

Note: This workflow assumes that the B.A.S.I.S. server workstation is already installed and configured to run the LS Client Update Server service, as described in *Client Update Form Procedures* in the System Administration User Guide.
This workflow also assumes that the server and client are version 6.5 or later.

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1. The client user attempts to login to an B.A.S.I.S. application, and then receives a message that the B.A.S.I.S. installation is out of date, and asks if the user wants to upgrade now or later. If user selects later, the B.A.S.I.S. application closes.
If the user selects now, the B.A.S.I.S. application closes and the LS Client Update service application launches.

Note: The user always has the option to cancel a client update that is in progress.

If the user cancels while in the download queue (refer to Step 4) and then initiates a client update again, the user is placed at the back of the queue.

If the user cancels while the installation package is downloading and then initiates a client update again, the download continues from where it left off (download is queued if the maximum concurrent downloads is reached, as described in Step 4).

If the user cancels an installation that is in progress, the user can run the installation package again.

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2. The LS Client Update service application attempts to reach the LS Client Update Server service location, and displays an error message if unsuccessful.
3. Once the connection is made, the LS Client Update service application requests a download of the B.A.S.I.S. installation package.

Note: Before requesting the download, the LS Client Update service checks to see if the installation package already exists on the client workstation. If it does, the process skips to Step 7 on page 18.
If the download begins but fails (due to timeout, network outage, cancelled

by client, and so on), the download will resume from where it left off when the user restarts the download.

4. The LS Client Update Server service either starts downloading the B.A.S.I.S. installation package and logs a Download Started transaction in the User Transaction Log, or places the client in the download queue. If the maximum number of concurrent client downloads is reached, the LS Client Update service application informs the user of the position in the queue. The server logs a Queued for Download transaction in the User Transaction Log.
5. The LS Client Update service application receives the installation package, and verifies it was not corrupted during transfer.
6. The LS Client Update service application notifies the LS Client Update Server service that the download was successful. The server logs a Download Finished transaction in the User Transaction Log.
7. The LS Client Update service application starts installing the B.A.S.I.S. client update with no user prompts (unattended installation mode). The client also notifies the LS Client Update Server service to log an Installation Started transaction in the User Transaction Log.

Note: If the installation fails, the user can retry the installation. Users are notified that the installation has failed. After fixing the cause of the failure, the user clicks [Retry].

8. Once the installation is complete, the LS Client Update service application notifies the LS Client Update Server service to log an Installation Finished transaction in the User Transaction Log.
9. The LS Client Update service application deletes the installation package from the client workstation.
10. The LS Client Update service application notifies the user that the installation is complete. The user then closes the application.

Note: To run a detailed report of the client update statistics, refer to "Running a Client Update Report" in the *System Administration User Guide*.

Manual Client Update Workflow

The workflow between the LS Client Update Server service and the LS Client Update service is as follows:

Notes: This workflow assumes that the B.A.S.I.S. server workstation is already installed and configured to run the LS Client Update Server service, as

described in *Client Update Form Procedures* in the System Administration User Guide.

This workflow also assumes that the required LS Client Update service application file was placed manually on client workstations with versions of B.A.S.I.S. earlier than 6.5, or on workstations that do not have B.A.S.I.S. installed at all. The required file is:

Lnl.OG.AutoUpgrade.Client.exe

This file can be found on the B.A.S.I.S. disc, in the **\program files\B.A.S.I.S.** directory. This same directory also contains the **installation package.txt** file, which describes the purpose and process for using the application file, and which can be distributed to the client workstations along with the application file.

In addition, Microsoft .NET Framework 4.0 must be installed before running the LS Client Update Service application manually.
The application file is small enough that it can be easily distributed as an e-mail attachment.

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1. The user launches the Lnl.OG.AutoUpgrade.Client.exe application.

Note: The application prompts users who do not have Administrator privileges to provide an administrator's user name and password. The Client Update workflow will not proceed without an administrator's login information.

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2. The LS Client Update service application asks the user for the LS Client Update Server service location, and the port to use. For client workstations that do not already have B.A.S.I.S. installed, the application allows the user to select the **Installation type**:
   – Typical client (all features)
   – Monitoring client
   – Badging and credential client
3. The LS Client Update service application attempts to reach the LS Client Update Server service location, and displays an error message if unsuccessful.
4. Once the connection is made, the LS Client Update service application requests a download of the B.A.S.I.S. installation package.

Note: Before requesting the download, the LS Client Update service checks to see if the installation package already exists on the client workstation. If it does, the process skips to Step 8 on page 20.
If the download begins but fails (due to timeout, network outage, cancelled by client, and so on), the download will resume from where it left off when the user restarts the download.

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5. The LS Client Update Server service either starts downloading the B.A.S.I.S. installation package and logs a Download Started transaction in

the User Transaction Log, or informs the user of the position in the download queue.

6. The LS Client Update service application receives the installation package, and verifies it was not corrupted during the transfer.
7. The LS Client Update service application notifies the LS Client Update Server service that the download was successful. The server logs a Download Finished transaction in the User Transaction Log.
8. The LS Client Update service application starts installing the B.A.S.I.S. client update with the normal user prompts. The client also notifies the LS Client Update Server service to log an Installation Started transaction in the User Transaction Log.

Note: If the installation fails, the user can retry the installation. Users are notified that the installation has failed. After fixing the cause of the failure, the user clicks [Retry].

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9. Once the installation is complete, the LS Client Update service application notifies the LS Client Update Server service to log an Installation Finished transaction in the User Transaction Log.
10. The LS Client Update service application deletes the installation package from the client workstation.
11. The LS Client Update service application notifies the user that the installation is complete. The user then closes the application.

Note: To run a detailed report of the client update statistics, refer to “Running a Client Update Report” in the *System Administration User Guide*.

Creating a Customized B.A.S.I.S. Installation Package

Warning

Computers that will use the custom .MSI to install B.A.S.I.S. must have all B.A.S.I.S. prerequisites items installed manually. The normal check that the B.A.S.I.S. installation performs to make sure your system has these prerequisites does not occur when installing with the .MSI. For information on the prerequisites needed see the Installation User Guide.

The general steps for performing a remote installation of B.A.S.I.S. include:

1. Run the Administration Installation Wizard to create a setup image tailored for the client installation. For more information, refer to Create a Setup Image for the Client on page 21.
2. Verify the Administration Installation Wizard was successful. For more information, refer to Verify the Administration Installation Wizard was Successful on page 23.
3. Perform a pilot rollout of the software with a group of users.
4. Mass deploy the B.A.S.I.S. package on client machines. For more information, refer to Deploy the Centralized B.A.S.I.S. Installation on page 23.

Create a Setup Image for the Client

The Administration Installation Wizard is used to create a setup image for the client. The setup image will be a file with a .MSI extension. The Administration Installation Wizard can be run multiple times to create multiple configurations (customized *.MSI files). To use the .msi file, copy the file along with the full B.A.S.I.S. disk image to the target machine.

Note: You will need to know the type and location of the database, the location of the License Server, and which B.A.S.I.S. components you wish to install to complete this wizard.

To create a setup image for the client:

1. Insert the B.A.S.I.S. ET693 disc. Depending on whether autorun is enabled a splashscreen may appear. If a splashscreen appears, exit out of it.
2. Click the Start button, then select Run.
3. In the **Open** field, type:
   `D:/setup.exe /a`
   Substitute your CD/DVD-ROM drive letter for D:.
4. The Administration Wizard starts. Click [Next].
5. The Client Information window is displayed.
   a. Identify that the system database will be SQL.
   b. Specify the workstation name where the system database that clients will use resides.
   c. Specify the workstation name that hosts the system's License Server.
   d. Click [Next].
6. The Client Application Selection window is displayed.
   a. Select or deselect the check boxes to select which client applications will be included in the custom package.
   b. Click [Next].
7. The Network Information window is displayed.
   a. Select the Network location for this image by clicking [Change].
   b. The Change Current Destination Folder window is displayed. Specify the location where you would like to save the package, then click [OK].
   c. Click [Create].
8. The Installation Wizard Progress window is displayed. A window is displayed that indicates that the installation was successful. Click [Finish].
9. You can repeat steps 1-8 for each additional configuration you wish to create. Each time the Administration Installation Wizard is run, a configuration (customized *.MSI file) will be created. Be sure to use a unique, descriptive name for each configuration so that you can easily distinguish one from another.

Manual Integration of Third Party Dependencies

Because of limitations with the centralized client package you must manually integrate several third party dependencies. These include:

- .NET Framework (located on the Supplemental Materials disc at: \Prerequisite Software\Microsoft .NET Framework 4.0).
- INTEL (located on the B.A.S.I.S. Installation disc at: \Temp\INTEL).
- VCPP8 Runtime (located on the B.A.S.I.S. Installation disc at: \Temp\VCPP8Runtime).
  VCPP9 Runtime (located on the B.A.S.I.S. Installation disc at: \Temp\VCPP9Runtime).
- XML 6.0 (located on the B.A.S.I.S. Installation disc at: ISSetupPrerequisites\{726F97A8-63B9-4A58-ACFB-B8A56B383740}).

Verify the Administration Installation Wizard was Successful

1. Navigate to the installation package, which is saved in the location that you specified in step 7 on page 22.
2. Verify that the .MSI file(s) that you created (with the name that you specified in step 7 on page 22) are listed. There will be other folders as well. These contain the B.A.S.I.S. files that will be installed.

Deploy the Centralized B.A.S.I.S. Installation

There are two types of installations that can be done: advertised and forced. Both of these installations require a transform to be applied to the Windows Installer package created for the B.A.S.I.S. software.

- In an advertised installation (also referred to as “install on demand”), the person doing the installation advertises out what program features can be installed on a machine. Shortcuts for those features (i.e., Alarm Monitoring, FormsDesigner, MapDesigner, etc.) appear in the B.A.S.I.S. start menu. Once a shortcut is clicked on, the application will then install.
- In a forced installation (also referred to as “assign and publish”), the person administering the installation can choose what applications are going to be installed on the machines on the network and send this information along with other required system information in the transform. The setup can then get assigned out to the computers and when they boot up, B.A.S.I.S. will get installed.

An advertised installation is limited by the fact that the contents of the source installation disc need to be available over the network at any time where someone tries to use a new advertised feature (because you won’t know when someone will click on the application, triggering it to install). In a forced installation the image only needs to be available at the time of installation.

You should do a pilot deployment with a small group of clients to determine and address any problems prior to mass deployment.

Chapter 4: VMware

VMware provides a way to create a virtual machine. B.A.S.I.S. server software and the Communication Server are certified to run on VMware ESXi.

VMware Installation

Installation of VMware ESXi should be performed according to the manufacturer documentation. Be sure the physical server (host) and storage array are listed on the hardware compatibility list for ESXi to meet the minimum requirements.

Also, take into consideration the minimum requirements of the applications that will be installed on the virtual machine (guest).

Virtual Machine Setup

Once installation of ESXi is complete, start the vSphere Client. Using the vSphere Client, connect to the ESXi server and create a new virtual machine.

Creating a New Virtual Machine

1. From the vSphere Client, click **File > New > New Virtual Machine**. Doing so launches the Create New Virtual Machine wizard.
2. Select the configuration for the virtual machine by defining the operating system, machine name, disk capacity, etc. If needed, some of these settings (for example, memory) may be modified after the virtual machine has been created.
3. Install the operating system.
4. Install VMware Tools.

Note: For more detailed information, refer to the VMware documentation.

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5. Once the virtual machine has been created, install B.A.S.I.S. according to the instructions in the Installation Guide.

Recommended Hardware Configurations

The following are general recommendations and may change depending on the size and scope of the system.

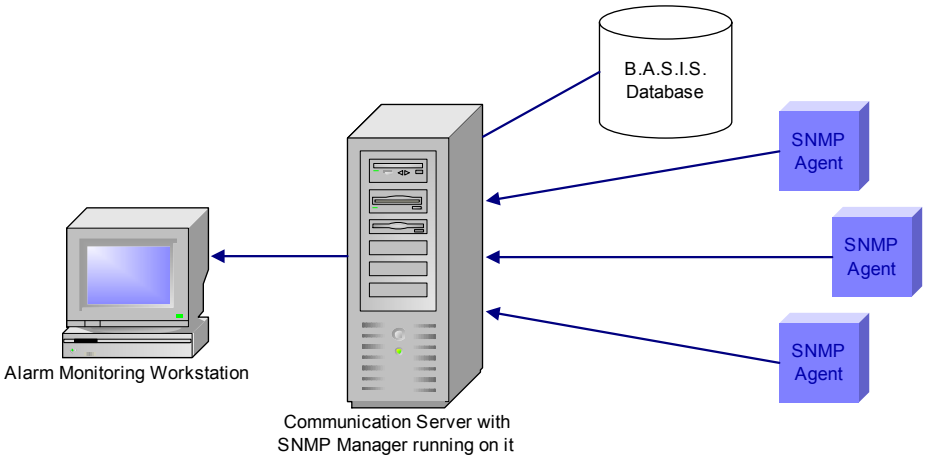
B.A.S.I.S. VMware configurations

System Type	Operating systems with versions	32-bit	64-bit
ADV and ENTREGLT Servers with database on same computer	Windows Server 2008 SP2/ SQL 2008 SP1 Std.	3 GB RAM 40 GB drive space	4 GB RAM 40 GB drive space
	Windows 7/SQL 2008 SP1 Std.	2 GB RAM 36 GB drive space	3 GB RAM 36 GB drive space
ADV and ENTREGLT Servers with database on separate computer	Windows 2008 Server SP2	3 GB RAM 40 GB drive space	4 GB RAM 40 GB drive space
	Windows 7	2 GB RAM 36 GB drive space	3 GB RAM 36 GB drive space
PRO and ENTREG Servers with database on same computer	Windows Server 2008 SP2/ SQL 2008 SP1 Std.	3 GB RAM 40 GB drive space	4 GB RAM 40 GB drive space
PRO and ENTREG Servers with database on separate computer	Windows Server 2008 SP2	3 GB RAM 40 GB drive space	4 GB RAM 40 GB drive space

Chapter 5: Using SNMP with B.A.S.I.S.

