

Bioterrorism and Other Public Health Emergencies
Tools and Models for Planning and Preparedness

**Preparedness for Chemical, Biological, Radiological,
Nuclear, and Explosive Events**

Questionnaire for Health Care Facilities

Department of Health and Human Services
Agency for Healthcare Research and Quality • Health Resources and Services Administration

Operations Manual

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1. Introduction

1.1 Purpose

The Operations Manual identifies and describes hardware and software requirements to set up a .NET architecture Web site. The manual includes the files and steps that will allow a Federal- or State-level IT administrator to deploy the Web questionnaire site for the Preparedness for Chemical, Biological Radiological, Nuclear, and Explosive (CBRNE) Events: Questionnaire for Health Care Facilities.

2.0 System Overview

The CBRNE Preparedness Questionnaire is a Web-enabled data collection tool. It enables users to submit information about their hospital facilities using a Web browser. A separate survey administration site enables a survey administrator to log in and view the number of submitted questionnaires, change his/her password, and download submitted questionnaire data. The survey site was developed on the .NET platform.

Figure 1 illustrates where the hardware is located and how it communicates.

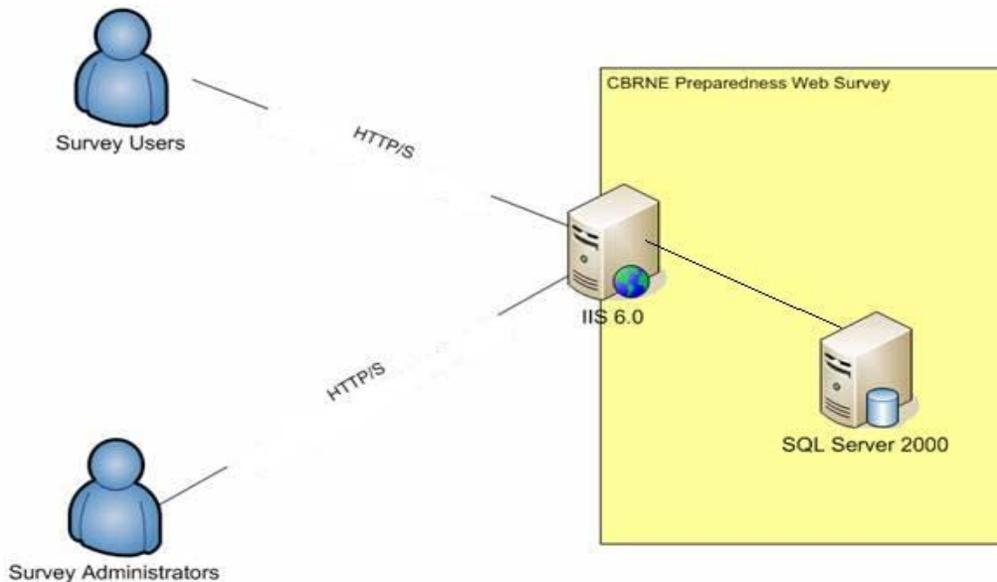


Figure 1. CBRNE Preparedness Questionnaire Architecture

3.0 Hardware and Software Descriptions

The list below describes the general design decisions for the application:

- ❑ Microsoft .NET technology (C#, ASP.NET, ADO.NET) will be used to implement Web pages and data access to an SQL server database.
- ❑ Microsoft Internet Information Server (IIS 6.0) will be used as a Web server for the application.
- ❑ Microsoft Windows 2003 server.
- ❑ Microsoft SQL Server 2000 Server.
- ❑ Microsoft .NET Framework 1.1.
- ❑ Microsoft Data Access Component (MDAC) 2.7 or higher.
- ❑ SQL server view and stored procedures are developed to handle data retrievals and updates in the SQL server database.

3.1 Hardware Requirement for Web and Database Servers

The Web site can run on a single server that has IIS 6.0 and SQL Servers installed on it, or it can be run on a standalone Web server that utilizes a SQL Server on a different server. Both servers require a Microsoft Windows Server operating system (OS). The following table describes the recommended hardware for the Windows Server 2003 Standard Edition or higher:

For Web Server

Component	Requirement
Computer and processor	133-MHz or faster processor for x86-based PCs; 733-MHz for Itanium-based PCs; up to eight processors supported on either the 32-bit or the 64-bit version
Memory	128 MB of RAM minimum required; maximum: 32 GB for x86-based PCs with the 32-bit version and 64 GB for Itanium-based PCs with the 64-bit version
Hard disk	1.5 GB of available hard-disk space for x86-based PCs; 2 GB for Itanium-based PCs; additional space is required if installing over a network

For SQL Database Server - SQL Server 2000

Component	Requirement
Computer and processor	133-MHz or faster processor for x86-based PCs; 733-MHz for Itanium-based PCs; up to eight processors supported on either the 32-bit or the 64-bit version
Memory	128 MB of RAM minimum required; maximum: 32 GB for x86-

	based PCs with the 32-bit version and 64 GB for Itanium-based PCs with the 64-bit version
Hard disk	1.5 GB of available hard-disk space for x86-based PCs; 2 GB for Itanium-based PCs; additional space is required if installing over a network

3.2 Commercial Software Requirement for Web and Database Servers

Operating System for Web and Database Servers	Windows 2000 Server or Windows 2003 Server
Database Server	SQL Server 2000 Standard Edition

For the Web server: If you have been directed to do a server installation, you must have the following software installed in addition to the typical installation requirements:

- Microsoft Data Access Components 2.6; Microsoft Data Access Components 2.7 SP1 or higher is recommended. This is for applications that use data access and is a prerequisite for the .NET Framework.
- Internet Information Services (IIS) version 5.0 or later. To access the features of ASP.NET, IIS with the latest security updates must be installed prior to installing the .NET Framework. The Application uses .NET Framework 1.1.
- ASP.NET is supported only on the following platforms: Microsoft Windows 2000 Professional (Service Pack 3 recommended), Microsoft Windows 2000 Server (Service Pack 3 recommended), Microsoft Windows XP Professional, and Microsoft Windows Server 2003 family.

