BrightSign® INSTALLATION GUIDE

BrightSign Network Enterprise Edition 3.3

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INTRODUCTION

Welcome to the Installation Guide for the BrightSign Network Enterprise Edition. BSNEE gives you a more hands-on method for regulating your digital signs, as well as the freedom to sell subscriptions for your own customized digital signage network.

Once you have successfully installed BSNEE, you will have the complete infrastructure to serve and support your own digital signage network. Because BSNEE is a private web application, it can be managed securely within your corporate infrastructure and network.

What's New in BSNEE 3.3?

The following features and improvements have been implemented since the previous version of BSNEE (3.0):

- **HTML** web page support: Users can now upload and distribute presentations that contain HTML5 content or a Custom Device Webpage.
- XD presentation creation: Users can now create looping Video or Image presentations for XD players within the WebUI.
- Audio support: Users can now create and distribute presentations for the AU320 using the WebUI.
- Audio customization: When creating presentations in the WebUI, users now have access to a set of audio settings that is consistent with the Video or Image zone in BrightAuthor.
- LDAP Support: The BSNEE permissions directory can now be integrated with Active Directory (AD) and Virtual Directory Structure (VDS) systems. This Beta feature is only available with fresh installs of BSNEE 3.3 (i.e. it is not available through the 3.3 Upgrade Installer).

Minimum Hardware Requirements

- 1.4 GHz or faster Dual Core processor (2 GHz or faster recommended; Intel Xeon preferable)
- 2GB of RAM (4GB or more recommended)
- 6GB free hard disk space
- Network connection

Software Requirements

- Operating System:
 - Windows 7 (excluding Home editions)
 - o Windows Server 2008 (x32 or x64)
 - Windows Server 2008 R2 (x64)
- IIS 7.0 or later (with ASP.NET and WCF Activation handlers)
- MS SQL Server 2008 SP1 (or later), including Express edition
- .NET Framework 4.0 or later

BrightSign Software Requirements

- Target BrightAuthor version: 3.7
- Minimum required BrightAuthor version: 3.5.0.34
- Website autorun version: 6.5.20
- Minimum player firmware version:
 - o 3.10.22 for HD110, HD210, HD410, HD810, and HD1010
 - 4.4.44 for HD120, HD220, HD1020, XD230, XD1030, and XD1230

MEETING SOFTWARE REQUIREMENTS

The following software components need to be present before installing BSNEE:

- IIS 7
- WCF
- MSMQ (Message Queuing) Features
- MS SQL Server 2008 SP1 or higher
- Microsoft .NET Framework 4.0

If your server already meets these software requirements, please skip to the <u>Pre-Installation</u> section of this guide. Otherwise, install any or all components that are currently missing.

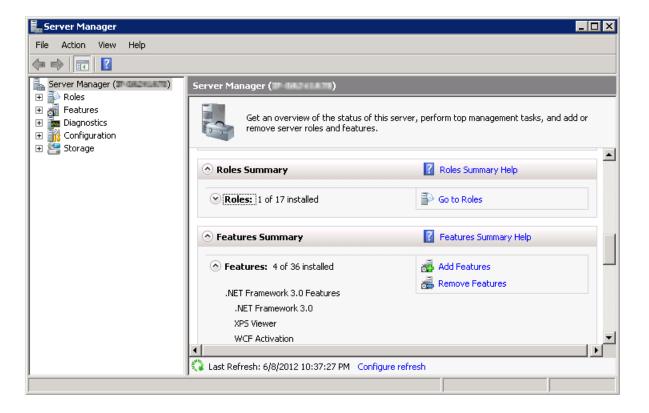
Note: This guide is designed for Windows Server 2008. The installation process for IIS 7, WCF, and MSMQ will differ if you are using Windows 7. Please consult Windows 7 documentation for more details.