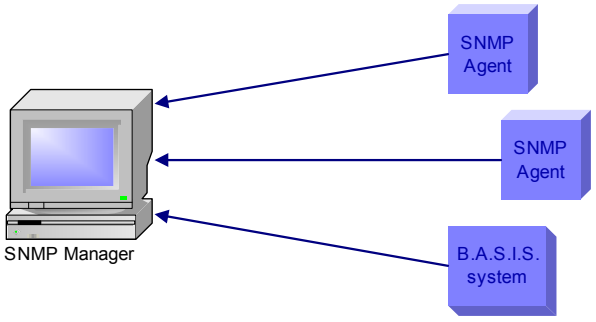
SNMP (Simple Network Management Protocol) is used primarily for managing and monitoring devices on a network. This is achieved through the use of get and set requests which access and modify variables on a given device, as well as SNMP traps which are used to notify Managers of changes as they occur. The device which is being managed or monitored is called the A*gent*. The application that is doing the managing or monitoring is called the *Manager*. You can think of a Manager as the coach of a team, and Agents as all the players on the team. The following diagram illustrates how B.A.S.I.S. can be used as an SNMP Manager:

B.A.S.I.S. as an SNMP Manager

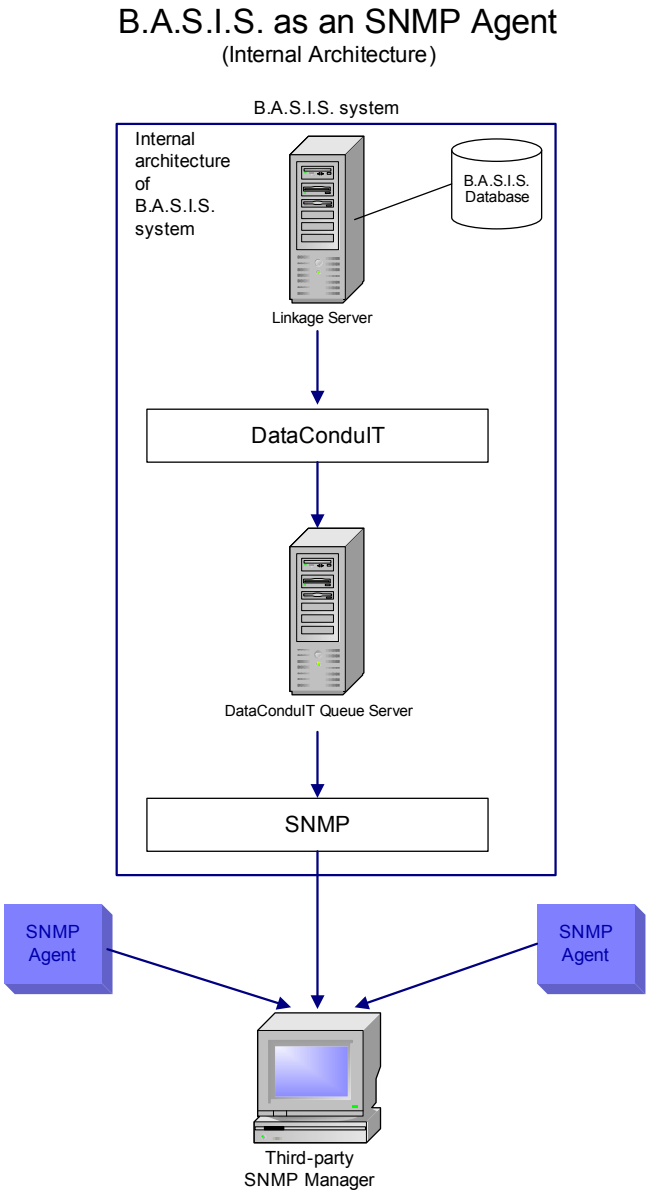


Agents generate *trap messages*, which are sent to a Manager to indicate that something has changed. Trap messages generally contain the system uptime and the trap type. B.A.S.I.S. uses enterprise-specific trap messages to send alarms to SNMP Managers. B.A.S.I.S. generates trap messages, but does not listen for messages from SNMP Managers. The following diagram illustrates how B.A.S.I.S. can be used as an SNMP Agent:

B.A.S.I.S. as an SNMP Agent



Configuring B.A.S.I.S. as an SNMP Agent requires the use of DataConduIT and the DataConduIT Queue Server, as shown in the diagram that follows.



Why use SNMP with B.A.S.I.S.? This depends on whether you are using B.A.S.I.S. as an SNMP Manager or as an SNMP Agent.

B.A.S.I.S. as an SNMP Manager

When B.A.S.I.S. is used as an SNMP Manager:

- You can monitor hardware or software applications in B.A.S.I.S. that you couldn't monitor before without a specific integration.

- If you already have B.A.S.I.S. installed and are using a third-party application to monitor SNMP traps, you can now move that functionality over to B.A.S.I.S. and monitor everything in a central location.
- By loading into B.A.S.I.S. the MIB file for the SNMP Agents you are monitoring, you can customize how the information from the SNMP Agent is displayed in Alarm Monitoring
- Based on the information received and displayed in B.A.S.I.S., you can create custom alarm and Global I/O linkages for the trap, as well as take advantage of other existing B.A.S.I.S. functionality.

To set up B.A.S.I.S. to function as an SNMP Manager, you must configure an SNMP Manager on a workstation. This is done through System Administration. In addition to configuring the SNMP Manager, you can also load up third party MIB files into B.A.S.I.S., which will allow you to customize how SNMP Traps are handled and displayed in B.A.S.I.S.. For more information, refer to the SNMP Managers Folder chapter in the System Administration User Guide.

B.A.S.I.S. as an SNMP Agent

B.A.S.I.S. hardware and software events can be reported as SNMP traps to third-party applications with SNMP trap support.

To configure B.A.S.I.S. as an SNMP Agent, you must configure an SNMP Trap Message queue within the DataConduIT Message Queue configuration in System Administration. You can specify what events you want sent out through this queue (as SNMP Traps) and where you want them sent. For more information, refer to the DataConduIT Message Queues Folder chapter in the System Administration User Guide.

After setting this up, you must load the Lenel MIB file (located in the **SNMP** folder on the Supplemental Materials disc) into your SNMP Manager application. For more information, refer to the SNMP Managers Folder chapter in the System Administration User Guide.

Configuring SNMP

The following steps must be completed before you configure B.A.S.I.S. as either an SNMP Manager or an SNMP Agent:

1. Install the Windows SNMP components. You will need your Windows CD to complete this procedure. For more information, refer to Install the Windows SNMP Components on page 31.
2. Install a license with SNMP support.

To configure B.A.S.I.S. as an SNMP Manager, please refer to Configuring B.A.S.I.S. as an SNMP Manager on page 33.

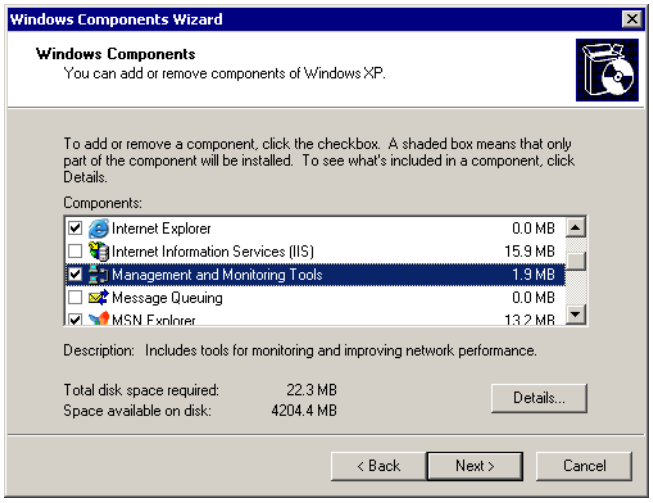
To configure B.A.S.I.S. as an SNMP Agent, please refer to Configuring B.A.S.I.S. as an SNMP Agent on page 39.

Install the Windows SNMP Components

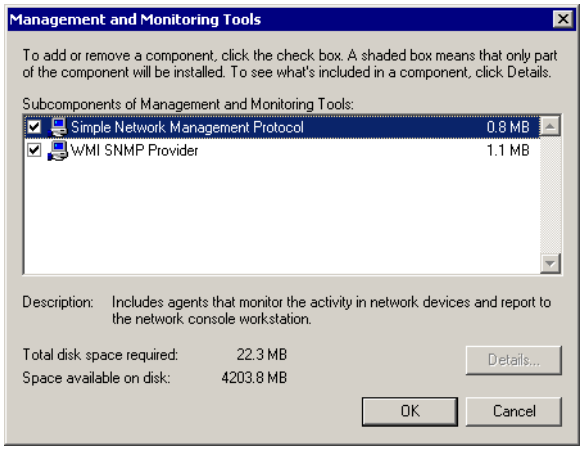
Before configuring an SNMP Manager to run on a Communication Server, the Windows SNMP components must be installed on the Communication Server machine.

Important: You will need your Windows CD to complete this procedure.

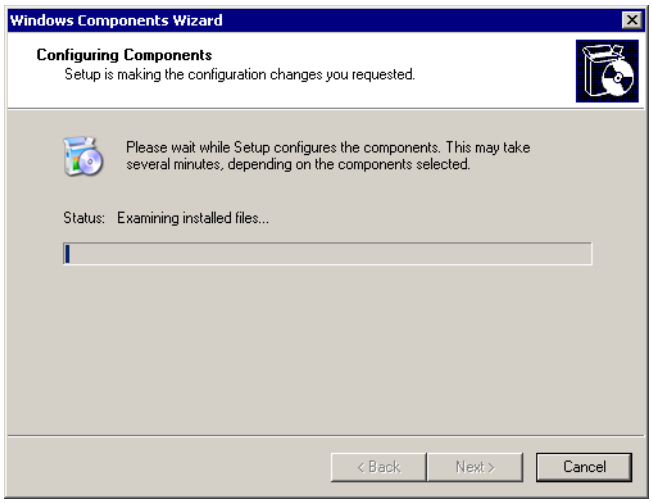
1. Click the Windows Start button and navigate to the Control Panel.
2. Double-click “Add or Remove Programs”.
3. The Add or Remove Programs window opens. Click “Add/Remove Windows Components”.
4. The Windows Components Wizard window opens. Select the **Management and Monitoring Tools** check box.



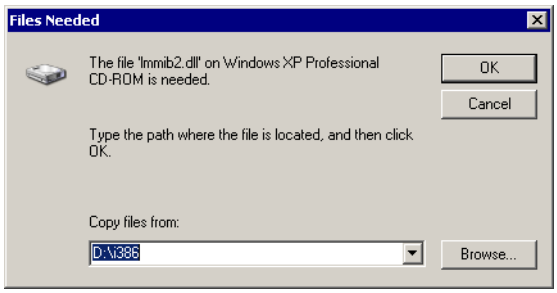
5. Click [Details].
6. The Management and Monitoring Tools window opens. Verify that the Simple Network Management Protocol check box is selected, and then click [OK].



7. Click [Next].
8. The Configuring Components window opens. The status bar is updated as the installation proceeds.



9. When prompted, insert the Windows CD-ROM.
   a. If the Windows autorun screen opens, close it.
   b. If your CD-ROM is the D drive, click [OK].
   c. If your CD-ROM is not the D drive by default, navigate to the correct drive letter of your CD-ROM. Select the **I386** folder, and then click [OK].



10. A message indicating that you have successfully completed the Windows Components Wizard is displayed. Click [Finish].

Install a License with SNMP Support

The following SNMP features in B.A.S.I.S. are licensed:

- **Support for SNMP Managers.** If you are licensed to use this feature, "SNMP Managers Support" in the Access Control Options section is set to "true".
- **Number of SNMP trap message queues.** The number of queues you are licensed to use is displayed in the "Maximum Number of SNMP Trap Message Queues" setting in the General section of the license.

Configuring B.A.S.I.S. as an SNMP Manager

Prerequisites:

1. Install the Windows SNMP components. You will need your Windows CD to complete this procedure. For more information, refer to Install the Windows SNMP Components on page 31.
2. Install a license with SNMP support.

To configure B.A.S.I.S. as an SNMP Manager:

1. Add an SNMP Manager using System Administration. For more information, refer to Add an SNMP Manager on page 34.
2. Add Agents using System Administration. For more information, refer to Add Agents on page 34.
3. Load the MIB file(s). For more information, refer to Load the MIB File(s) on page 36.

Add an SNMP Manager

1. In System Administration, select **SNMP Managers** from the **Additional Hardware** menu. The SNMP Managers folder opens.
2. On the SNMP Managers tab, click [Add].
3. If segmentation is not enabled, skip this step. If segmentation is enabled:
   a. The Segment Membership window opens. Select the segment that this SNMP Manager will be assigned to.
   b. Click [OK].
4. In the **Name** field, type a name for the SNMP Manager.
5. Select whether the SNMP Manager will be online.
   a. Allow the **Online** check box to remain selected if you want the SNMP Manager to be ready for use. When an SNMP Manager is online, the Communication Server listens for trap messages from SNMP Agents.
   b. Deselect the **Online** check box if the SNMP Manager is not ready for use. When an SNMP Manager is not online, the Communication Server does not listen for trap messages from SNMP Agents.
6. On the Location sub-tab, select the **Workstation** (or server) that the SNMP Manager is or will be running on in order to receive events. The Communication Server must be present on the specified workstation. You can either type the name in the field, or use the [Browse] button to view a list of available workstations.