Note: If you have existing hardware/software for the .NET 1.1 Web server/SQL server, such as Windows 2000 server with 1.1 NET framework and MDAC properly installed, the application should operate. Server install and configuration should include all known Microsoft recommended security patches.

4.0 Interfaces with other Systems and Databases

The Web server should have connection to the SQL database server. The application uses an ADO.NET database layer to interact with the SQL server database. The site does not interact with any other systems.

5.0 Access and authentication requirements

In order for the questionnaire application to access the SQL server, a SQL server user account is required. Details on the Database Deployment Description are located in section 6.1.1.

The questionnaire site allows anonymous users to access the Web site. The administration site uses .NET form authentication, so a username and password is required to enter the site. The

initial username and password for the admin site is **surveyadmin/changepassword**, which can be changed by the administrator at a later date.

6.0 System Configuration and Administration Procedures

This section lists the steps needed to install and configure the questionnaire application. Installing and configuring SQL Server, IIS, OS, and applying service packs are beyond the scope of the document. The document will be written at the level of system administrators.

The Deployment package includes following folder structure;

```
Sites/  
|___ CBRNESurveyApplication/  
    |___ CBRNESurveyAdmin/  
    |___ CBRNESurveyWeb/  
    |___ Database  
    |___ Log
```

CBRNESurveyAdmin/: This folder contains all the files and folder structure to set up the Survey Admin site.

CBRNESurveyWeb/: This folder contains all the files and folder structure to set up the Survey site.

Database/: This folder contains CBRNEDB.MDF and CBRNEDB.LDF files to set up the CBRNE SQL server database. It should be copied to a folder in the database server.

Log/: This folder is where the site will log run time exception.

The System Administrator should follow the package deployment instructions located in the next section to set up the applications.

6.1 Package Deployment Instructions

The CBRNE Preparedness Questionnaire is a Web-based application built utilizing ASP.NET on the .NET Framework v 1.1 and SQL Server 2000. No client side plug-in or applet needs to be installed.

6.1.1 Database Deployment Description

The CBRNE Preparedness Web Questionnaire database was developed using SQL Server 2000. This step assumes that a SQL Server 2000 database server is available for use and that the database administrator is familiar with using SQL Server 2000. In order to install the database, follow the steps below:

1. Copy the CBRNEEDB.MDF and CBRNEEDB.LDF files to the database server.
2. Using SQL Server Enterprise, attach the CBRNEEDB database.

Associated Steps:

- 2a. Open the SQL Server Enterprise Manager, and identify the database server where you want to put your database.
- 2b. Right click on the database folder, and from the “All Tasks” option, select “Attach Database.” This is shown in Figure 2 below.

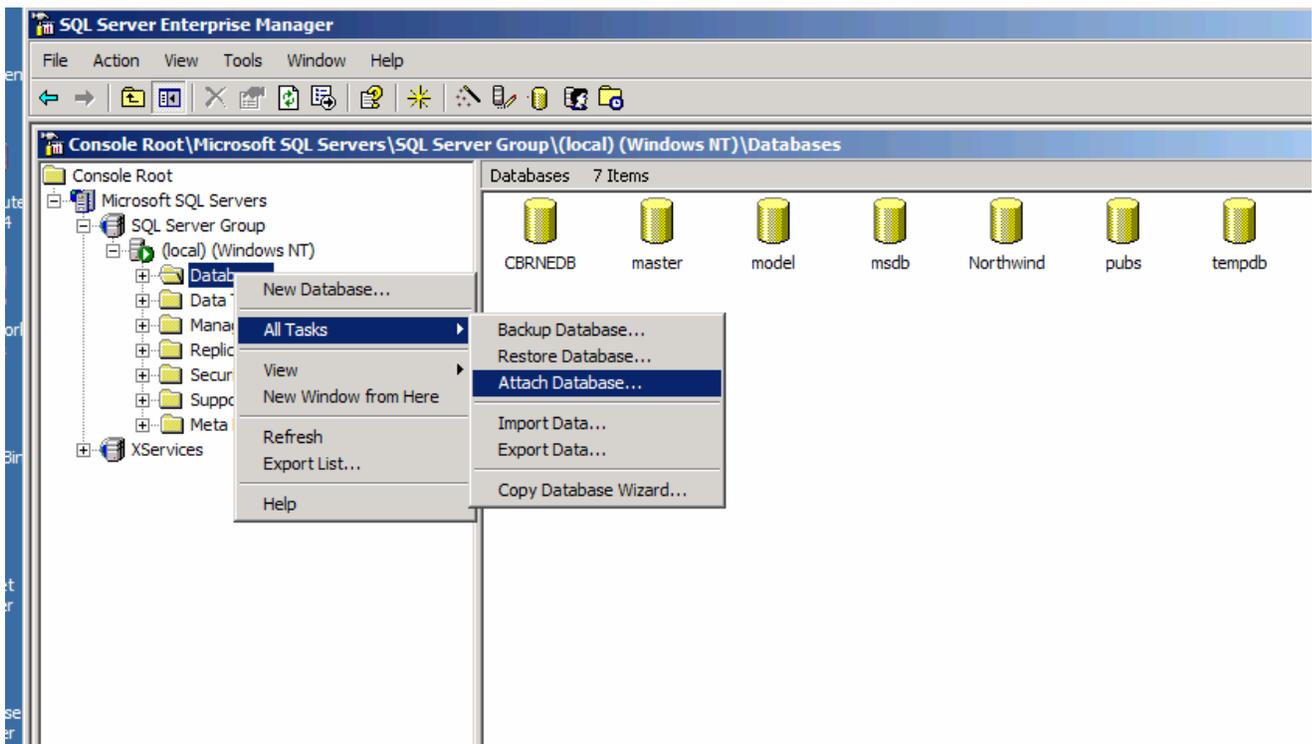


Figure 2: CBRNEEDB Attachment

2c. Locate the “CBRNEDB.MDF” file on the server, select “sa” as database owner, and click “OK” to attach it to the database. See Figure 3.