IIS 7

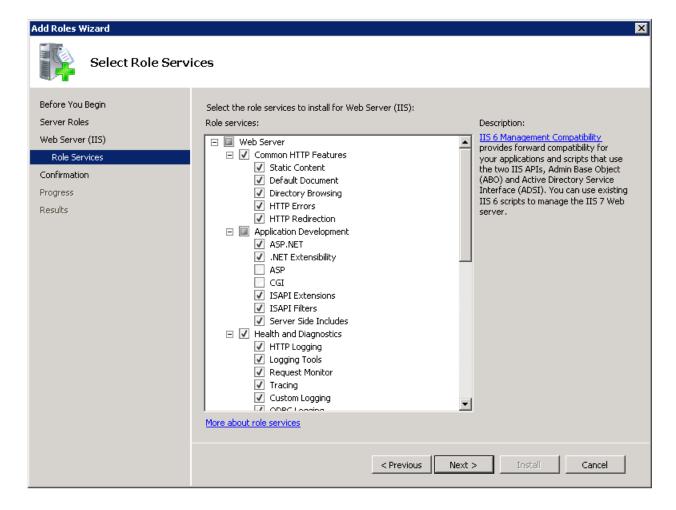
Before installing IIS 7, make sure you have administrative user rights on the computer you are using. By default, you will not have administrative user rights if you are logged in as a user other than the root administrator, even if you have been added to the Local Administrators group. This is a new security feature in Windows Server 2008, referred to as a "Local User Administrator".

Once you have administrative user rights, complete the following steps:

- 1. Navigate to Start > All Programs > Administrative Tools > Server Manager.
- 2. In the Server Manager window, scroll down to the Roles Summary section and click Add Roles. The Add Roles Wizard may launch a Before you Begin page, which will ask you to verify the following:
 - a. That the administrator account has a strong password.
 - b. That the network settings, such as IP addresses, are configured.
 - c. That the latest security updates from Windows Update are installed.



- 3. Select Web Server (IIS) on the Select Server Roles page.
- 4. Click **Next**. An introductory page will open with links for further information. Click **Next** again.
- 5. Select the following IIS Services on the **Select Role Services** page:
 - Web Server (World Wide Web Services)
 - Common HTTP Features
 - Static Content
 - o Default Document
 - Directory Browsing
 - HTTP Errors
 - HTTP Redirection
 - Application Development Features
 - ASP.NET
 - .NET Extensibility
 - ISAPI Extensions
 - ISAPI Filters
 - Server Side Includes
 - Health and Diagnostics
 - o HTTP Logging
 - Logging Tools
 - Request Monitor



- Tracing
- Custom Logging
- ODBC Logging

Security

- Basic Authentication
- Windows Authentication
- Digest Authentication
- Client Certificate Mapping Authentication
- IIS Client Certificate Mapping Authentication
- URL Authorization
- Request Filtering
- IP and Domain Restrictions

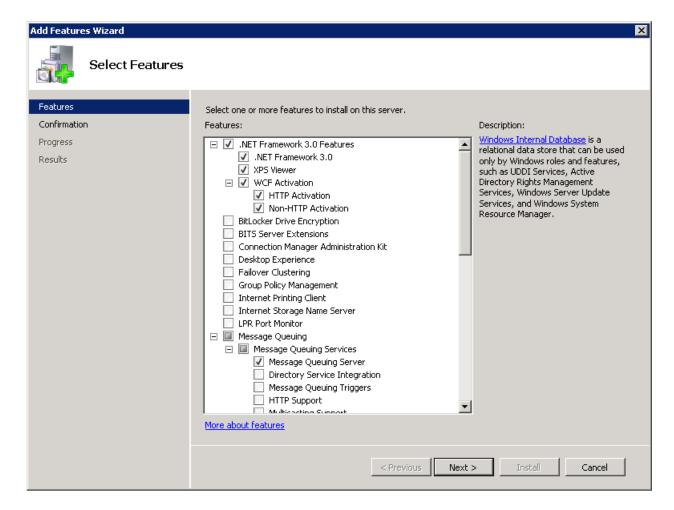
Performance

- Static Content Compression
- Dynamic Content Compression
- Management Tools
 - o IIS Management Console

- IIS Management Scripts and Tools
- Management Services
- IIS 6 Management Compatibility
 - IIS 6 Metabase Compatibility
 - IIS 6 WMI Compatibility
 - IIS 6 Scripting Tools
 - IIS 6 Management Console
- 6. Click Next when finished.
- 7. On the confirmation page, click **Install**.