Notes: You are required to enter the workstation's NetBIOS name. (The NetBIOS name is specified when Windows networking is installed/configured.)

Only one SNMP Manager is allowed to run on each Communication Server. You can have several Communication Servers running with an SNMP Manager on each one and have all Agents in that part of the network configured to report to the local Manager. This would help localize network traffic.

---

7. Click [OK].

Add Agents

If B.A.S.I.S. receives an event from an Agent that has not been defined, it will automatically add an Agent for it and have the default name set to the IP address of the Agent. You can then go in and modify the **Name** to whatever you want. On a segmented system, Agents are added to the Manager's segment by default, but they can also be assigned to different segments as well.

To add an Agent manually:

1. In System Administration, select **SNMP Managers** from the **Additional Hardware** menu. The SNMP Managers folder opens.
2. Click the SNMP Agents tab.
3. Click [Add].
4. In the **Name** field, type a name for the SNMP Agent.
5. In the **IP address** field, enter the IP address of the SNMP Agent.
6. (Optional) In the **Location** field, enter the location of the SNMP Agent.
7. (Optional) In the **Description** field, enter a description of the SNMP Agent.
8. Click [OK].
9. Repeat steps 1-8 for all Agents you wish to add.

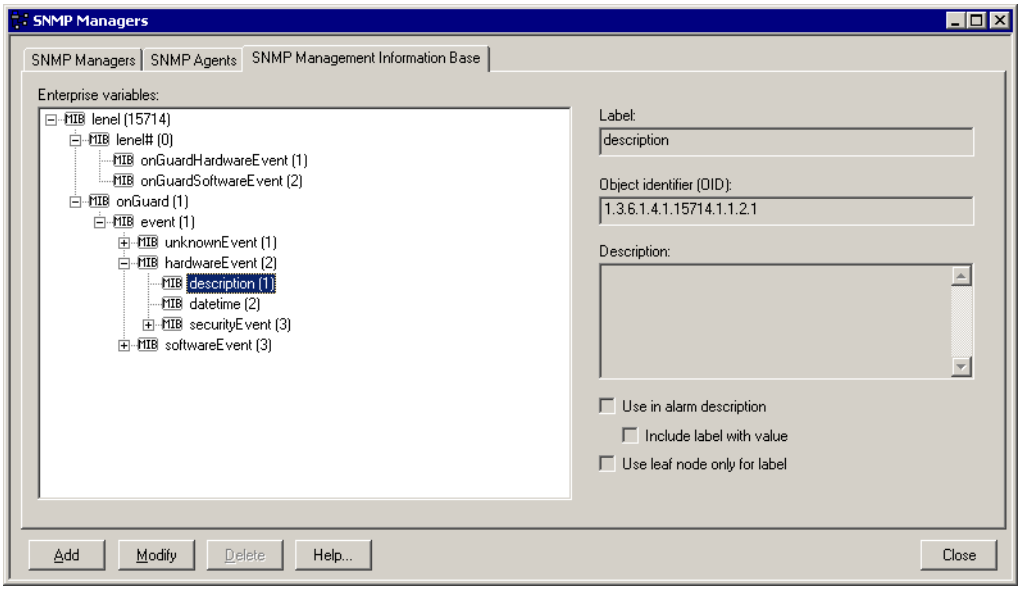
MIB File Overview

SNMP reports its information through the use of variables with name/value combinations. Many of the SNMP variables are designed for network applications or hardware. MIB (Management Information Base) files describe an enterprise's variable structure and allow a user to report hardware-specific information. Inside a MIB file, an enterprise number is specified. Nearly every company that has an application (hardware or software) that reports events has an enterprise number (Stanley's is 15714). This allows them to control and define all variables under this number.

The enterprise number is used as part of the Object Identifier (OID). A company's enterprise OID is 1.3.6.1.4.1 followed by their enterprise number (1.3.6.1.4.1.15714 for Stanley). MIB files allow labels to be applied to the numbers in an OID. Using the standard MIB files for SNMP, the enterprise OID would be iso.org.dod.internet.private.enterprises followed by the label for the company's enterprise number provided by their MIB file. In this MIB file, you define all other variables that you will be using. These variables are identified by OIDs. The SNMP Trap Messages DataConduIT Message Queue type allows B.A.S.I.S. to report events through SNMP trap messages. B.A.S.I.S. uses the **lenel.mib** file to specify the variables to use. For example, one variable in the **lenel.mib** file is 1.3.6.1.4.1.15714.1.1.2.1, which translates to:

iso(1).org(3).dod(6).internet(1).private(4).enterprises(1).lenel(15714).onGuard
(1).event(1).hardwareEvent(2).description(1)

If the **lenel.mib** file is loaded, the variable in the previous example is shown on the SNMP Management Information Base form.



Load the MIB File(s)

The Management Information Base (MIB) file is used to describe an enterprise's variable structure. The Lenel MIB file is located in the **SNMP** folder on the Supplemental Materials disc. To load a MIB file into B.A.S.I.S.:

1. Save the MIB file you wish to load to the computer. Remember the location where you save it.
2. If necessary, save any files that contain modules required by the MIB files in the **SNMP-IMPORT-MIBS** folder in the B.A.S.I.S. installation directory. By default, this is **C:\Program Files\B.A.S.I.S.\SNMP-IMPORT-MIBS**. The following eight (8) files are installed to that location by default:
   - RFC1155-SMI.txt
   - RFC1213-MIB.txt
   - RFC-1215.txt
   - SNMPv2-CONF.txt
   - SNMPv2-MIB.txt
   - SNMPv2-SMI.txt
   - SNMPv2-TC.txt
   - SNMPv2-TM.txt

Notes: This location can be changed in the **ACS.INI** file by adding the following setting:

[SNMPManager]

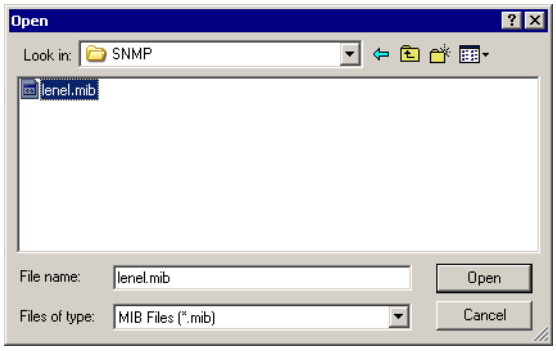
MIBDir="drive:\absolute\path\to\MIB\directory"

To make changes in the **ACS.INI** file on a Windows 7 computer, you must right-click on the **ACS.INI** file and run it as an Administrator.

This directory is processed when a MIB file is loaded in order to load modules that may be imported into the MIB file being loaded. Only files containing imported modules should be saved in this directory. In most cases, the default files in this directory are sufficient. If additional files are required, determine which additional files define the modules imported by the MIB file and place them in this directory.

If a MIB file for an imported module is not present in this directory and the processor encounters an undefined identifier in the MIB file it's parsing, it will log an error to **MIBProcessor.log** in the B.A.S.I.S. logs directory.

3. In System Administration, select **SNMP Managers** from the **Additional Hardware** menu. The SNMP Managers folder opens.
4. Click the SNMP Management Information Base tab.
5. Click [Add].
6. The Open window is displayed. Navigate to the MIB file you wish to load, and then click [Open]. In this example, the **lenel.mib** file is being loaded.



7. The MIB file will be processed.
   - If the MIB file is successfully parsed, the results will be displayed in the Enterprise variables listing window. You can expand the items in the tree and look at the defined variables.
   - If the MIB file cannot be parsed, an error will be generated, which is written to the **MIBProcessor.log** file. An error is most likely due to a malformed MIB file or a lack of certain MIB files that are imported by the MIB file you are trying to parse.

Note: After a MIB file has been loaded into B.A.S.I.S., the actual file is no longer needed.

Modify an SNMP Management Information Base Variable

1. In System Administration, select **SNMP Managers** from the **Additional Hardware** menu. The SNMP Managers folder opens.
2. Click the SNMP Management Information Base tab.
3. Expand the items in the Enterprise variables listing window.
4. Click on the variable you wish to modify, then click [Modify].
5. Change the **Label** if you wish.
6. Enter a **Description** for the variable if you wish.
7. Select the **Use in alarm description** check box if the node's information will be used in the alarm description column of Alarm Monitoring. You can have this option set on multiple nodes and for each one that appears in the trap message as a variable, it will be included in the alarm description. The variable name will be discarded.
8. Select the **Include label with value** check box if you selected the **Use in alarm description** check box and if you want to see the variable name with the value.
9. Select the **Use leaf node only** check box if you want the SNMP Manager to ignore anything "higher" than this node in the OID.
10. Click [OK].

SNMP Reports

Reports are run from System Administration or ID CredentialCenter. For more information, please refer to the Reports Folder chapter in the System Administration or ID CredentialCenter User Guide. There are two SNMP-related reports that can be run:

- SNMP Agents - lists all SNMP Agents sorted by segment and name
- SNMP Management Information Base Configuration - lists all MIB data grouped by enterprise

The SNMP Management Information Base Configuration report lists each node's label and OID (Object ID) description. If configured, the following additional options will also be listed:

- Use in alarm description
- Include label with value
- Use leaf node only for label

Configuring B.A.S.I.S. as an SNMP Agent

Prerequisites:

1. Install the Windows SNMP components. You will need your Windows CD to complete this procedure. For more information, refer to Install the Windows SNMP Components on page 31.
2. Install a license with SNMP support.

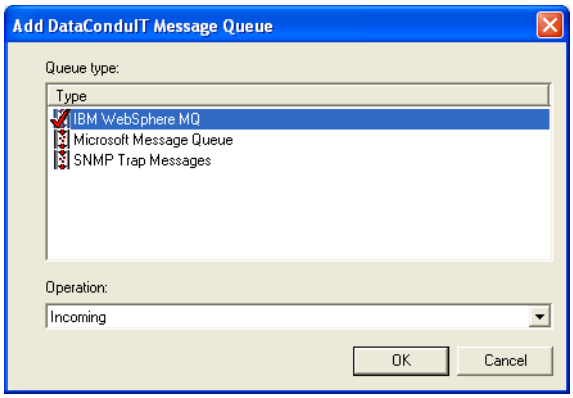
To configure B.A.S.I.S. as an SNMP Agent:

1. Add a new DataConduIT Message Queue of the type “SNMP Trap Messages” in System Administration. For more information, refer to Add a DataConduIT Message Queue of Type “SNMP Trap Messages” on page 40.
2. Load the Lenel.MIB file. For more information, refer to Load the Lenel.MIB File on page 41.

Note: For more information, please refer to the DataConduIT Message Queues Folder in the System Administration User Guide.

Add a DataConduIT Message Queue of Type "SNMP Trap Messages"

1. From the **Administration** menu, select **DataConduIT Message Queues**.
2. On the DataConduIT Message Queues form, click [Add].
3. The Add DataConduIT Message Queue window opens.
   a. Select the "SNMP Trap Messages" **Queue type**.



   b. Click [OK].
4. On the General sub-tab:
   a. In the **Queue name** field, type the name of the queue. The name is case-sensitive.
   b. In the **SNMP manager** field, type the name of the queue manager.
   c. Note that the Queue type and Operation that you selected are displayed, but cannot be modified.
5. On the Settings sub-tab:
   a. If you wish to have photo, signature, and fingerprint information sent in messages, select the **Include photos and signature in messages** check box.

Note: Including photo information in the messages makes the size of the message sent much larger.

b. Select whether a message will be sent when cardholder, badge, visitor, and linked accounts are added, modified, or deleted.

c. If you wish to have a message sent when an access event occurs, select the **Send a message when access events occur** check box.

d. If you wish to have a message sent when a security event occurs, select the **Send a message when security events** occur check box.

6. Using the Advanced sub-tab is optional and for advanced users. On the Advanced sub-tab you may:

   a. Type an object event WMI query directly into the **Object event WMI query** textbox.

   b. Type an access and security event WMI query directly into the **Access and security event WMI query** textbox.

7. Click [OK].

Load the Lenel.MIB File

After configuring the SNMP Trap Messages queue, load the **lenel.mib** file into the SNMP Manager so that it knows how to handle and display the variables it receives. The Lenel MIB file is located in the **Support Center\SNMP** folder on the Supplemental Materials disc.

If you are using B.A.S.I.S. as an SNMP agent please refer to the documentation for the third-party SNMP Manager you are using to monitor B.A.S.I.S..

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Chapter 6: Integrating B.A.S.I.S. with Citrix XenApp

Important: To use B.A.S.I.S. over the Internet, you must have purchased the optional Citrix® XenApp application.

Citrix XenApp Overview

Citrix XenApp provides support in conjunction with Windows Terminal Server for complete access to configure and operate your B.A.S.I.S. system through a simple Web browser interface.

B.A.S.I.S. allows for the installation of web server software and, once the server is configured, unlimited clients (based on licensing connections) can attach to the server and run any of the B.A.S.I.S. applications over the Internet. Virtually any desktop operating system that supports a Web browser can run B.A.S.I.S. over the Internet. This includes Windows, Macintosh, Unix, Solaris and Linux.