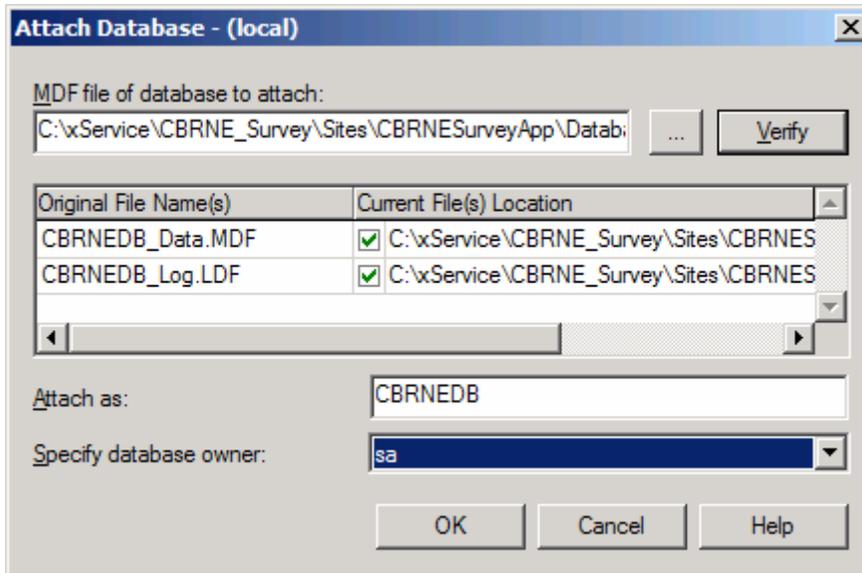


Figure 3: Database Attachment

3. Using the SQL Server Enterprise Manager, create a SQL server user account. An example could be “CBRNE_User.”

Associated Steps:

3a. Go to the “Security” folder, right click, and select “New Login.” See Figure 4.

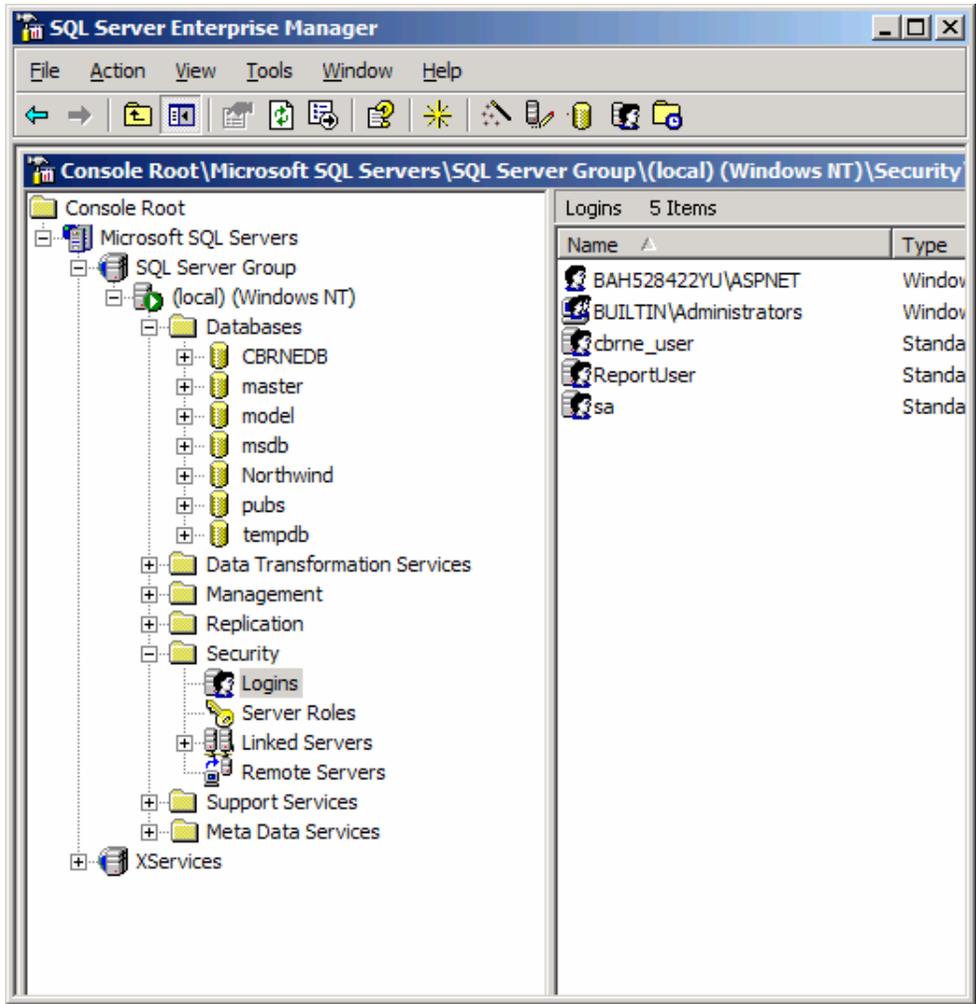


Figure 4: SQL Server User Account

- 3b. In the “Name” field, enter “cbrne_user.”
- 3c. Under “Authentication,” select “SQL Server Authentication,” and enter a new password.
- 3d. Next, select “CBRNEDB” as the default Database. See Figure 5.