WCF and MSMQ Features

- 1. Navigate to Start > All Programs > Administrative Tools > Server Manager.
- 2. In the **Server Manager** window, scroll down to the Features Summary and click **Add Features**.
- 3. Select the following on the **Features** page:
 - Microsoft .Net Framework 3 Features



- Net Framework 3.0
- XPS Viewer
- WCF Activation
 - o HTTP Activaiton
 - Non-HTTP Activation
- Message Queuing
 - o Message Queuing Services
 - Message Queuing Server
- 4. Click Next when finished.
- 5. On the **Confirmation** page, click **Install**.

MS SQL Server and Microsoft.NET Framework 4.0

These applications can be downloaded by visiting the Microsoft website.

When installing MS SQL Server, make sure to configure the application for **Mixed Mode Authentication**.

After installing .NET Framework 4.0, perform the following steps:

- 1. Open a command shell as an Administrator.
- 2. Navigate to the .NET Framework 4.0 installation directory by entering the following:

```
For Windows 32bit:
```

```
cd %windir%\Microsoft.NET\Framework\v4.0.30319
```

For Windows 64bit:

```
cd %windir%\Microsoft.NET\Framework64\v4.0.30319
```

3. Execute the following command: aspnet regiis -i

PRE-INSTALLATION

After installing the required software, you will need to take some preliminary steps before installing BSNEE. Please complete all steps before moving on to the <u>Installation</u> section.

Mail Server

An email server is used to send application notifications such as error logs, new/restored passwords, and user creation notifications. These notifications are sent to end users and administrators. To set up the mail server during installation, you will need to prepare the following parameters:

Server Name: e.g. localhost

User Name: e.g. mailUser

Password

FROM Address: e.g. <u>from@mydomain.com</u>

• Port: 25 (by default)

TLS: This is disabled by default.

Base Domain Name

BSNEE requires a Base Domain Name, which will be used to manage the application once it is installed. Five separate strings will be used by different internal services to regulate BSNEE:

- Website
- Application Web Services
- File Upload Services
- Scheduler Services
- Subscriber Services

Note: Each service uses its own sub-string to build the complete connection string.

During Step 6 of the installation process, you must enter the Base Domain Name. There are no supported IP addresses, so you must input *only* the domain name. The other strings will be automatically generated using the domain name.

BSNEE will not function properly until all strings are registered in the DNS and pointed to your BSNEE server IP address. You may do this prior to, or immediately after, installation. The example chart below shows which DNS records you need to register. It uses mydomain.com as the BSNEE Base Domain Name and 10.0.0.1 as the IP address for the BSNEE server.

Name	Туре	Value
mydomain.com.	Α	10.0.0.1
www.mydomain.com.	CNAME	mydomain.com.
services.mydomain.com.	CNAME	mydomain.com.
fileservices.mydomain.com.	CNAME	mydomain.com.
scheduler.mydomain.com.	CNAME	mydomain.com.
subscriber.mydomain.com.	CNAME	mydomain.com.

If you attempt to register the strings after installation, you will receive the following error message upon completing <u>Step 6</u>.



Persistent Root and Temporary Storage Folders

BSNEE requires *persistent storage* and *temporary storage*. These storage folders must be available before installation. You can select the storage location on your hard drive during Step of the installation process. You can either create new *persistent storage* and *temporary storage* folders or configure ones that you already have to match the parameters outlined below.

Persistent Storage

This serves as a constant space for storing data used by devices. BSNEE can place data on either the local machine server or in a networked shared folder within your BSNEE domain.

Note: BSNEE does not support shared folders with separate workgroups.

Both locations should have high security standards. In order to use the networked shared folder with BSNEE, you must enable sharing via HTTP and make it available via a resolvable URL. You will also need to add the corresponding record to your DNS server.

Temporary Storage

This storage is used for uploading large files. You should allocate no less than 5 GB for the temporary storage folder and locate the folder on the same server where BSNEE services will be installed.