The basic procedure for installing Citrix XenApp on a Windows 2008 R2 Server is:

1. Perform the pre-installation procedures. For more information, refer to Step 1: Perform the Pre-Installation Set-up Procedures on page 46.
2. Create the Citrix database. For more information, refer to Step 2: Create the Citrix Database on page 48.
3. Install Citrix. For more information, refer to Step 3: Install Citrix on the Server on page 48.
4. Configure the License Server. For more information, refer to Step 4: Configure the License Server on page 49.
5. Configure XenApp. For more information, refer to Step 5: Configure XenApp on page 50.
6. Configure the Web interface. For more information, refer to Step 6: Configure the Web Interface on page 52.
7. Publish the B.A.S.I.S. applications. For more information, refer to Step 7: Publish the B.A.S.I.S. Applications on page 53.
8. Install the Citrix clients. For more information, refer to Step 8: Install the Citrix Clients on page 53.
9. Install B.A.S.I.S.. For more information, refer to Step 9: Install B.A.S.I.S. on page 54.
10. Access the applications from a client workstation. For more information, refer to Step 10: Access the Applications from a Client Workstation on page 54.

Procedures

Step 1: Perform the Pre-Installation Set-up Procedures

Note: Do not install any Windows updates, which might cause compatibility issues, especially with Service Pack 1.

1. Use a Microsoft SQL Server 2008 R2 clean install as your starting point.
2. Select **Start > Administrative Tools > Server Manager**, click [Roles], scroll to **Role Services**, and then confirm that Web Server, Health and

Diagnostics, Logging Tools, and Tracing are installed. If not, contact your System Administrator.

3. Open **Administrative Tools > Roles > Add Roles**. The **Add Roles Wizard** opens. Click [Next].
4. Select Remote Desktop Services, then click [Next], and then click [Next] again. Then select:
    a. Remote Desktop Session Host
    b. Remote Desktop Licensing
    c. Remote Desktop Web Access, then click [Next], and then click [Next] again.
        i. Select **Do not require Network Level Authentication**, and then click [Next].
        ii. Select the Licensing Mode, and then click [Next].
        iii. **Administrators** is the group allowed to Remote Desktop. Click [Next]
        iv. Select **Audio and video playback** and **Audio recording redirection** during the **Configure Client Experience** section of the wizard, and then click [Next].
        v. Do not **Configure a discovery scope for this license server**. Click [Next], and then click [Install].
        vi. Restart the server.
5. Under **Roles Summary**, click [Add Roles].
    i. Click [Next] on the **Select Server Roles** page.
    ii. Select Application Server, and then click [Add Required Features].
    iii. Click [Next], and then click [Next] again.
    iv. Click [Install]
    v. Click [Close].
6. Under **Web Services (IIS)**, click [Add Role Services].
    i. In the **Select Role Services** dialog, confirm that all options under **IIS 6 Management Compatibility** are selected. If they are not, select them and then click [Next].
    ii. Click [Install].
    iii. Click [Close].
7. In the Server Manager, click [Configure IE ESC] (located in the **Security Information** area of Server Manager). Select **Off** for both Administrators and Users, and then click [OK].

Step 2: Create the Citrix Database

1. Click [Start] and then select **All Programs > Microsoft SQL Server 2008 R2 > SQL Server Management Studio**.
2. Enter the Server name, and select <Windows Authentication>. Click [Connect].
3. In the Object Explorer pane, expand the Databases folder.
4. Right-click the Databases folder and select New Database.
5. Name the database `CitrixMetaFrame`.
6. Click [OK].

Refer to the *B.A.S.I.S. Installation Guide* for more information about installing a SQL Server database.

Step 3: Install Citrix on the Server

Notes: When installing Citrix, you might need an ISO mounting application.

Ensure that your Remote Desktop services license is current.

Make sure your Citrix license is current. When you obtain this license, make sure your server name is exact as you specify. **It is case sensitive**.

1. Run the Citrix installer.
2. Click [Install XenApp Server].
3. Click [Add server roles].
4. Click to select the edition.
5. Accept the license agreement, and then click [Next].
6. Under Common Roles, select License Server, XenApp, and Web Interface, and then click [Next].
7. Ensure that XML Service IIS Integration is selected. Click [Next], and then click [Next] again.
8. Click [Install]. When the installation finishes, click [Finish].

Note: Now that the server roles are configured, first configure the License Server, followed by the XenApp and Web Interface. This ensures you have a proper license.

Step 4: Configure the License Server

1. Click [Configure] under **License Server** in the XenApp Server Role Manager.
2. Leave the License Server Port at the default value (27000).
3. Enter a password and then click [OK].
4. Click **Start > All Programs > Citrix > Management Consoles > License Administration Console**.
5. On the top-right area of the window, click [Administration].
6. Log in with **admin** and the password entered in step 3, and then click [Submit].
7. In the left tab, click [Vendor Daemon Configuration].
8. Click [Import License], select the Citrix License File, and then click [Import License].

Note: Disregard the Inconsistent Server Host ID message, if shown. This issue will be corrected in a later step.

---

9. Restart the Citrix Licensing Service.
   a. Click **Start > Administrative Tools > Services**.
   b. Right-click **Citrix Licensing** and then click **Restart**.
10. Go back to the License Administration Console and click [Dashboard] next to Administration on the top-right area of the window. If everything is correct, you will see your Citrix license along with a Citrix startup license. It should look similar to this:
    - Citrix Start-up License | Server
    - Citrix XenApp (Presentation Server) Advanced | Concurrent User
    - Citrix XenApp (Presentation Server) Platinum | Concurrent User
    - Citrix XenApp (Presentation Server) Standard | Concurrent User

Step 5: Configure XenApp

1. In the XenApp Server Role Manger, under XenApp, click [Configure].
2. Click [Create a new server farm].
3. Name the new farm, and then click [Next].
4. Select <Use an existing license server>, enter the server's name, and then click [Next].
5. Select <Existing Microsoft SQL Server database>.
6. Enter the database server name, and then enter the database name (which should be `CitrixMetaFrame`, as configured in "Step 2: Create the Citrix Database" on page 48).
7. Click [Next].
8. Test for a successful connection, and then click [Next].
9. Ignore the Shadowing information and click [Next].
10. Click [Next].
11. Click [Apply].
12. Click [Finish].
13. Reboot the server.
    a. When the server reboots, two screens are shown:

       Change Server - Citrix Online Plug in screen

       Citrix XenApp Server Role Manager screen

    b. Click [Cancel] to close both screens.
14. Select **Start > All Programs > Citrix > Management Consoles > Citrix Delivery Services Console**.
15. In the dialog that opens, click [Disable].
16. The Configure and Run Discovery screen is shown. If not, select **Action > Configure and run discovery** in the top, next to **File**.
    - Make sure the following are selected:

      Citrix Resources

      XenApp

Single Sign-on

17. Click [Next].
18. Uncheck Single Sign-on, and then click [Next].
19. Click [Add Local Computer], and then click [Next].
20. Click [Next].
21. Click [Finish].
22. Under **XenApp** in the Citrix Delivery Services Console, expand the farm you created.
23. Click [Policies].
24. Select the **Computer** tab.
25. Select **Unfiltered** and then click [Edit].
26. Click [Next].
27. In the categories, select **Licensing**.
28. Click [Add] next to **License Server Host Name**.
29. Enter the server name and then click [OK].
30. Click [Add] next to the license server port, confirm that the value is still the default of 27000, and then click [OK].
31. Under categories, select **Server settings**.
32. Click [Add] next to the XenApp product edition and select whatever edition used as the value. Click [OK].
33. Click [Save].
34. Click **Start > Run** and then type `cmd` <Enter>.
    - If the workstation does not have the Run command on the Start menu, press <Windows key> + R to open the Run command.
35. Type `gpupdate /force` <Enter>.
36. If you entered the wrong details during the previous steps, you will get an error stating that the required license is not present.

    If the previous details were completed correctly, you will see:
    - User Policy update has completed successfully
    - Computer Policy update has completed successfully
37. Reboot the workstation to make sure these policies take effect.
38. Open the **cmd** prompt again and enter `qfarm /load`.
    - If your server load is 20000 you have a licensing problem.
    - The value should be less than 10000.

Step 6: Configure the Web Interface

1. Select **Start > All Programs > Citrix > XenApp Server Role Manager**.
2. In the XenApp Server Role Manager, under Citrix Web Interface, click [Configure].
3. In the Citrix Web Interface Management window, under Citrix Web Interface, right-click **XenApp Web Sites** and select <Create Site>.
4. Select **Set as default page for the IIS site** and then click [Next].
5. Click [Next].
6. Click [Next].
7. Confirm that **Configure this site now** is selected and then click [Next].
8. Type the farm name. If you do not remember the Farm name, open the **Citrix Delivery Services Console**.
9. Click [Add] and then enter the server name.
10. Confirm that the server is listed under Servers, and then click [Next].
11. Click [Next].
12. Click [Next].
13. Check either minimal or full, and then click [Next].
14. Confirm that **Online** is selected, and then click [Next].
15. Click [Finish]. The system is now ready to publish applications.

Step 7: Publish the B.A.S.I.S. Applications

Note: Before installing B.A.S.I.S., try publishing Notepad or Calculator to confirm that publishing works correctly.

1. Select **Start > All Programs > Citrix > Management Consoles > Citrix Delivery Services Console**.
2. Under **Actions** on the right side, configure and run discovery.
   a. Click **Next**.
   b. Uncheck **Single Sign-on**.
   c. Click **Next**.
   d. Click **Next**.
   e. Click **Finish**.
3. Expand the farm name in the Object Explorer pane, right-click **Applications**, and then select **Publish Application**.
4. Click [Next].
5. Enter the **Display name** and click [Next].
6. Click [Next].
7. Click Browse under the command line, find the application you want to publish, and then click **next**.
8. Click [Add], double-click servers, double-click the servers you want to add, and then make sure they are listed in Selected Items. Click [OK] and then click [Next].
9. Select **Allow anonymous users** and click [Next].
10. Click [Next].
11. Click [Finish].

To access your site, enter the server name in Internet Explorer and then log in. You should see and be able to launch the applications.

Step 8: Install the Citrix Clients

To work with applications in Citrix, you must download and install the Citrix Online Plug in.

1. When authenticating to the Citrix server for the first time, you are instructed to download the Citrix client.
2. Click [Client Center].
3. Select **For Web Access > Citrix Online Plug-in > Web**.
4. Select **Download File Manually**.
5. Install the Citrix Client.

Step 9: Install B.A.S.I.S.

1. Install B.A.S.I.S.. Refer to the *B.A.S.I.S. Installation Guide*.

Note: You must choose the **Existing SQL** option during installation. You must set up the database yourself using the SQL 2008 Studio Manager.

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2. Publish your B.A.S.I.S. applications as described in "Step 7: Publish the B.A.S.I.S. Applications" on page 53. However, before clicking [Finish], click [Configure advanced application settings now].
3. Click [Next] four times.
4. Deselect **Enable legacy audio** and then click [Next].
5. Change the maximum color quality to **16-bit** and then click [Finish].
6. Repeat steps 2 through 5 for each B.A.S.I.S. application you install.

Step 10: Access the Applications from a Client Workstation

1. In your browser, type your servername, and then log in and launch your applications.
2. If you are a client on another machine, you must install a plugin. Citrix XenApp will prompt you to download the plugin.

Reference

Chapter 7: Ports Used by B.A.S.I.S.

Important: To make changes in the **ACS.INI** file on a Windows 7 computer, you must right-click on the **ACS.INI** file and run it as an Administrator.

Note: Most of the following ports use the Transport Control Protocol (TCP). Ports 45303, 45307, and 46308 use the User Datagram Protocol (UDP). Port 9111 uses the Hypertext Transfer Protocol (HTTP) protocol.

Port	Function	From (Client)	To (Server)	B.A.S.I.S. version	Notes/Where port can be changed
80	Web Server (IIS)	Web browser	B.A.S.I.S. server	Only used with B.A.S.I.S. 5.12 and later	Used for Web Applications to communicate with the Web Service. Check IIS configuration for the correct port configuration.[4]
135	DCOM Initial Connections	Any DCOM application	LNVR; B.A.S.I.S.	All B.A.S.I.S. Versions	Cannot be changed.
443	Web Server (IIS) SSL	Web browser	B.A.S.I.S. server	Only used with B.A.S.I.S. 5.12 and later	Used when SSL is utilized for the Web Applications. Port 443 is used for secure web browser communication.[4]
1433	Default port for SQL Server	All client applications and services	Database server		Check SQL Server configuration/ documentation; this can be changed in SQL configuration.
2000	Digital Video - live video streams	Web Video Viewer; Alarm Monitoring; Video Viewer; Remote Monitoring; Intelligent Video Server; Area Access Manager	LNVR	B.A.S.I.S. 5.7 and later	To change, update Registry Setting on Video Recorder **HKEY_CLASSES_ROOT\Spider\Resources\Spider\TCPSHAREPARAM**.
3001	Connected controllers	Comm Server	Connected controllers	B.A.S.I.S. 5.0 and later	The default port the Communications Server uses to communicate with controllers. Configurable within System Administration.