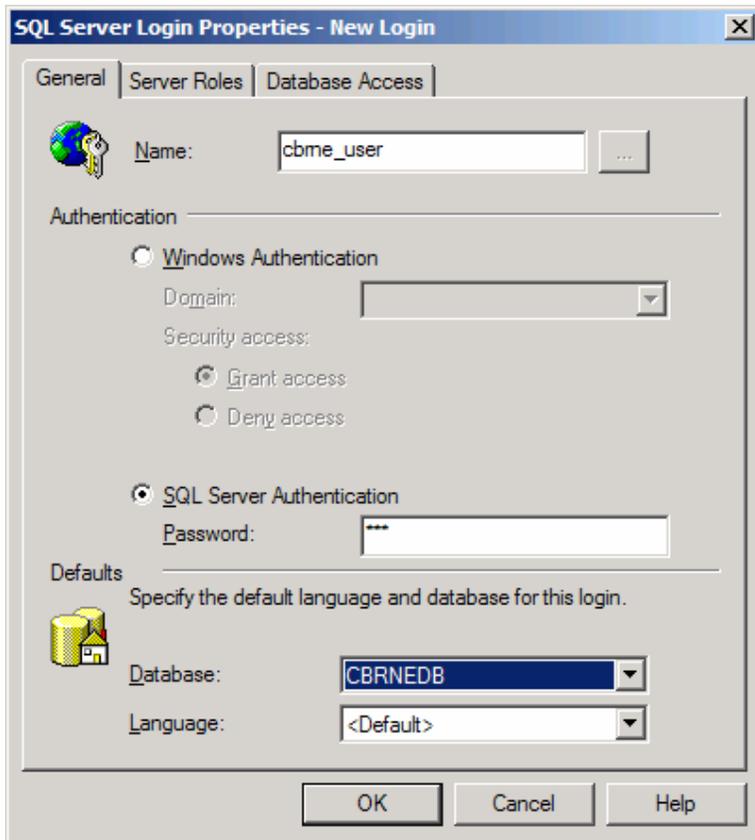


Figure 5: New Login

3e. Next, select the “Database Access” tab.

3f. Click the checkbox in the row next to the “CBRNEDB” in the “Database” column and “cbrne_user” in the “User” column. Then, click OK. See Figure 6.

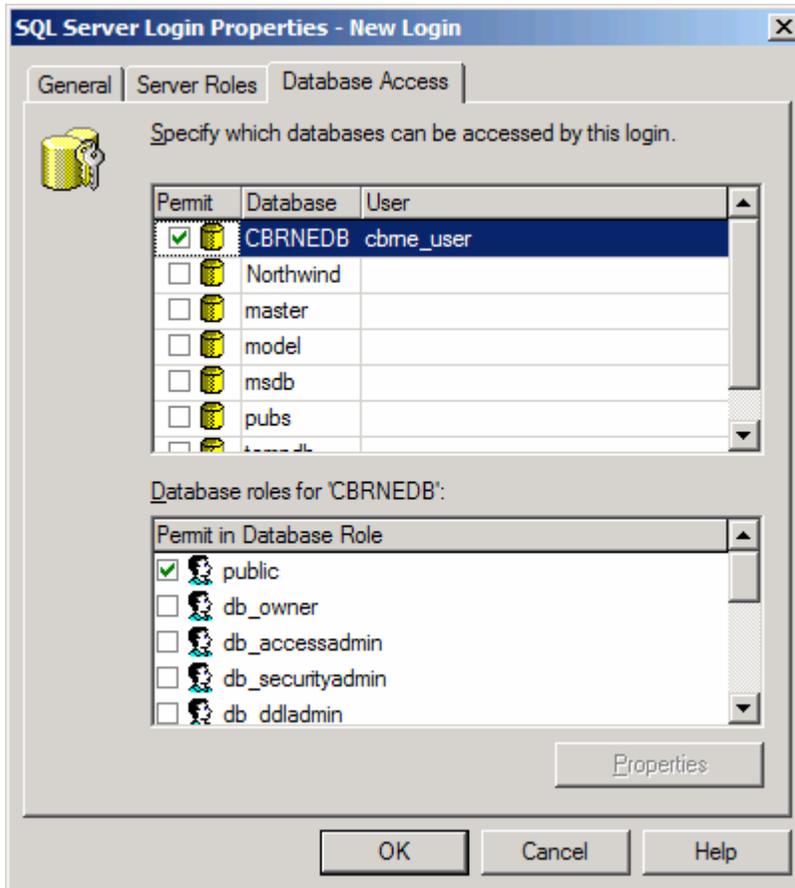


Figure 6: New Login

4. Add the cbrne_user to the web_user role of the CBRNE database. The web_user role, already within the database, has the minimal set of permissions required to access the database, execute stored procedures, and update tables.

Associated Steps:

4a. Go to the database labeled “CBRNEDB,” and select the node titled “Roles.” You will see a role called “web_user.” Double click the “web_user” role. See Figure 7.