If you want to configure BSNEE to use persistent storage located on NAS, or if you want it to use another server that does not contain the BSNEE installation, complete the following steps before installing BSNEE:

- Configure network sharing for BSNEE persistent storage so that it is accessible for BSNEE services.
- 2. Configure HTTP access for BSNEE persistent storage.

Note: To learn more about configuring network sharing and HTTP access to your persistent storage folders, please refer to your server/NAS documentation.

Your networked shared folder should have the following permissions:

Security Permissions

- DOMAIN\INSTALLATION_USER (Full Access): "DOMAIN" refers to a domain that the current server is a member of, and "INSTALLATION_USER" refers to the domain user that you use to install the BSNEE services server.
- DOMAIN\Domain computers (Full Access): This is required for accessing the BSNEE file services to file share.
- NETWORK SERVICE (Read): This is required for the IIS site on the shared server.

Network Share Permissions

Authenticated Users

NETWORK SERVICE

If you plan to locate persistent storage on the same server used for BSNEE services, you need to manually set up an additional IIS site. You can do this before or after installation, but we recommend completing this task after installation because the installer will create all required folders. See the Post-Installation steps at the end of this guide for details.

We recommend you do the following during installation:

- 1. Install BSNEE as a domain user with administrative permissions.
- 2. Use the "sysadmin" role for MS SQL Server login if you are using Windows authentication for MS SQL Server during installation.
- 3. Run BSNEE application pools as the Network Service system user.

MIME Types

Only registered file formats can pass from BSNEE storage to the web. By default, the web server may not recognize certain media formats. You may also wish to use some custom extensions. Make sure to register the following special MIME types (in addition to any other desired MIME types) with the persistent storage web server.

Note: Make sure to register special MIME types only with the storage web server. Registering MIME types with other BSNEE sites on the same server may cause conflicts.

- .bpf text/plain
- .bsfw application/octet-stream
- .bsp text/plain
- .brs text/plain
- .mp4 video/mpeg
- .vob video/mpeg
- .ts video/mpeg
- .rok application/octet-stream

Once all MIME types are registered and all other preliminary steps are complete, you're ready to install BSNEE.

Active Directory

Important: Complete this step only if you plan to integrate BSNEE with your LDAP system. In order to access the BSNEE Administrator UI after installation, you will need to register two administrator roles with your Active Directory system. You will first need to create "special" groups in the Active Directory and then add two users to them:

- System Administrator: {AccountName}=admin, {RoleName}=Administrators
 Example: \$FUNC-GS-DSN-WDW-DTS-admin-Administrators
- Order Administrator: {AccountName}=orderadmin, {RoleName}=Administrators
 Example: \$FUNC-GS-DSN-WDW-DTS-orderadmin-Administrators

INSTALLATION

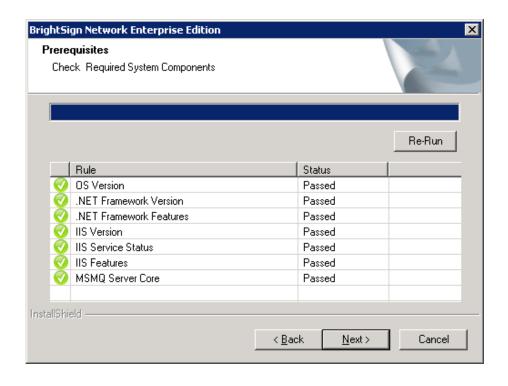
Double-click the Install file to begin. Click **Next** to proceed to the License Agreement page. Read and accept the terms, and click **Next** again.

1. Prerequisites

The installer will begin a system check to ensure that the minimum hardware and software requirements have been met. If an error occurs during the checking process, you can click the **Re-Run** button to perform the check again.