Port	Function	From (Client)	To (Server)	B.A.S.I.S. version	Notes/Where port can be changed
4001	Communication Server RPC	System Admin; Alarm Monitoring; Area Access Manager; Data Conduit; Data Exchange; Replicator; Config Download Service; Linkage Server	Comm Server	All B.A.S.I.S. versions	Can be changed in **ACS.INI** [Service] section DriverRpcPort[1]
4002	Global Output Server RPC	Linkage Server	Global Output Server	B.A.S.I.S. 5.0 and later	Can be changed in **ACS.INI** [Service] section GosRpcPort[1]
4003	Login Driver RPC	Apps and services that login to the B.A.S.I.S. database	Login driver	B.A.S.I.S. 5.0 and later	Can be changed in **ACS.INI** [Service] section LoginRpcPort[1]
4004	Communication Server Socket (event reporting)	Alarm Monitoring; Linkage Server	Comm Server	All B.A.S.I.S. versions	Can be changed in **ACS.INI** [Service] section DriverSocketPort[1]
4005	Linkage Server RPC	System Admin	Linkage Server	B.A.S.I.S. 5.7 and later	Can be changed in **ACS.INI** [Service] section LinkageServerRpcPort[1]
4006	Video Server RPC	System Admin; Linkage Server	Archive Server	B.A.S.I.S. 5.7 and later	Can be changed in **ACS.INI** [Service] section VideoServerRpcPort[1]
4009-4057	Alarm Monitoring RPC	Comm Server	Alarm Monitoring	B.A.S.I.S. 5.9 and later	Used for the Guard Tour, Grant-Deny Popup and Failure to Acknowledge/ Forward Alarm features only. One port used per Monitoring instance on a given machine (typically 4009). Can be changed in **ACS.INI** [Service] section AcsmntrRpcMinPort, AcsmntrRpcMaxPort[2,3]
4059	Replicator	Replicator Admin; Replicator Service	Replicator Service	B.A.S.I.S. 5.9 and later	Can be changed in **ACS.INI** [Service] section ReplicatorSocketPort[1]
4060	Replicator	Replicator Admin; Replicator Service	Replicator Service	B.A.S.I.S. 5.9 and later	Can be changed in **ACS.INI** [Service] section ReplicatorRpcPort[1]

Port	Function	From (Client)	To (Server)	B.A.S.I.S. version	Notes/Where port can be changed
4061	DataExchange	Linkage Server	Data Exchange	B.A.S.I.S. 5.9 and later	Can be changed in **ACS.INI** [Service] section DESocketPort[1]
4062	DataExchange	Linkage Server	Data Exchange	B.A.S.I.S. 5.9 and later	Can be changed in **ACS.INI** [Service] section DERpcPort[1]
4065	Replicator	Replicator	ID Allocation Service	B.A.S.I.S. 6.3 and later	Port used by Replicator and/or Replication Administration to communicate with the ID Allocation Service to allocate additional IDs for pre-allocated objects
4070	HID Edge device communication	Comm Server	HID Edge devices	B.A.S.I.S. 6.1 and later	Used for bi-directional communication between B.A.S.I.S. Communication Server and HID Edge devices. Can be changed in the **ACS.INI** file under the [HID VertX] section Listening Port[1]
7007	Communications with SkyPoint Base Server	Communication	Communication	B.A.S.I.S. 6.5 and later	Used for communication between SkyPoint Base Server and B.A.S.I.S..
7008	SkyPoint Base Server	Communication	Communication	B.A.S.I.S. 6.5 and later	Used for communication between SkyPoint Base Server and B.A.S.I.S..
7654	LS Client Update Server service	Client Update service	Client Update server	B.A.S.I.S. 6.5 and later	Can be changed in **System Administration > Administration > System Options**, on the **Client Update** form

Port	Function	From (Client)	To (Server)	B.A.S.I.S. version	Notes/Where port can be changed
8189	License Server	All client apps	License Server	B.A.S.I.S. 5.7 and later	To change the License Server port: 1. The value for the Port key in the [License Server] section of the **ACS.INI** file must be changed on every B.A.S.I.S. machine. The default is: [License Server] Port=8189 2. The following must be added to the **LicenseServerConfig\Server.properties** file (file content is case-sensitive!): Port=8189 where '8189' is replaced by the desired port number. (This line is not present by default. The whole file is not present by default; it is created when the admin username or password is changed.)
8888	Software License	License Server at customer site	Stanley's public License Admin site	B.A.S.I.S. 6.1 and later	Port used for online activation and deactivation of software based licensing. This port must be open to activate a software-based (FLEXnet) license.
9111	Application Server (as a Windows Service)	Web hosted apps	App Server	B.A.S.I.S. 5.12 and later	Used for communication with the Application Server service. Lnl.OG.ApplicationServer.Service.exe.config contains the Application Server port configuration. The Web Service web.confg file indicates to the Web Service how to connect to the Application Server (including which port). Uses the HTTP protocol.

Port	Function	From (Client)	To (Server)	B.A.S.I.S. version	Notes/Where port can be changed
9999	License Administration	Web browser	License Server	B.A.S.I.S. 5.7 and later	To change the License Administration port, the following must be added to the **LicenseServerConfig\Server.properties** file (file content is case sensitive!): AdminPort=9999 where '9999' is replaced by the desired port number. (This line is not present by default. The whole file is not present by default; it is created when the admin username or password is changed.) **Note:** The License Administration shortcut installed by B.A.S.I.S. can't be used if the License Administration port has been changed. To access the License Administration after the port has been changed, simply point the browser to http://licenseserver:9999 (where 'licenseserver' is the name of the machine running Licenser Server and '9999' is the port number for License Administration).
10001	Galaxy Ethernet Module	Comm Server	Galaxy panels	B.A.S.I.S. 5.11 and later	Can't be changed.
45303	Elevator Terminal Online Status Port	Comm Server	Otis elevator dispatching system	B.A.S.I.S. 5.12 and later	Acs.ini [Otis] section SSOnlineStatusPort. If changed, must be done on workstation running Communication Server. Uses UDP.

Port	Function	From (Client)	To (Server)	B.A.S.I.S. version	Notes/Where port can be changed
45307	Elevator Dispatching Heartbeat Port	Otis elevator dispatching system	Comm Server	B.A.S.I.S. 5.12 and later	Acs.ini [Otis] section SSHeartbeatPort. If changed, must be done on workstation running Communication Server. Uses UDP.
46308	Elevator Terminal Command Port	Comm Server	Otis elevator dispatching system	B.A.S.I.S. 5.12 and later	Acs.ini [Otis] section SSDECCommandPort. If changed, must be done on workstation running Communication Server. Uses UDP.

[1] To change these ports, the **ACS.INI** settings must be changed on all machines (server and clients).

[2] To change these ports for a given monitoring station, the **ACS.INI** settings only need to be changed on that machine.

[3] Each port in this range is used for the same purpose, and most of these ports are usually unused. This port range is reserved so that multiple instances of Alarm Monitoring can run on one PC in a terminal services environment. Because each instance of Alarm Monitoring running on one PC requires a unique port, the next available port in this range is used.

[4] These ports are used by the BAS-2220 and BAS-3300 when connected to the network.

Digital Video Ports

Access to live and recorded digital video is done through a combination of DCOM and network socket connections.

Abbreviations:

- LNVR - Lenel Network Video Recorder
- LDVR - Lenel Digital Video Recorder
- IVS - IntelligentVideo Server
- IVAS - IntelligentVideo Application Server
- LSVS - Lenel Streaming Video Server
- RM - Remote Monitor
- VV(web) - VideoViewer browser-based client

Port	Function	From (Client)	To (Server)	Protocol
2000[a]	Live video	B.A.S.I.S., IVS, VV(web), RM	LDVR	TCP/IP
DCOM	Setting configuration, querying status, playback control, and recorded video	B.A.S.I.S., IVS, VV(web), RM	LDVR	DCOM
<User>[b]	Live video	LNVR, RM	B.A.S.I.S., IVS, VV(web)	UDP/IP or multicast[c]
<User>[d]	Live video	B.A.S.I.S., IVS, VV(web), RM	LNVR	TCP/IP
DCOM	Setting configuration, querying status, playback control, and recorded video	B.A.S.I.S., IVS, VV(web), RM	LNVR	DCOM
DCOM	Setting configuration, querying status	B.A.S.I.S.	IVS, IVAS	DCOM
<User>[e]	Video processing metadata stream	B.A.S.I.S., IVAS	IVS	TCP/IP
DCOM	Video processing event subscription	IVAS	IVS	DCOM
<User>[f]	Streamed RTP live video	LSVS	Any RTP client	UDP/IP or multicast
DCOM	LSVS configuration[g]	LSVS config tool	LSVS	DCOM
6000[h]	Control commands	B.A.S.I.S.	RM	UDP/IP
6001-7000[i]	Control command response notifications	RM	B.A.S.I.S.	UDP/IP
80[j]	Live video retrieval and camera control	LNVR	IP Cameras	TCP/IP
21 and ####[k]	In-Camera Storage retrieval	LNVR	IP Cameras	TCP/IP
1754	Control connection	LNVR	Bosch video servers	TCP/IP
####[l]	Video retrieval	Bosch video servers	LNVR	UDP/IP

a.This port can be changed through LDVR configuration tools.

b.If live video is transmitted in UDP/IP mode, the B.A.S.I.S. client determines which port should be used. The range of ports can be limited by launching LnrNI utility on the B.A.S.I.S. client machine and specifying the port range to use under the **Use UDP/IP** check box. If live video is transmitted in multicast mode, the LNVR will choose which port should be used by each channel. The range of ports can be specified by launching the LnrNI utility on the LNVR machine, selecting the "Recorder Network Settings" tab and entering the first multicast port. The actual port number for each channel is defined by adding the first multicast port and the channel number. For example, if the first multicast port is 2000, then channel 1 will use port 2001, channel 2 will be 2002, etc.

c.When LNVR starts for the first time, it will randomly choose a multicast address for use with live video and stores this address in the **LNR.XML** file. If a different address is desired, this value can be changed by editing the LNR/Recorder/Settings/MulticastIP element in the **LNR.XML** file.
This multicast address becomes the base number and similarly to the multicast port actual address for a channel is determined by adding the channel number to this base value. It is important to remember that if multicast video is used in the system, all channels on all LNVRs should be assigned unique multicast port and address values.
d.This port number can be specified by launching the LnrNI utility on the LNVR machine, selecting the "Recorder Network Settings" tab and entering a value for **Recorder TCP/IP Port**.
e.This port number can be specified by launching the LnrNI utility on the LNVR machine, selecting the "IVS Network Settings page and entering a value for **IntelligentVideo Server TCP/IP Port**.
f.The port and multicast address for each channel is chosen by the user through the configuration utility when channels are added to the LSVS.
g.This setting is only required if the user wishes to configure the LSVS from a remote machine. This step is not necessary if the configuration application is launched from the host where the streaming server is installed.
h.This port number must be the same on all remote monitoring and B.A.S.I.S. client machines in the system. If the user wishes to use a different value, all machines must be updated at the same time. On the B.A.S.I.S. client, this can be changed by editing the "MonitorUDPPort" registry value under HKEY_LOCAL_MACHINE\Software\Lenel\OnGuard. On RM machines, the same value must be updated in the registry under HKEY_LOCAL_MACHINE\Software\Lenel\RemoteMonitor.
i.This port range can be changed by launching the LnrNI utility on the B.A.S.I.S. client machine, selecting the "Remote Monitor Network Settings" tab and entering a different port range.
j.Cameras have built-in web servers. Typically they use HTTP port 80, but the user can configure it to use any arbitrary port number. The camera tab in the digital video folder in System Administration allows you to specify which port LNVR will connect to. For more information, refer to the Digital Video Folder chapter in the System Administration User Guide for more information.
k.Currently this is only supported for Sony cameras. FTP protocol is used to retrieve video from In-Camera Storage. By default this protocol uses TCP port 21 to establish the connection. This port can be changed in the camera configuration. FTP protocol also uses a separate TCP/IP connection for actual data transfer and this connection can be established on just about any port. Therefore, using In-Camera Storage through firewalls might cause problems.
l.The port number is chosen arbitrarily by Bosch client components used by LNVR.

DCOM uses TCP port 135 to establish new connections. TCP port 135 must be open on the server. Once a client connects to that port, the Windows DCOM/RPC subsystem determines the type of the actual communications. This type can be either TCP/IP or UDP/IP based on the machine settings. These settings can be changed with the following steps:

1. Run "dcomcnfg" from the command line.
2. Expand to **Console Root > Component Services > Computers > My Computer**.
3. Right-click on My Computer and select Properties.
4. Select the Default Protocols tab.
5. Select UDP/IP or TCP/IP or both. For each option, the port range can also be limited. If the port range is not limited, DCOM will use any random port between 1024 and 65000. It is recommended to limit the port range for systems using firewalls.
   The following Microsoft Knowledge Base article provides background information for configuring DCOM: http://msdn2.microsoft.com/en-us/library/ms809327.aspx

For additional information about DCOM, refer to the Microsoft Windows documentation.

The LnrNI utility is used to configure the ports that should be used for each type of communication. When launched on a client, the LnrNI utility defines the mode that will be used to receive live video from the LNVR. It attempts each type of connection in the order they are listed on the Client Network Settings tab. If the connection is unsuccessful after 3 seconds it will move to the next connection type until all three have been tried: multicast, UDP/IP, and TCP/IP. TCP/IP is the fallback mechanism and cannot be disabled.

The LnrNI utility also determines which network card should be used by the video software if the machine is multihomed, meaning it has different IP addresses due to multiple active network adapters.

Chapter 8: B.A.S.I.S. Services

The following is a table of B.A.S.I.S. services and those services that run on B.A.S.I.S. installations.

B.A.S.I.S. Services Table

Name	Definition	Number per B.A.S.I.S. system	Startup Type	Notes
Application Server	Used to provide the application server for the web based applications.	One per region.	Automatic	Only installed when a custom installation is performed and the Application Server component is selected.
Client Update Server	The Client Update Server is used to automatically update client workstations.	One per server.	Manual - Run if the service is being used	Only client workstations are upgraded automatically. Server workstations still require manual updates. By default, this functionality is disabled. Only applies to new releases and cumulative hotfixes; incremental updates are not distributed by this server.
Communication Server	The B.A.S.I.S. Communication Server acts as the communication “gateway” for information flow between the B.A.S.I.S. software and hardware.	You can have multiple communication servers.	Automatic	Many communication services may be running throughout a region. One communication server can communicate to many field hardware devices, but a hardware device can only communicate to one communication server. It is typically configured to run automatically on the regional server though any regional client can run the communication server.
Config Download Service	The Config Download service is used to propagate configuration changes down to the hardware from the web based applications.	One per region. Must be run on the same machine as the Application Server.	Automatic	Needed only for the Area Access Manager (Browser-based Client) application.