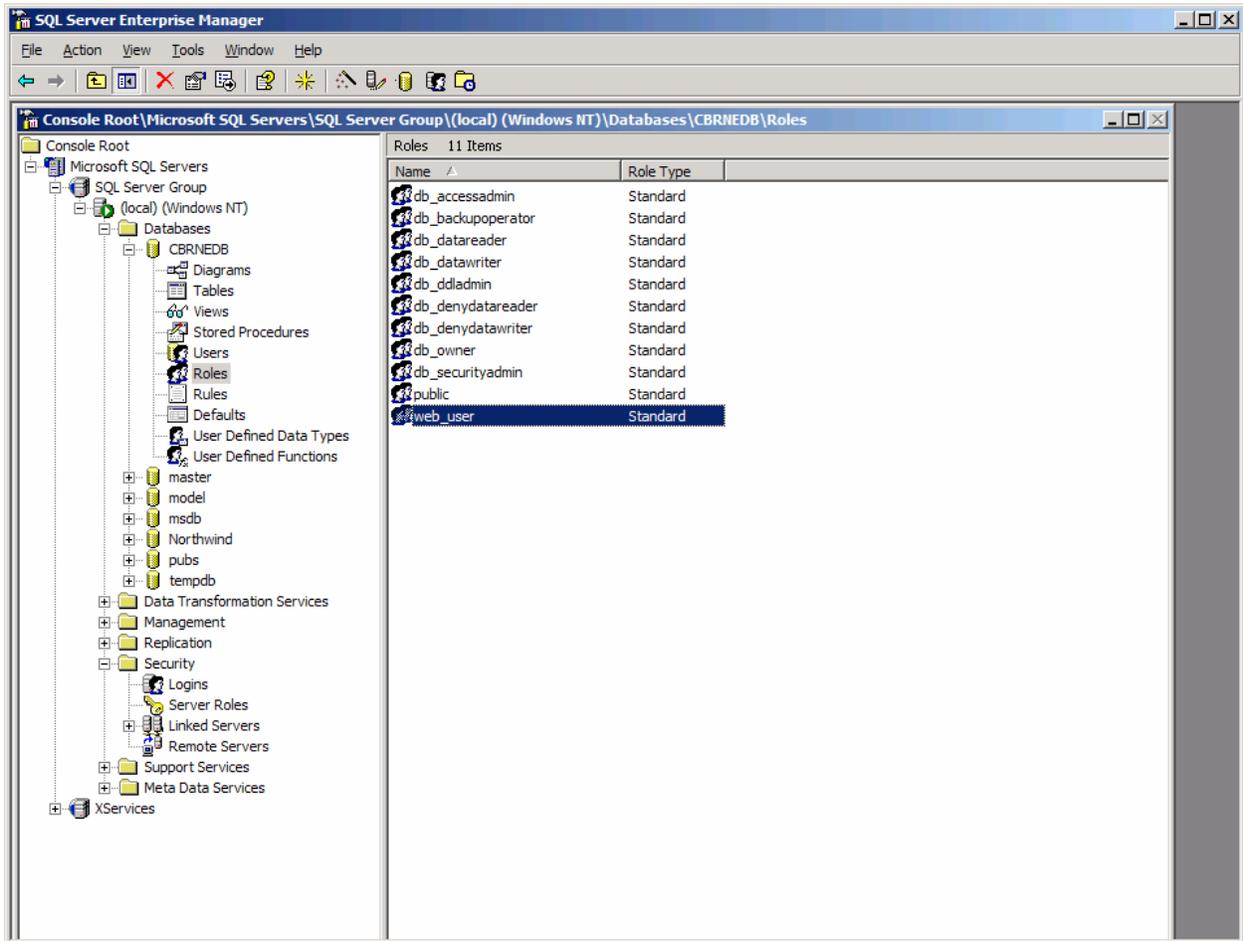


Figure 7: Web User Role

4b. Add “cbrne_user” to the “User” list, then click OK. See Figure 8.

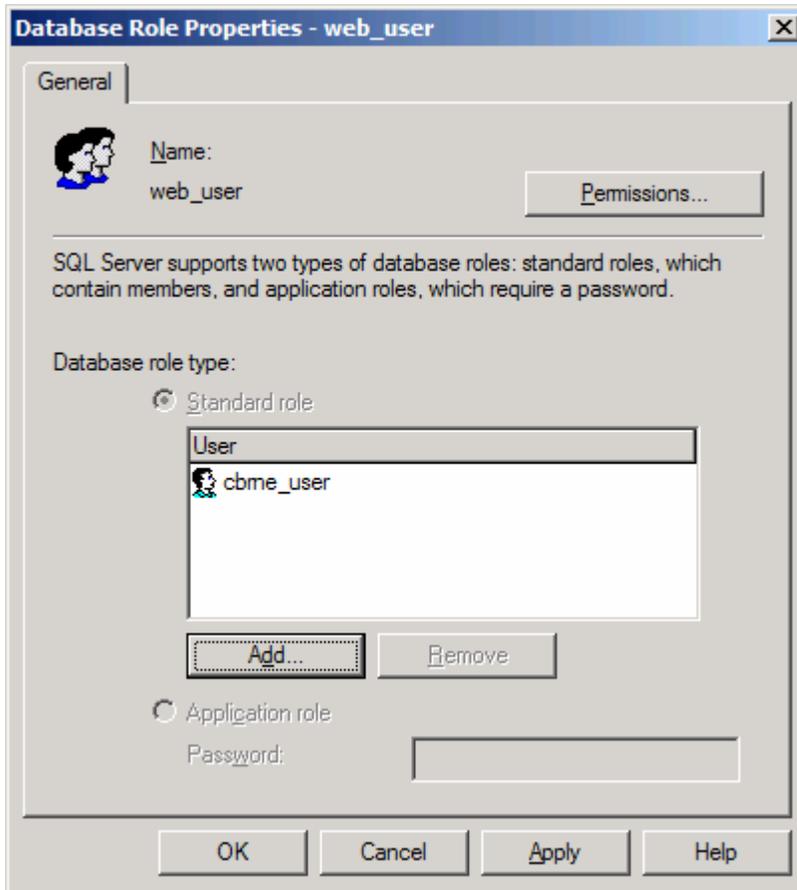


Figure 8: Web User Role.

5. Process complete.

6.1.2 Web Application Deployment Description

The CBRNE Preparedness Questionnaire site and the Questionnaire Administration site can be deployed as Web applications or as Web sites. The following steps assume that the system administrator is familiar with using IIS and that the Web server has been installed with the .NET Framework 1.1 with the latest service packs. In order to install the site, follow the steps below:

1. Copy the CBRNESurveyApp folder to the Web server. For example, C:\CBRNE.

Using IIS Manager, create a virtual directory or a Web site and point it to the location of the CBRNESurveyWeb folder contained in the CBRNESurveyApp folder. The CBRNESurveyWeb contains the actual Web questionnaire that end users will use to input data.