The installer will check the following conditions:

- ✓ Operating System version (OS)
- ✓ .NET Framework version (4.0 or later)
- ✓ .NET Framework features
- ✓ WMI services activity status
- ✓ IIS version (7.0 or later)
- ✓ IIS services status
- ✓ IIS components set up status (40 items total)
- ✓ Microsoft Messages Queue set up status



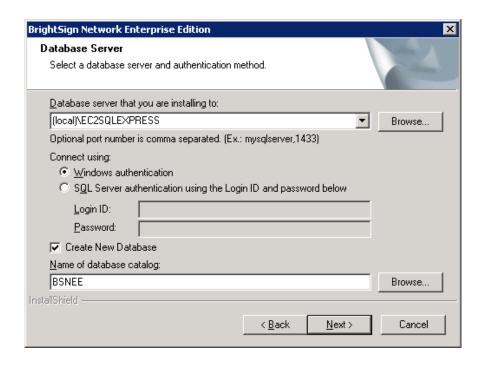
Once the system check is finished, the installer will display a full list of components that are installed or that need to be installed. If an item does not pass the system check (as indicated by the *Failed* status), you can click the item to learn the reason for the failure and instructions for fixing the problem. After installing the missing component(s), click **Re-Run** to check the installation again.

Once all components meet the requirements for installation, you will be able to click the **Next** button to continue.

2. Database Connection

Select a database server for BSNEE. You can choose from a list of databases available on the network and PC or create a new database.

Click **Browse** to view a drop-down list of database servers and select your desired server. Alternatively, you can specify the server by typing the name in the text field. Note that an existing database catalog must be set to use the same <u>Authentication Provider</u> as BSNEE. Under **Connect Using**, select either the Windows or SQL Server authentication method. You must use a **Login ID** and **Password** if you use SQL Server authentication.



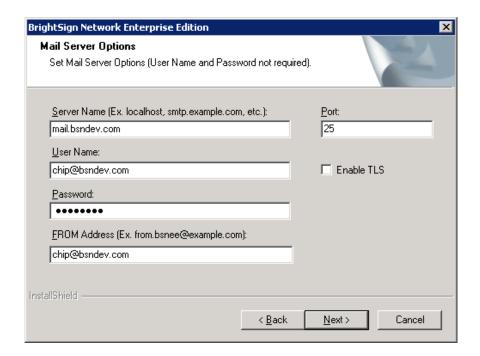
To use a new database catalog, check the **Create New Database** box. In the **Name of database catalog** field, enter a name for the new database. This name must be different from

any other currently available database. Click **Browse** to view available databases and ensure that the new database is unique.

After filling out all the required fields, click the **Next** button to verify the connection. If the verification process fails, a dialog box will appear explaining the error that must be corrected before you can proceed.

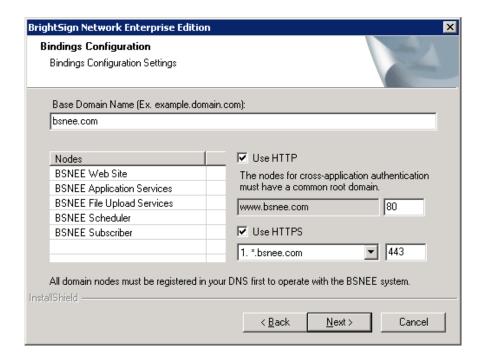
3. Mail Server Parameters

Set the parameters on this page to allow BSNEE to send notifications to account holders. The **Server Name**, **Port**, and **FROM Address** fields are required. However, the **User Name** and **Password** fields may be left blank if the server does not require authentication via Login ID and password. The TLS parameter is disabled by default, but you may enable it by clicking the **Enable TLS** box.



4. Bindings Configuration

Enter the common domain name in the **Base Domain Name** text field. The domain names for *Website*, *Webservice*, *File Service*, *Scheduler*, and *Subscriber* will be automatically generated.



Check the **Use HTTP** and/or **Use HTTPS** boxes if you would like to enable these protocols for the Web Site and Application Services nodes.

If you have not registered all domains in the DNS, clicking the **Next** button will prompt a standard notification regarding registering all domains in the DNS. You may complete this process after installation, but BSNEE will not function properly until all strings are registered in the DNS.

5. Storage Setup

Devices use a URL to connect to *persistent storage* on a hard drive and download files. *Temporary storage* is used by the server to upload large files.