B.A.S.I.S. Services Table

Name	Definition	Number per B.A.S.I.S. system	Startup Type	Notes
DataConduIT Message Queue Server	The DataConduIT Message Queue Server is an adapter that works with the DataConduIT Service. It provides an easy way to use/ delegate DataConduIT notifications using queues.	One	Manual - Run if the service is being used	Only one instance of the DataConduIT Message Queue Server may be running on each regional and/or master database; typically on the database server.
DataConduIT Service	The DataConduIT Service is a platform for integrating with IT systems, providing access to ID management data, access control events, and real-time notification when changes are made to cardholders and their credentials.	One	Automatic - Run if the DataConduIT service is being used	DataConduIT must be installed on the same machine as the Linkage Server if you want to receive events through DataConduIT. DataConduIT may be run on additional server machines as well, but you will not be able to register to receive events from DataConduIT on those machines.
DataExchange Server	The DataExchange Server is used to exchange database information with third party applications.	One	Automatic	Only one DataExchange server may be running on each regional database and/or master database. It only needs to be running when scheduling to run a DataExchange script.
Device Discovery Service	The Device Discovery Service is used as a proxy service for running remotely (systems in other subnets) all services that the Device Discovery Console cannot otherwise access.	One	Automatic if installed	You must perform a custom installation and select “Device Discovery Service” in the Standard Applications section.

B.A.S.I.S. Services Table

Name	Definition	Number per B.A.S.I.S. system	Startup Type	Notes
Global Output Server	The B.A.S.I.S. Global Output Server (GOS) is used to send output to any supported output system (including electronic mail and paging) connected to the computer on which the GOS is installed. For e-mail, the GOS communicates to the SMTP Server and for paging it outputs the file to a specified location.	As many as needed.	Automatic - Run if paging or e-mail is being used	As many instance of Global Output Server (GOS) can be running on each regional and/or master database; typically it is run on the database server.
ID Allocation	Used to manage pre-allocated IDs across an enterprise installation.	One	Automatic	
License Server	The License server controls which features the computer is licensed to use.	One	Automatic	The B.A.S.I.S. License Server is typically run on B.A.S.I.S. servers but can be configured on a separate machine.
Linkage Server	The Linkage Server is responsible for directing automatic email/paging messages in response to specific alarms, as well as linking “marked” video segments on a video recorder with the associated alarm/event logged in the Database.	One	Automatic	Only one instance of Linkage Server may be running on each regional and/or master database; typically on the database server.
Login Driver	The login driver allows B.A.S.I.S. to log in and access the database.	One - The service is run on the computer on which the database resides.	Automatic	The Stanley Login Driver is a service that is used to change the B.A.S.I.S. database password (NOT the user passwords). The service is run on the computer on which the database resides.
LnrCapSvc	Records video from CCTV devices.	One per LNVR.	Automatic	Must be running in order for the LNVR to connect to video sources and to store information to the disk. It also services live video retrieval requests.

B.A.S.I.S. Services Table

Name	Definition	Number per B.A.S.I.S. system	Startup Type	Notes
LnrRetrSvc	Retrieves recorded video requested by client.	One per LNVR.	Automatic	Manages stored video and stored video retrieval requests. If your storage fills up this service finds which files should be deleted so the capture service has space for new video.
LnrRTPServer	Streams video to RTP clients.	One per LNVR.	Automatic	This services is a translation layer between the proprietary LNVR video retrieval interfaces and the standard way of transmitting streaming media data.
LpsIVAppServer	Performs processing for IntelligentVideo Applications.	One per IVAS	Automatic	This is a host service for all IntelligentVideo applications where each application is implemented as a dynamically linked library module. Currently the only application supported is Facility Utilization.
LpsIVSAdminSvc	Manages configuration of video analytics events.	One per IVAS	Automatic	Must be running in order for the IntelligentVideo Server to work. Runs on the IVS.
LpsRetrSvc	Retrieves metadata associated with video analytics events.	One per IVS	Automatic	Services stored processed video metadata retrieval requests. This is used by clients when they are viewing recorded video and want to see overlay images generated by video processing algorithms.
LpsSearchSvc	Performs video analytics processing.	One per IVS + one per B.A.S.I.S. client + one per LNVR.	Automatic	Must be installed in order to perform any video searches. Should be run on all machines, servers and clients, that will need to perform video searches.
PTZ Tour Server	PTZ Tour Server.	One per B.A.S.I.S. client + one on the B.A.S.I.S. server.	Automatic	

B.A.S.I.S. Services Table

Name	Definition	Number per B.A.S.I.S. system	Startup Type	Notes
Replicator	Used to replicate information between the regional server/ mobile ID back to the master server.	One per Region or Mobile Station	Manual as a program or Automatic as a service.	Replicator is installed and run on either a Regional Server or a Distributed ID Mobile Station. If using as an automatic startup type, you will use B.A.S.I.S. scheduler when replicating. If manual, you will replicate whenever convenient (This is typical for those using Mobile ID.)
Video Archive Server	The Video Archive Server is a system service that is responsible for purging or archiving video data from multiple video servers onto one or more designated storage devices.	Depending on the number of recorders and physical archive servers you have.	Automatic - Run if Digital Video Archiving is being used	A digital video recorder device can only communicate to one Video Archive Server.

Appendices

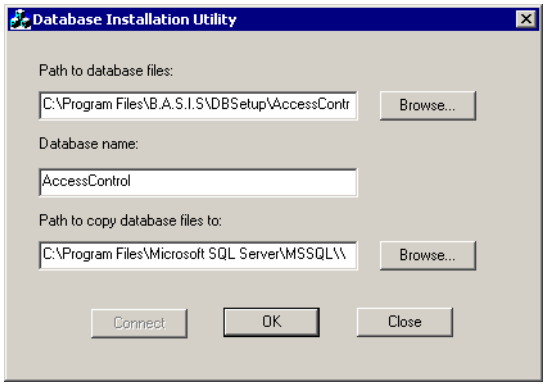
Appendix A: Database Installation Utility

Database Installation Utility Overview

The Database Installation Utility is used to attach an SQL Server Express/ SQL Server database for use with the B.A.S.I.S. software. The Database Installation Utility copies the existing database data files (MDF and LDF), attaches the database, and updates the Lenel Data Source Name (DSN) to point to the correct database. It does not create the tables in a new database - Database Setup must be run.

The Database Installation Utility is run automatically at the end of the B.A.S.I.S. installation when either a new SQL Server Express database or a demo database has been selected. It is also installed on the local machine in the B.A.S.I.S. installation directory so that it can be run manually after the installation has completed.

Database Installation Utility Window



Database Installation Utility Window Field Table

Form Element	Type	Comment
Path to database files	Text	The source data file (MDF) name. When the Database Installation Utility is run automatically during the B.A.S.I.S. installation, the **Path to database files** and the **Database name** are determined based on the choice of the SQL Server Express or Demo database. • The default empty SQL Server Express database is **AccessControl_Data.mdf**. • The B.A.S.I.S. demo database is **AccessControlDemo_Data.mdf**.
Browse	Push button	Click to select the **Path to database files**.
Database name	Text	The name of the database that will be used with the B.A.S.I.S. software. When the Database Installation Utility is run automatically during the B.A.S.I.S. installation, the **Database name** and the **Path to database files** are determined based on the choice of the SQL Server Express or Demo database.
Path to copy database files to	Text	The destination directory. The destination directory will always default to the SQL Server Express/SQL Server default data directory, as configured in SQL Server Express/SQL Server and stored in the registry.
Browse	Push button	Click to select the **Path to copy database files to**.
Connect	Push button	When the Database Installation Utility opens, it attempts to connect to the database for the DSN that is currently specified in the [Database] section in the **ACS.INI** file. For example, if the following is specified in the [Database] section: Connect="ODBC;DSN=Lenel" then the Database Installation Utility will attempt to connect to the database associated with the Lenel DSN. • If the database connection succeeds, the [Connect] button is grayed out. • If the database connection fails, an error message that says, "The DSN selected in your ACS.INI is invalid. Please check your ODBC configuration." is displayed and the [Connect] button is enabled. If this message is displayed, open the **ACS.INI** file and specify the correct DSN, save and close the **ACS.INI** file, and click the [Connect] button. If the connection is successful, the [Connect] button will become grayed out.
OK	Push button	Created or attaches the specified database.
Close	Push button	Closes the Database Installation Utility without performing any function.

Database Installation Utility Procedures

Attach an SQL Server Express Database

Run the Database Installation Utility by doing the following:

Important: To make changes in the **ACS.INI** file on a Windows 7 computer, you must right-click on the **ACS.INI** file and run it as an Administrator.

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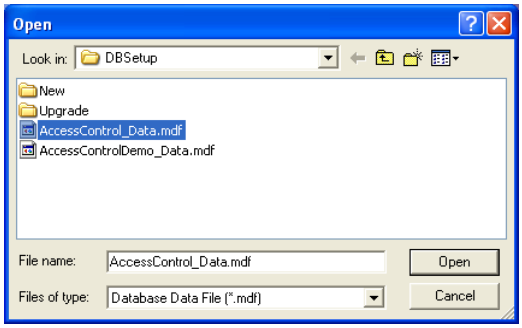
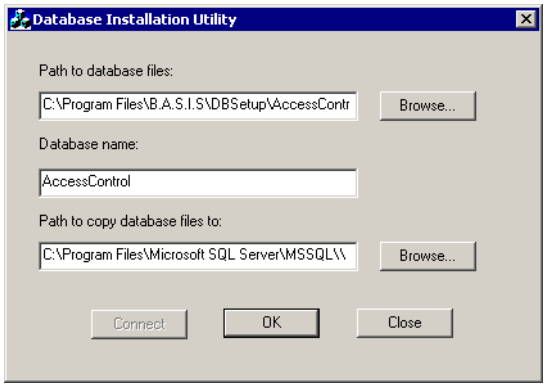
1. In Windows Explorer, navigate to the B.A.S.I.S. installation directory (**C:\Program Files\B.A.S.I.S.** by default), and then double-click on the **DatabaseInstallationUtility.exe** file to run it.
2. The Database Installation Utility window is displayed. When the Database Installation Utility opens, it attempts to connect to the database for the DSN that is currently specified in the [Database] section in the **ACS.INI** file. For example, if the following is specified in the [Database] section:
   Connect="ODBC;DSN=Lenel"
   then the Database Installation Utility will attempt to connect to the database associated with the Lenel DSN.
   - If the database connection succeeds, the [Connect] button is grayed out. Proceed to step 3.
   - If the database connection fails, an error message that says, "The DSN selected in your ACS.INI is invalid. Please check your ODBC configuration." is displayed and the [Connect] button is enabled. If this message is displayed, open the **ACS.INI** file and specify the correct DSN, save and close the **ACS.INI** file, and click the [Connect] button.

If the connection is successful, the [Connect] button will become grayed out. Proceed to step 3.

3. Click [Browse...] to choose the path to the database files.
4. The Open window is displayed. Navigate to the **DBSetup** folder in the B.A.S.I.S. installation directory, select the MDF file that you wish to attach, and then click [Open]. MDF files you may wish to attach include:
   - The default empty SQL Server Express database **AccessControl_Data.mdf**.
   - The B.A.S.I.S. demo database **AccessControlDemo_Data.mdf**.



5. In the **Database name** field, type `AccessControl` or any other name you wish to use, as shown.

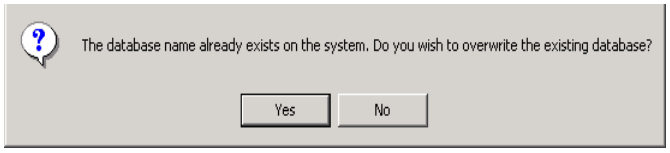


6. The recommended path is the default path specified in the **Path to copy database files to** field. This default path is where the files would be stored if

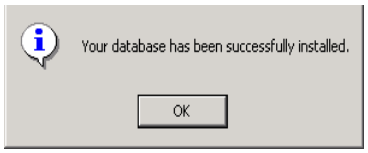
you were using the SQL Server user interface (which does not come with SQL Server Express) to create a database.

- If you do not change the default setting in the **Path to copy database files to** field and a database with the name you specified already exists, the database will be overwritten.
- If you do change the default setting, a new database will be created in that location.

7. Click [OK].
8. If you did not change the default setting, the following message is displayed. Click [Yes].



9. The DSN is updated to point to the database, and a message is displayed that indicates that the database was successfully installed. Click [OK].



10. On the Database Installation Utility window, click [Close].

Important: After attaching a database, you must run Database Setup to create the tables in the database.

Appendix B: Change the Database Owner in SQL Server Express

Since SQL Server Express doesn't provide an interface for accessing the database engine, use the following procedure to log into the database directly using the ODBC connection created for B.A.S.I.S.:

1. From the Start menu, select **Run**. Click [Browse…]. Browse to the B.A.S.I.S. folder and select the 'ACCESSDB.exe' application. Click [Open] and then [OK] to run this application.
2. From the **Management** menu, select **Datasource** > **Connect**.
   a. On the Machine DataSource tab, select "Lenel". Click [OK].
   b. You will be prompted for the database "sa" login ID and password. Enter the credentials and click [OK].
   c. The screen will return to the main window.
   d. From the **SQL** menu, select **Statement**. Enter the following statement in the text box:
   `sp_changedbowner Lenel`
   Click [OK] when you are ready to execute the statement.
   e. If the command returns highlighted, then it completed without error.
3. Log into a B.A.S.I.S. application and verify that the change was successful.

Appendix C: Manually Creating an ODBC Connection for SQL

The following appendix will detail the manual creation of an ODBC connection for SQL. These instructions are primarily for reference purposes because the B.A.S.I.S. installation automatically creates the necessary ODBC connection to the database.