Associated Steps:

2a. To run the IIS, click the “Start” button, select “Administrator Tools,” and then “Internet Information Services.”

2b. Go to “Default Web Site,” right click “New,” and select “Virtual Directory.” See Figure 9.

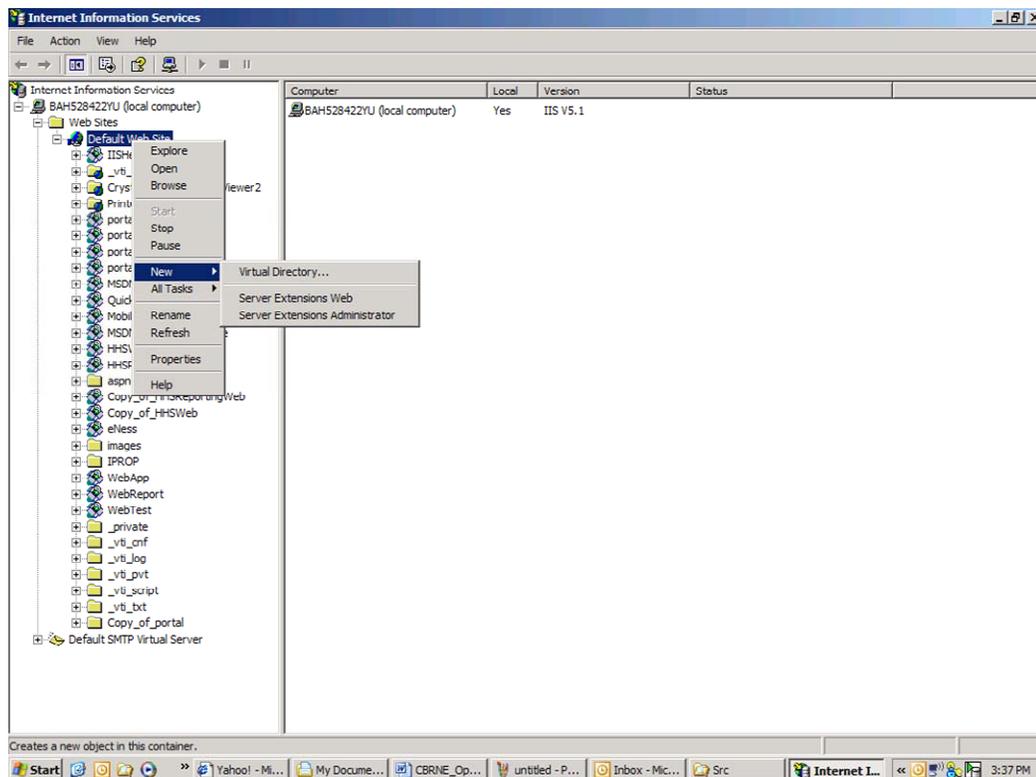


Figure 9: Internet Information Services

2c. In the “Alias” field, enter the alias you wish to use. “CBRNESurvey” is an example. See Figure 10.

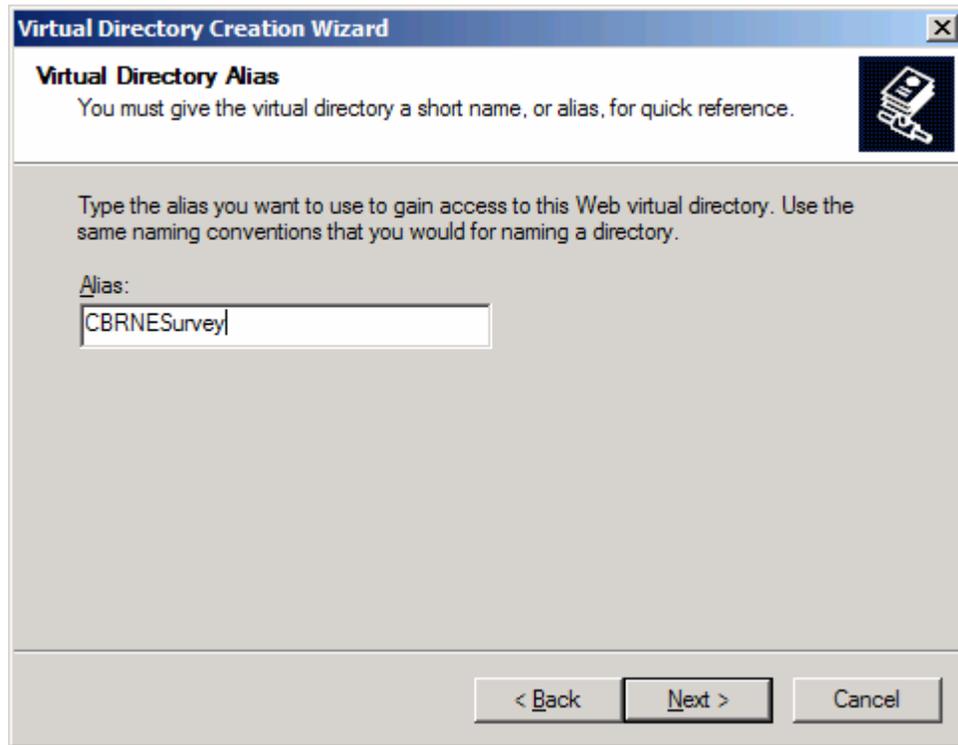


Figure 10: Virtual Directory

2d. Enter the directory where the Web site files are physically located, such as C:\CBRNE\CBRNE_Survey\Sites\CBRNESurveyApp\CBRNESurveyWeb. See Figure 11.