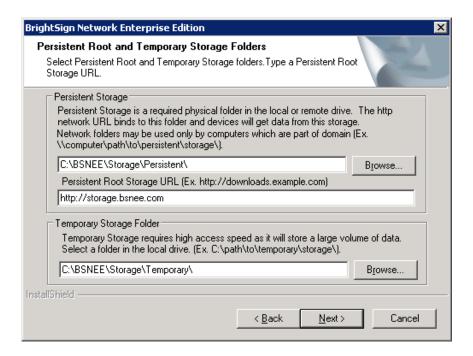
Persistent Storage

First, specify a directory on the hard drive that will serve as the constant physical storage space. Click the **Browse** button under **Persistent Storage** and navigate to the desired folder on the hard drive.

Once you have selected a storage destination, specify a URL that devices will use to connect to the hard drive. Make sure to specify this URL while configuring the persistent storage as part of the Pre-Installation steps. Enter this URL in the Persistent Root Storage field.

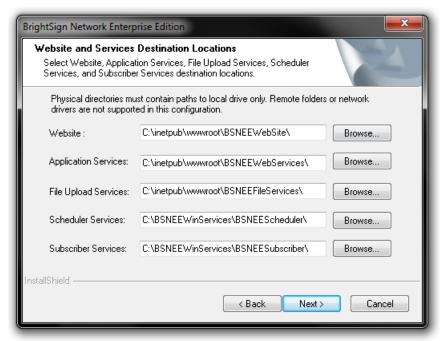
Temporary Storage

Click the **Browse** button in the **Temporary Storage Folder** section and navigate to the desired folder on the hard drive. Make sure to allocate no less than 5GB for this folder.



6. Services Directories

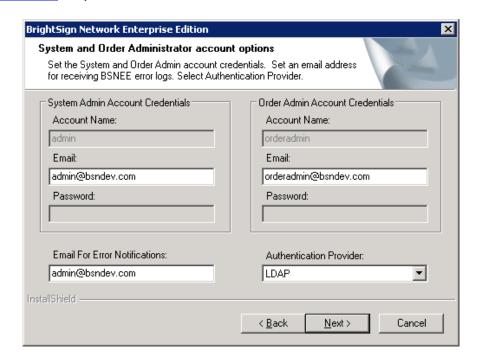
Specify installation folders for each domain: *Webservice*, *File Service*, *Scheduler*, and *Subscriber*. Click the **Browse** button for each domain to select the desired folder.



7. System and Order Administrator Accounts

Specify an *Account Name*, *Email* address, and *Password* for the System Admin and Order Admin accounts. These will be used for administering BSNEE once the installation is complete. In the **Email for the Error Notifications** field, specify the email address that will receive error logs from the system.

All fields on this page are required unless you specify the **Authentication Provider** as **Default** or **LDAP**. If you do, areas that are not applicable to those installations will be grayed out. None of the fields in this window will be applicable if you selected an existing database during the **Database Connection** step.



LDAP

If you need to configure the BSNEE account structure to use the Lightweight Directory Access Protocol (LDAP), select **LDAP** under **Authentication Provider**. Clicking **Next** will provide you with additional parameters for LDAP installation. Please see **Step 7a. LDAP Server Configuration** below for more details.

If you select **LDAP**, make sure that the *Email* address values in this window are the same as the LDAP attribute you use for **RDN** in the following **LDAP Settings** window. Note that in most cases the attribute will not be in the form of an Email address.

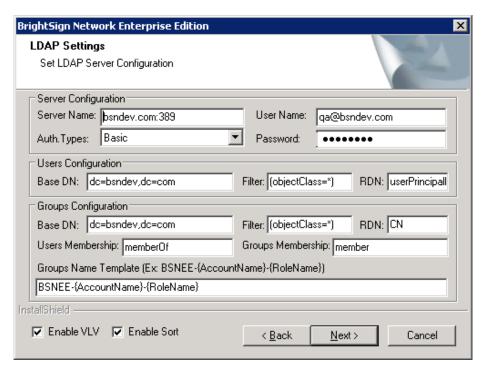
7a. LDAP Server Configuration

If you selected LDAP as the **Authentication Provider** in the previous step, consult the below descriptions to learn more about setting parameters in the **LDAP Settings** window. Otherwise, move on to Step 8.