If using Windows 7 with UAC turned on, you might receive an error when creating an ODBC with B.A.S.I.S. applications. This error occurs when you are not running the application as an Administrator. To work around this issue, run the application as Administrator or create the ODBC manually as described in this appendix.

Important: When manually creating an ODBC connection you must use the SQL Native Client driver.

Creating an ODBC Connection for SQL

1. Open the ODBC Data Source Administrator window. To do this:
   a. For 32-bit operating systems: From Administrative Tools in Windows, open Data Sources (ODBC).
   b. For 64-bit operating systems: Navigate to **C:\windows\SysWOW64** and run the **odbcad32.exe** file.
2. The ODBC Data Source Administrator window is displayed. Select the System DSN tab.
3. Click [Add].
4. The Create New Data Source dialog is displayed.
   a. Select **SQL Native Client** from the list view.
   b. Click [Finish].
5. The Create a New Data Source to SQL Server dialog is displayed.
   a. Enter a descriptive Name for the data source.
   b. Enter the name of the machine or virtual machine hosting the database in the **Server** field.
   c. Click [Next].
6. Select SQL Server authentication and enter the **Login ID** and **Password**.

Note: If you select Windows NT authentication it may impact your ability to store credentials in a file as a means of authentication. Selecting SQL Server authentication does not impact your ability to use Windows authentication

with the Web applications. Refer to the Installation Guide for more information about database authentication with the Web applications.

7. Click [Next].
8. Select the **Change the default database to** check box and choose the B.A.S.I.S. database from the drop-down list.
9. Click [Next].
10. Click [Finish].
11. The ODBC Microsoft SQL Server Setup dialog is displayed.
    a. Click [Test Data Source]. A success message should be displayed.
    b. Click [OK] to exit each of the dialogs.

Updating the DSN in the B.A.S.I.S. Configuration Files

The name of the ODBC connection that B.A.S.I.S. uses to connect to the database is stored in two configuration files. If you have manually created your ODBC connection you may need to update these files with the new DSN.

Note: File locations may vary depending on your operating system and configuration.

Important: To make changes in the **ACS.INI** file on a Windows 7 computer, you must right-click on the **ACS.INI** file and run it as an Administrator.

1. Edit the **ACS.INI** file. The **ACS.INI** file is located at **C:\WINDOWS\ACS.INI**.
2. Update the following line in the [DataBase] section:
   `Connect="ODBC;DSN=<DSNName>"`
   Change <DSNName> to the name of the new DSN for the ODBC connection to the B.A.S.I.S. database.
3. Save and close the **ACS.INI** file.

Note: Steps 4 and 5 are necessary only for systems using the web applications.

4. Edit the **C:\Inetpub\wwwroot\lnl.og.webservice\web.config** file.
5. Find and update the following line:
   `<add key="reportDSN" value="<DSNName">`
   Change <DSNName> to the name of the new DSN for the ODBC connection to the B.A.S.I.S. database.

Troubleshooting

If you experience problems connecting to the B.A.S.I.S. database, check the ODBC connection to be sure that it is configured correctly.

1. From Administrative Tools in Windows, open Data Sources (ODBC).
2. The ODBC Data Source Administrator window is displayed. Select the System DSN tab.
3. Select the DSN used to connect to the B.A.S.I.S. database from the list view.
4. Verify in the System Data Sources listing window that the DSN driver is SQL Native Client.

Note: If the DSN driver is not SQL Native Client, delete the System DSNand create a new ODBC connection using the SQL Native Client driver. For more information, refer to Creating an ODBC Connection for SQL on page 83.

5. Click [Configure].
6. Verify that the name of the **Server** is correct in the drop-down.
7. Click [Next].
8. Check that the correct method of authentication is selected and verify the credentials if using SQL Server authentication.

Note: If you select Windows NT authentication it may impact your ability to store credentials in a file as a means of authentication. Selecting SQL Server authentication does not impact your ability to use Windows authentication

with the Web applications. Refer to the Installation Guide for more information about database authentication with the Web applications.

9. Click [Next].
10. Verify that **Change the default database to** check box is selected and that the B.A.S.I.S. database is selected in the drop-down.
11. Click [Next].
12. Click [Finish].
13. The ODBC Microsoft SQL Server Setup dialog is displayed.
    a. Click [Test Data Source]. A success message should be displayed.
    b. Click [OK] to exit each of the dialogs.

Appendix D: Setting Up & Configuring a Capture Station

The following appendix will show you how to set up and configure a capture station.

Environmental Considerations Affecting Flash & Camera Capture Quality

There are several factors to consider when selecting your capture station environment. Lighting is the most important factor and the most difficult to provide setup instructions for, because every site's capture environment is unique. B.A.S.I.S. ships with the optimal hardware setting defaults already set. The important items to consider when setting up the capture environment are the flash and camera settings based on environmental considerations.

Setting Up the B.A.S.I.S. Capture Dialog

You will initially need to set up the B.A.S.I.S. capture dialog with factory default settings that are appropriate for your capture hardware. Once that is done, you can make minor adjustments to accommodate your specific capture devices and capture environments.

1. Launch the application you'll be using to capture photos/signatures/badge layout graphics.
2. Launch the capture dialog from within that application by selecting the [Capture] button on a form that accesses the Multimedia Capture module.
3. Repeat the following procedure for each outer capture form:
   a. If configuring cardholder photo capture, select the Photo tab. If configuring cardholder signature capture, select the Signature tab. If you are using the BadgeDesigner application, you only have the Graphic tab.
   b. Configuring the capture dialog with settings that are appropriate for your capture hardware is easily done via the factory defaults profile procedure. Use the following procedure to configure capture from sources other than the File Import capture source:
      1) Click [Load Factory Defaults]. The "Load Factory Defaults" dialog will open.
      2) Select the factory defaults profile that most closely matched your capture device. The default capture source (configured on the General Settings form) will be automatically set to the capture source associated with that device. The crop window (configured on the General Settings form) will be automatically set to a size appropriate for the profile you select.

3) Click [OK].

c. If you want to capture images with the “File Import” capture source:

1) From the capture source drop-down list, select **File Import**.

2) Click on the File I/O Settings tab.

3) Set the file import directory to the directory where you store all of your photo files.

4) Click [Save User Defaults].

d. If you want to capture images with a USB camera or any WDM or TWAIN compliant camera, configure the multimedia capture module for the following settings instead of loading the default settings. If you are using the CAM-24Z704-USB/CAM-20Z704-USB USB camera skip these steps and refer to Basic Camera Setup (CAM-24Z704-USB/CAM-20Z704-USB) on page 93.

1) From the capture source drop-down list, select **WDM Video**.

2) Click the WDM Video Settings Device tab.

3) Select **USB Video Bus II, Video** from the Device drop-down box.

4) Click [Video Input].

5) The Video Input Properties window displays.

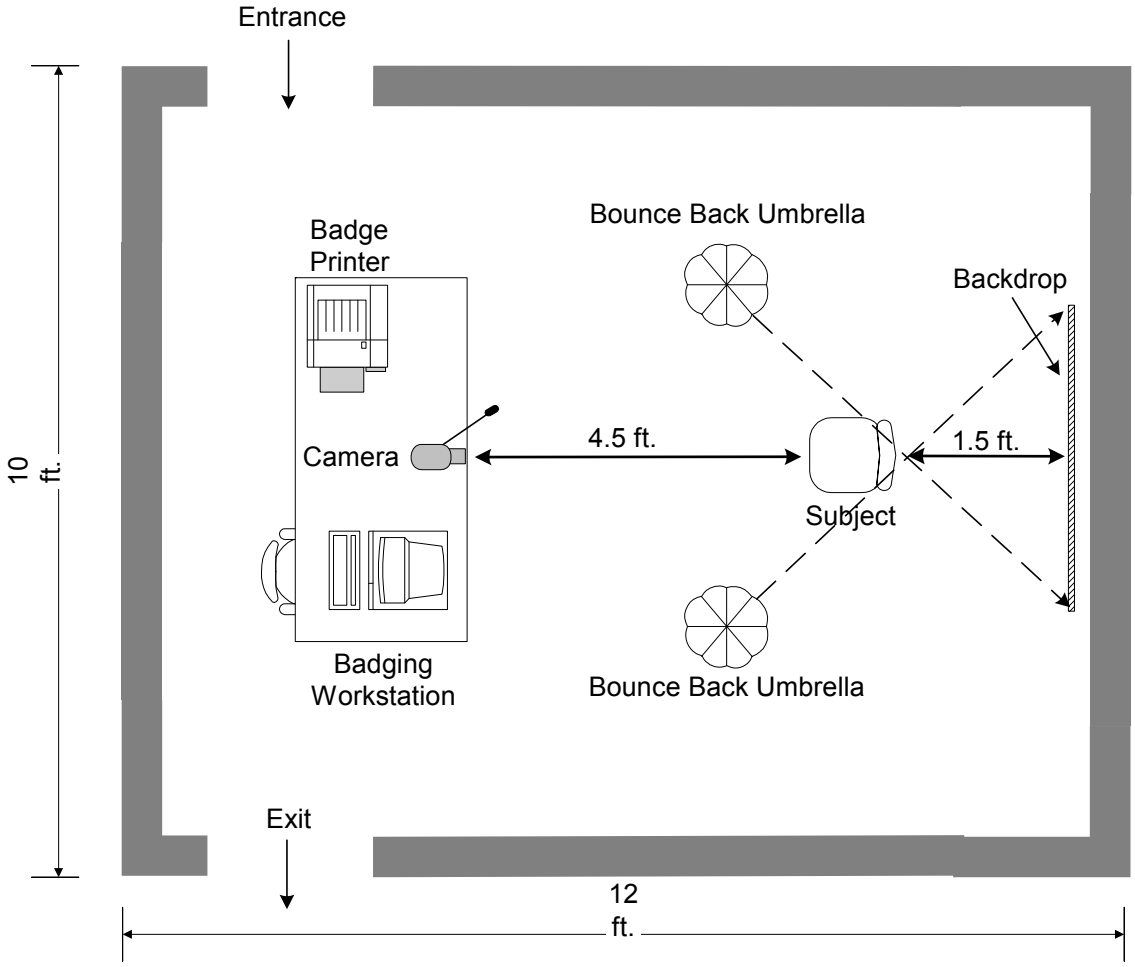
6) Select **1:VideoSVideo In** from the Input drop-down menu.

Capture Station Setup Specifications

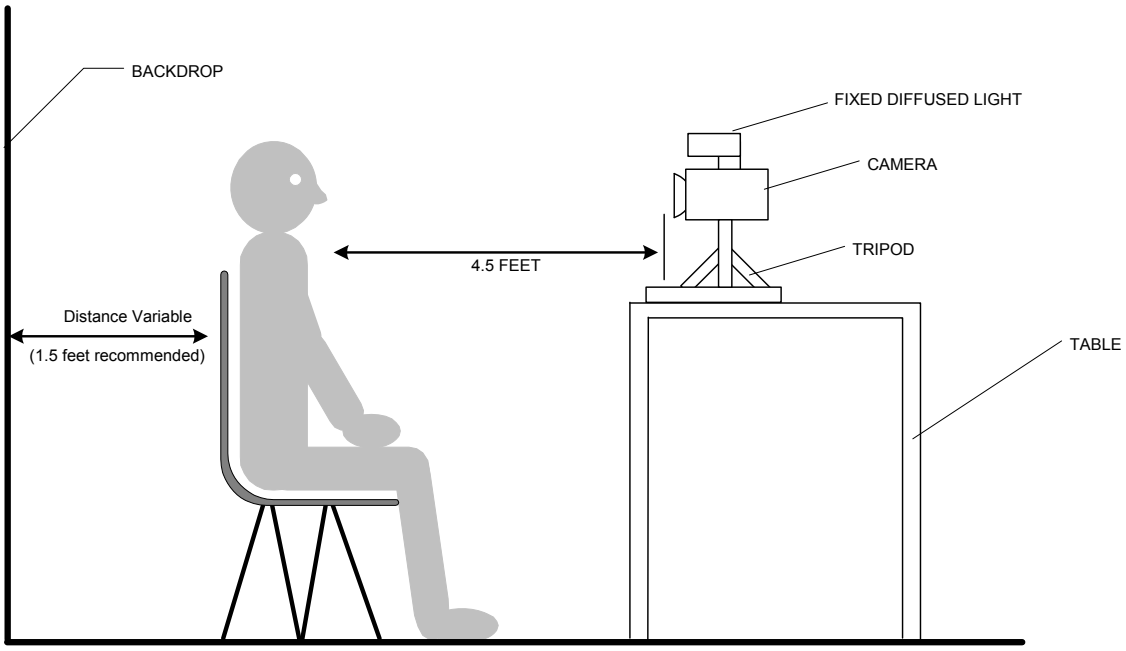
For every capture station the equipment should be setup as close as possible to the following specifications:

The backdrop should be approximately 1.5 feet behind the subject. The camera and flash apparatus should be at least 4.5 feet in front of the subject at an average height (the height should be adjustable for obvious reasons). The capture area requires approximately 10 to 12 feet of floor space with appropriate width.