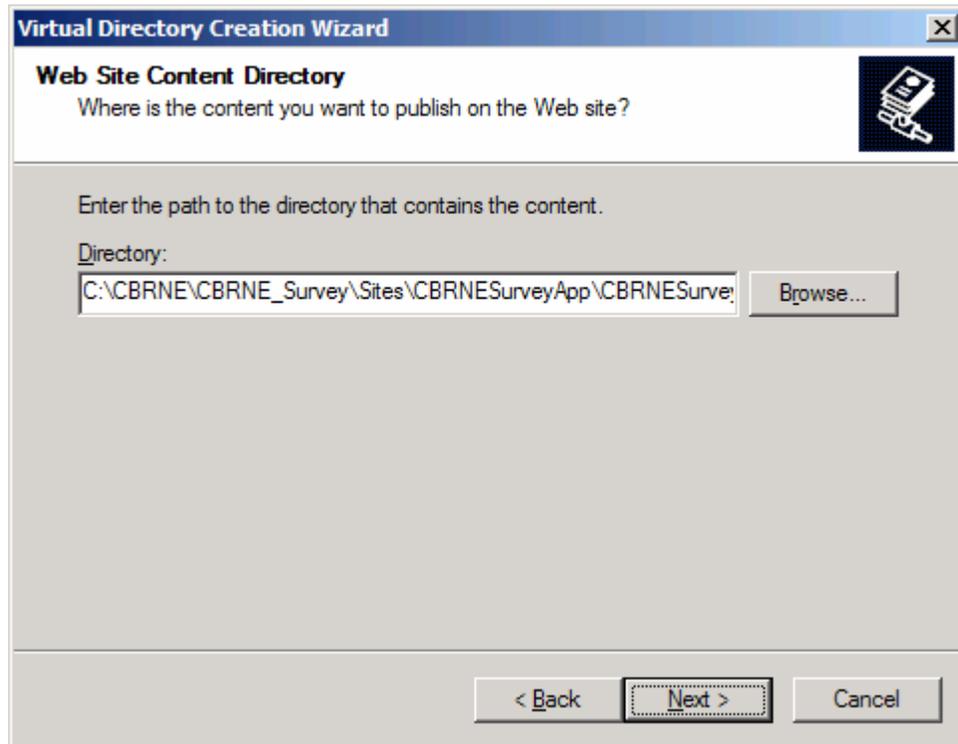


Figure 11: Physical Web Site Directory

2e. Accept the default setting for the “Access Permissions.” See Figure 12.

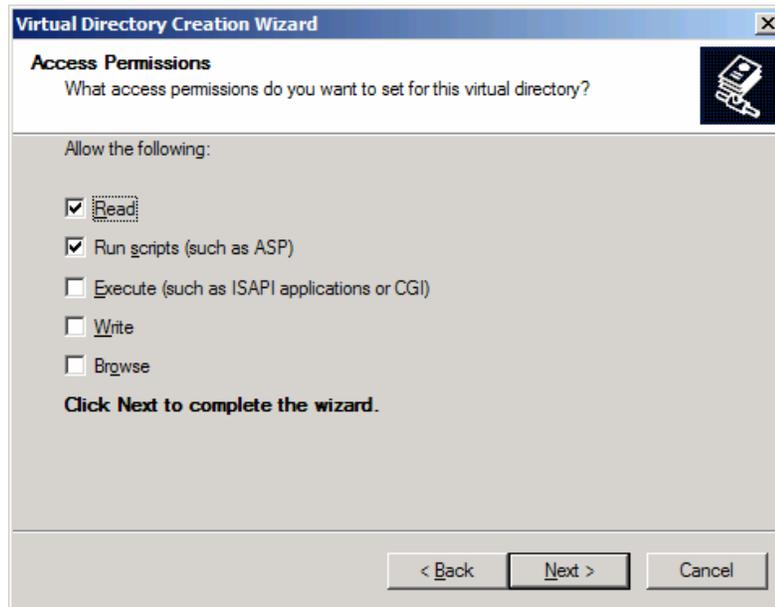


Figure 12. Access Permissions

2f. Complete the setting. See Figure 13.



Figure 13: Completion

2. Edit the Web.Config file contained in the CBRNESurveyWeb folder.

Associated Steps:

2a. Update the path field of line 9 to a location where the log files are to be written.

Note: By default, the “publisher mode” is set to “Off.” If you want to enable logging, then you should turn it on and give the ASPNET account write access permission to the folder.

- In Windows Explorer, right click on the folder where the log files are stored, open the “Properties” window, and select the “Security” tab.
- Click “Add” to add a user. In the next screen, click the “Advanced” button, and find the ASPNET user. See Figure 14.