Note: Unless otherwise indicated as "optional", each field below must be specified.

Server Configuration

- A. **Server Name**: A common format IP address or domain name of the target LDAP server or gateway. You can also specify a port number after the colon (":") delimiter. If you do not specify a port number, port 389 will be used by default.
- B. **User Name (optional)**: The username/login of a Windows Account that has read access to the directory. The credentials can be entered either in common format (e.g. "jdoe") or in LDAP Data Interchange Format (LDIF) (e.g. "uid=jdoe, ou=people, dc=example, dc=org").



- C. **Password (optional)**: The password of the Windows Account specified in the **User Name** field above. This field is only required if a **User Name** is specified.
- D. **Auth Types**: The Authentication Type used in System. DirectoryServices. **See** this page for more information about some of the Authentication Types.
 - a. Basic
 - b. Anonymous

- c. Validation
- d. Read-Only
- e. Fast Bind
- f. Secure
- g. Secure & Read-Only
- h. Secure & Fast Bind
- i. Secure & Sealing
- j. Secure & Signing
- k. SSL/TLS
- I. SSL & Anonymous

User Configuration

- A. **Base DN**: The User Base Distinguished Name. Use this field to specify the LDAP directory under which the users are located. The search will be performed on all levels under the specified directory. However, for performance reasons, we recommend specifying this directory as close to the users directory as possible.
- B. **Filter**: The Users Search Filter that will be used to find the user entries in the directory specified above. You can leave the field as the default "(objectClass=*)", but we recommend creating a more specific filter to improve performance. You can find descriptions and examples of Search Filter syntax at the <u>Windows Dev Center</u> and the <u>LEX online manual</u>.
- C. **RDN**: The User Relative Distinguished Name. This LDAP attribute uniquely identifies users in a directory and will be used for authentication in the BSNEE system. This attribute corresponds to the **E-Mail** field on the BSNEE Sign In page. By default, this field is set to "userPrincipalName" because the corresponding values are similar to an E-Mail format. You could also use the samaccountName ("john.doe"), uid ("jdoe"), CN ("John Doe"), or other LDAP attribute.

Groups Configuration

- A. **Base DN**: The Groups Base Distinguished Name. Use this field to specify the LDAP directory under which the groups are located. The search will be performed on all levels under the specified directory. However, for performance reasons, we recommend specifying this directory as close to the groups directory as possible.
- B. **Filter**: The Groups Search Filter that will be used to find the group entries in the directory specified above. You can leave the field as the default "(objectClass=*)",

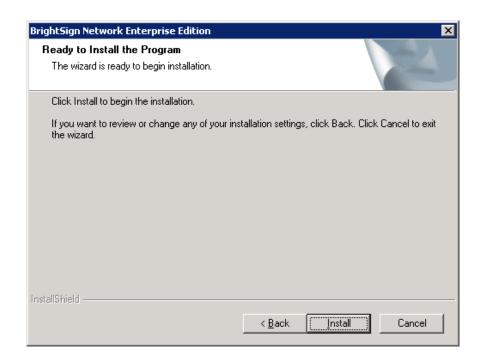
- but we recommend creating a more specific filter to improve performance. You can find descriptions and examples of Search Filter syntax at the <u>Windows Dev Center</u> and the <u>LEX online manual</u>.
- C. RDN: The Group Relative Distinguished Name. This LDAP attribute uniquely identifies groups in a directory. Make sure the value of this attribute corresponds to the format specified in the Group Names Template described below. The format should contain the BSNEE Account Name and BSNEE Role Name, which are used in the authentication procedure.
- D. **Users Membership(optional)**: The Users Membership Attribute Name. This LDAP attribute contains a list of groups of which the current user is a member. Most LDAP servers store the membership attribute with both the user and group attributes, but there are a few exceptions: We recommend setting this value if your LDAP server supports cross storage of membership attributes because searching a user attribute for its groups results in better performance than searching groups for user membership.
- E. **Groups Membership**: The Groups Membership Attribute Name: This LDAP attribute contains a list of members (users) for a group. This attribute should be present on all LDAP servers
- F. **Groups Name Template**: Use this field to specify how the name format of your LDAP groups will correspond to the names of BSNEE roles. This field should contain "{AccountName}" and "{RoleName}" placeholders, which can be placed anywhere in the string (e.g. ""\$FUNC-GS-DSN-WDW-DTS-{AccountName}-{RoleName}").