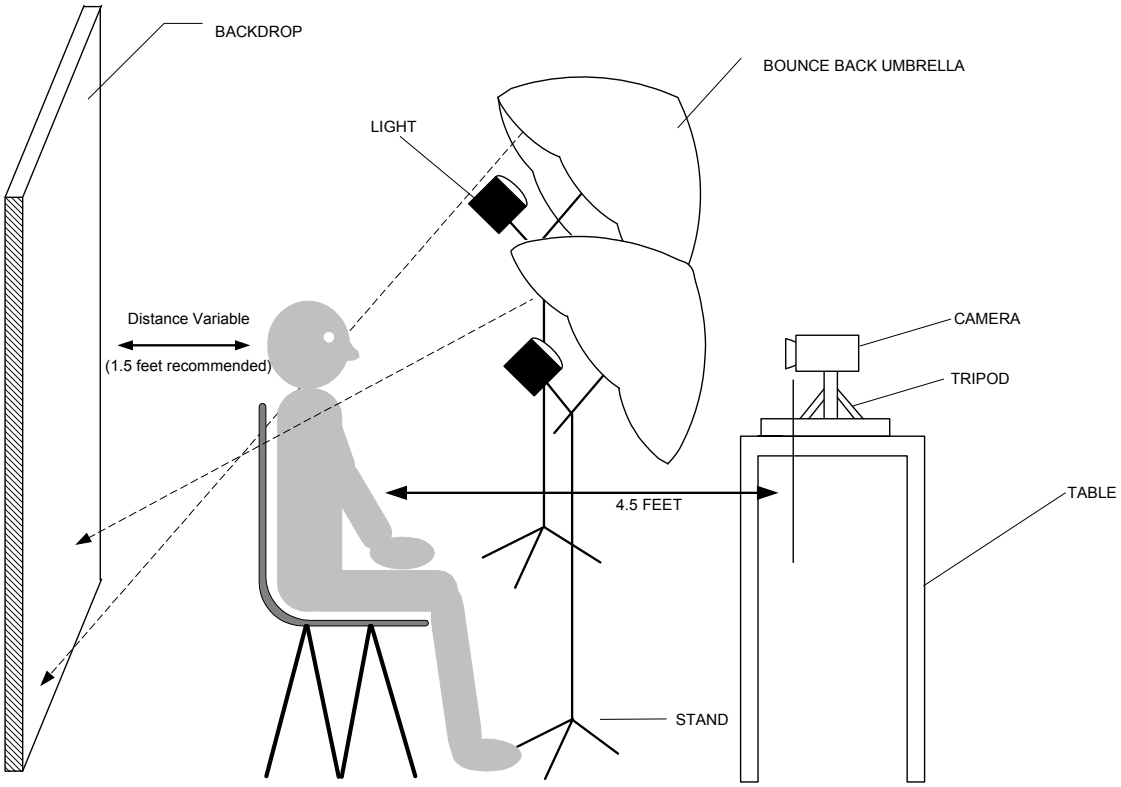
Recommended Badging Room Layout



Final Adjustments for Fixed Diffused Lighting



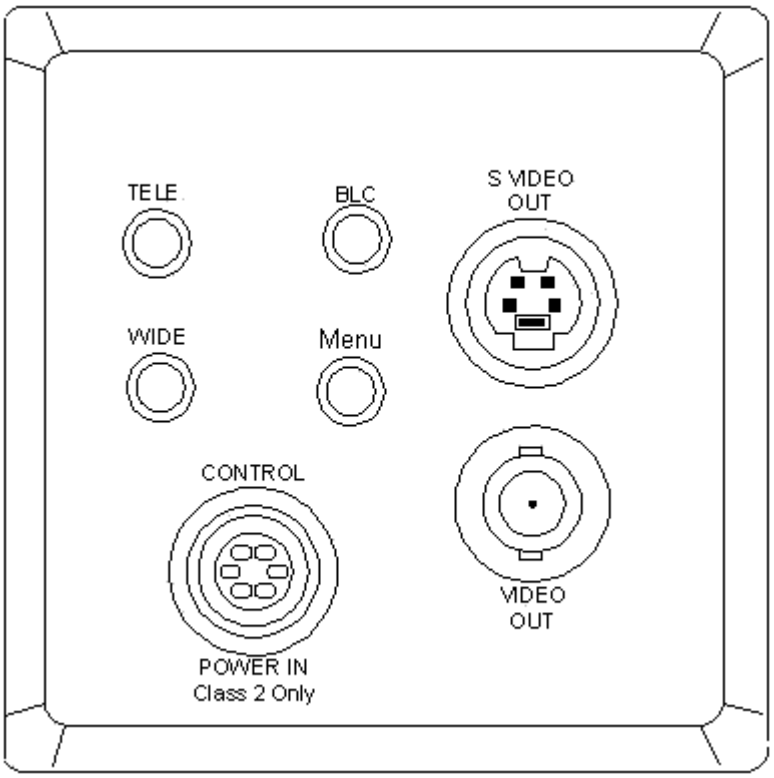
Final Adjustments for Continuous Lighting



Basic Camera Setup (CAM-CCP-500K)

For complete installation setup, see the instruction manual that came with the CAM-CCP-500K.

CCP-500 (Back View)



1. **Tele Button –** (Telephoto) Press this button to zoom in.
2. **Wide Button** – (Wide Angle) Press this button to zoom out.
3. **BLC –** (Back Light Compensation) If you press this button while viewing a backlight subject, the camera will adjust itself to the high contrast lighting.
   - BLC mode is switched between ON and OFF by pressing this button.
   - If you hold the button down for more than 2 seconds and then release, the BLC will change to AUTO BLC mode.
4. **Menu –** Press to display OSD
   - If you hold the button for more than 2 seconds and then release, OSD will shut off.
5. **Power In** and **Control** – Insert the DC power cable here to connect the camera to the DC power source (DC 12V). You can control the Zoom and Focus Lens to use Controller.
6. **Video Out terminal** - Connect this terminal to the video input terminal or an external input, such as a monitor, TV or VCR.
7. **S-Video Out terminal** – This is an output terminal for separate Y/C video signals.

   The CAM-CCP-500K camera zooms to X32, but the recommended zoom area should be less than X16. This is because the zoom past X16 is digital and the picture captured becomes rough (pixilated). The subject should be within X1 to X12 zoom for optimal results. The subject should nominally

fill the pre-sized crop window if adjusted properly. Always leave on "Maintain Aspect Ratio"

To adjust the zoom, set the selector switch to zoom (all the way to the right). Adjust the camera apparatus for the center of the subject. With the arrows located to the bottom left of the rear of the camera, zoom in all the way and then zoom back to determine the approximate center point of the zoom (remember: you do not want to zoom past X12, the halfway point). Then, zoom into the subject until the desired capture frame is attained. The arrows located at the bottom of the camera can be use in one of two manors. If you push and hold the arrow, it will zoom all the way in or out. If you push the arrow button momentarily, it will move in and out incrementally.

Note: Optimally the subject should fill the pre-sized crop window, so no additional cropping adjustments need be made.

Why manual white balance? With light or gray colors the Auto White Balance adjusts incorrectly. That is why the CAM-CCP-500K should be setup for Manual White Balance. It is necessary to White balance the camera to obtain a default white balance setting and is maintained for consistent picture quality.

Basic Camera Setup (CAM-24Z704-USB/CAM-20Z704-USB)

Important: The following cameras are meant for client machines and not servers. Windows Server 2008 and Windows Server 2003 are not supported.

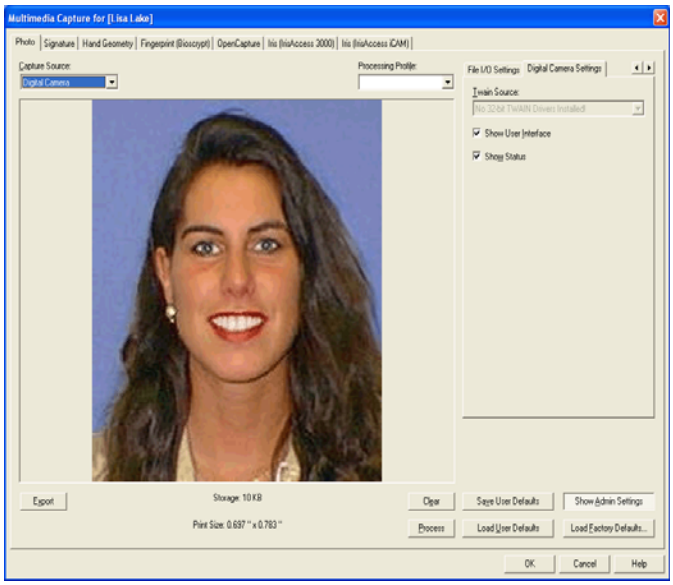
Installation of CAM-24Z704-USB/CAM-20Z704-USB

To install the USB camera simply plug it in, connect the USB cord to the workstation, and install the drivers that come with the camera. For more information refer to the Badging Image Capture Camera User Guide that came with the camera.

Note: Though there is a connection for S-video Out it is strongly recommended that you use the USB connection.

Configuration of CAM-24Z704-USB/CAM-20Z704-USB

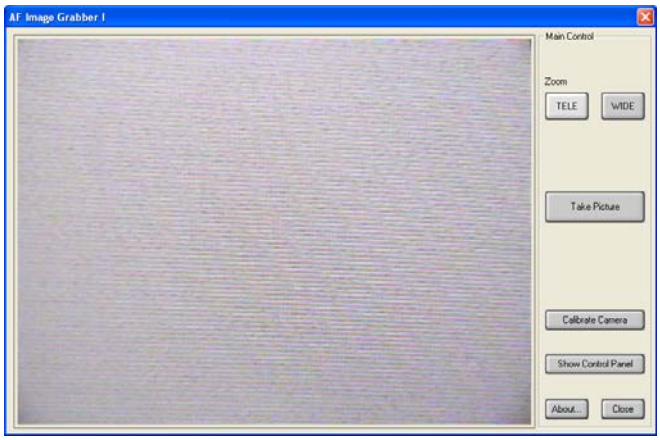
1. Start the application you will be using to capture photos/signatures/badge layout graphics.
2. Launch the capture dialog from within that application by selecting the [Capture] button on a form that accesses the Multimedia Capture module.
3. On the Photo sub-tab of the Multimedia Capture module, select **Digital Camera** from the **Capture Source** dropdown box.
4. On the **Digital Camera Settings** sub-tab, select **AF Imaging Grabber 1** from the **Twain Source** dropdown box.



Important: Make sure that the **Show User Interface** check box IS selected.

Using CAM-24Z704-USB/CAM-20Z704-USB

1. To use, click **Get Photo** on the Multimedia Capture module. The AF Image Grabber 1 control box opens.
2. Click **Take Picture** to take the picture. The AF Image Grabber 1 control box closes and you see the picture on the Multimedia Capture Module screen.
3. Click [OK] and the picture is added to the Cardholder screen.



AF Image Grabber 1

Form Element	Comment
TELE	Zooms in. The camera has a 16:1 optical zoom range along with an 8x digital zoom.
WIDE	Zooms out.
Take Picture	Takes a picture for use in the Multimedia Capture module. When selected the camera image freezes, the LED illuminator turns on, and the image is captured.
Calibrate Camera	Automatically adjusts the camera settings to provide the best quality image under certain lighting conditions. For more information refer to the Badging Image Capture Camera User Guide that came with the camera.
Show Control Panel	Activates the on screen control panel for making adjustments to the captured video image.

Lighting Setup

Professional Continuous Lighting Setup (EHK-K42U-A)

The EHK-K42U-A kit is designed to help eliminate shadows that may appear behind the subject that you are capturing, or under the subject's chin (known as bearding). Most capture environments have adequate light to capture a subject with the CAM-CCP-500K capture kit, but to enhance

the colors (more real life), and to eliminate shadows, the capture kit is necessary.

Advanced Setup

After the capture station has been setup, some testing must be performed to determine the optimal illumination settings for image capture. You may have to adjust the lights, drapes, or other elements in the capture environment.

With a test subject, view the live image on the screen with all the room lights on. Set the selector switch on the back of the camera to iris (all the way to the left). With the arrows on back of the camera adjust the iris all the way down, the live image on the screen should become dark if not black. The arrows located at the bottom of the camera can be use in one of two manners. If you push and hold the arrow, it will zoom all the way in or out. If you push the arrow button momentarily, it will move in and out incrementally. While viewing the screen, increase the iris until the subject is visible. Increase the iris a little more, until the screen image is about the same brightness as the real view of the subject. Take a test picture. Label this “test 1, all lights”. From here we will adjust the room environments lighting and make minor adjustments to the iris if needed while continuing to save the sample captures at (test 2, test 3 etc.).

Steps to improving capture quality:

1. Turn on all the lights in the room.
2. Open the Capture dialog and center on a test subject with the camera.
3. Adjust the iris all the way down, and then adjust it until the screen image is about the same brightness as the real viewable image.
4. Set the White Balance. (Set the selector switch on the back of the camera to WB. Hold a white piece of paper in front of the camera so there is only white showing on the screen. Using the arrows on the back of the camera adjust the white balance until the image in the capture window is white.)
5. Take a test picture. Save this as a cardholder labeled “Test1: all lights”.
6. Turn off all the lights.
7. Take another picture. Save this as a cardholder labeled “Test2: no lights”.
8. Continue testing until a desired lighting quality is captured on the screen. Be sure to label each test with a number and a description of what you did. Adjust your environments based on the environmental considerations below. Continue to take pictures, save them, and use them as references until the best conditions are determined.

Environmental Considerations and Factors Leading to Poor Lighting

Environmental factors to consider when setting up a capture station include:

- Is there a different amount of sunlight entering the area through out the day?
- Is the station next to a window or under a skylight?

- Are the wall colors dark or light or bright colors? If they are light they will reflect more light or change your white balance setup.
- Is the ceiling low or cathedral like? The lower the ceiling the more light will reflect.
- What types of lights are used in the room? Incandescent or florescent (cool white or colored) or direct spots?
- Is there any direct lighting of the subject? Is the room evenly illuminated? Direct lighting will over expose the subject.
- What is the color of reflective shields around the lights? For example, gold reflective surface shields illuminate the subject in yellow highlights.

This is just a partial list of possible factors leading to poor image lighting quality. There may be other features of your site that will affect the image capture that may need to be considered.

Index

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