Other

- A. **Enable VLV**: Check this box if you would like BSNEE to use the Virtual List View (VLV) extension. Enable this feature only if your LDAP server supports VLV. Most LDAP servers now support VLV, but some might require the administrator to actively enable this feature or install an add-on.
- B. **Enable Sort**: Check this box if you would like BSNEE to use the Server Side Properties Sort extension. You must enable Server Side Properties Sort in order to use VLV, but you can also use this feature without enabling VLV.

8. Installation

If all parameters have been specified correctly, the final installation page will appear. Click **Install** to begin the installation process.



POST-INSTALLATION

Configuring Certificates for "ApplicationService.svc"

The BSNEE Installer allows you to install "ApplicationService.svc" without HTTPS binding or certificates. If you determine after installation that you need this service, you can follow these steps to configure the certificate:

- 1. Open the configuration file of the application services for editing. By default, this file is located at C:\inetpub\wwwroot\BSNEEWebServices\web.config.
- 2. Locate the following section in the file: configuration/system.serviceModel/behaviors/serviceBehaviors/behavior[@name='BNM.WebServices.ApplicationServiceBehavior']/serviceCredentials/serviceCertificate
- 3. Specify the values of the certificate for the following attributes:
 - a. storeName: This contains the value My by default. You can change the value to another valid certificate store if needed.
 - b. findValue: This contains the Subject Distinguished Name of the certificate by default. You can change the search criteria to another <u>valid value</u> if needed. You can browse a list of certificates by navigating to Control Panel > Administrative Tools > Internet Information Services (IIS) Management > Server Certificates. Double-clicking on a certificate allows you to view it in more detail.

```
Example: <serviceCertificate storeLocation="LocalMachine" storeName="My" x509FindType="FindBySubjectDistinguishedName" findValue="E=system@example.com CN=*.example.com C=US" />
```

- 4. Open the Internet Information Services (IIS) Management console:
 - a. Select **BSNEEWebServices**.
 - b. Click on the "Bindings" link.
 - c. Add a new HTTPS binding. Specify the certificate that has the same parameters you entered in Step 3.

Configuring Persistent Root and Temporary Storage

If you configure BSNEE to use persistent storage, complete the following steps after installation:

- 1. Set up an additional IIS site (if you don't already have a storage site) with the following parameters:
 - a. A URL specified for persistent storage

- b. A working directory pointed at the root of the persistent storage folder (consult the IIS documentation for details)
- c. Pass-through authentication enabled for the content directory:
 - i. Click Connect as... in the Add Web Site window.
 - Choose the **Specific user** option and specify the credentials of the domain user (use this only for persistent storage located on another server).
- 2. Set the following security permissions for the Persistent root and Temporary Storage folders (including all sub-folders and files):
 - a. IIS_IUSRS: Full access
 - b. NETWORK SERVICE: Full access

Verifying a Successful Installation

Once the installation is complete, you need to create a new BrightSign Network account. You can ensure that BSNEE is installed correctly by adding files to your BSN library using a new account:

- 1. In a web browser, navigate to the login page using the URL specified during <u>Step 4</u> of the installation process.
- 2. Log in using the System Admin credentials you specified in <u>Step 7</u> of the installation process.
- Create a new BrightSign Network account. You must provide an Account Name and Account Email. The password will be generated automatically.
- 4. Add files to your library using one of the following methods:
 - a. Log in to the BrightSign Network WebUI using your newly created account.

 Upload one or more image/video files to the Library.
 - b. Open BrightAuthor and log in to the BrightSign Network using your newly created account. Create or open a presentation that has one or more media file. Click the Upload to Network button located on the upper-right portion of the screen.