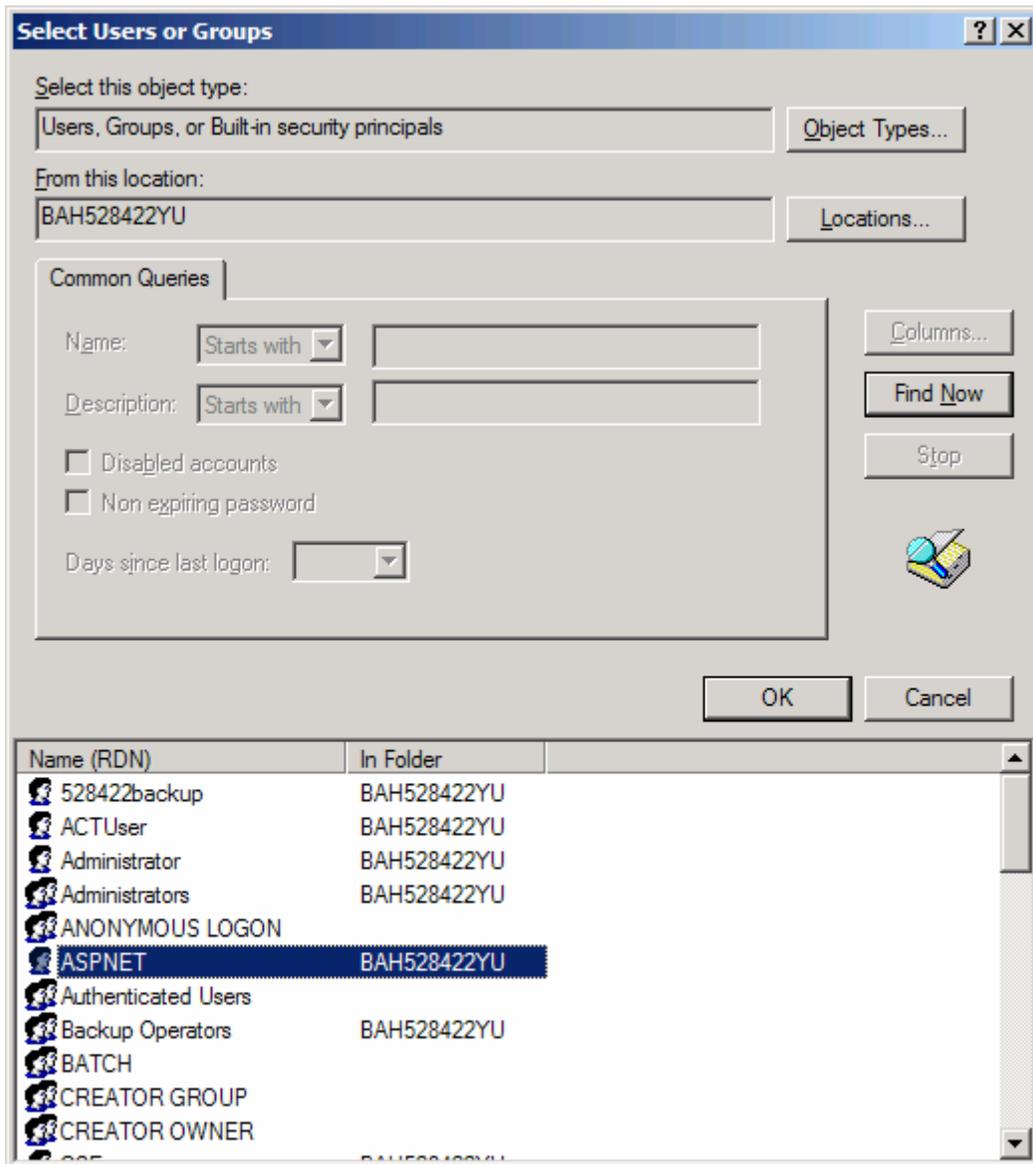


Figure 14: Select Users or Group.

- Click “OK.”
- The ASPNET user should show up in the properties window. Click the “Modify” checkbox to assign the write permission. See Figure 15.

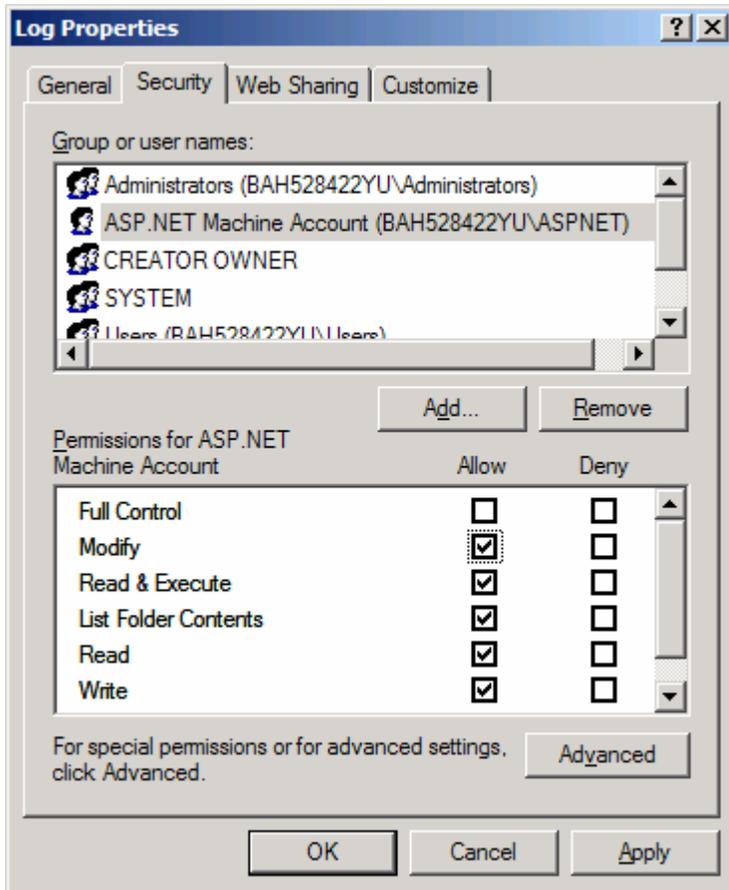


Figure 15: Log Properties

- Click “OK” to complete.

2b. In <appSettings> session, update the server, uid, and password fields for accessing the database

```
<appSettings>
  <add key="siteTitleName" value="AHRQ-HRSA Survey" />
  <add key="connectionString"
value="server=servername;uid=username;pwd=password;database=ahraqdb"/>
</appSettings>
```

3. Using IIS Manager, create a virtual directory or a Web site, and point it to the location of the CBRNESurveyAdmin folder contained in the CBRNESurveyApp folder. The CBRNESurveyAdmin contains the questionnaire administration site where the questionnaire

administrators can view the number of questionnaires submitted and download the submitted questionnaire data.

Associated Steps:

3a. To run the IIS, click the “Start” button, select “Administrator Tools,” and then “Internet Information Services.”

3b. Go to the Default Web Site, right click “New,” and select “Virtual Directory.”

3c. Enter an alias. In this example, “CBRNESurveyAdmin” is used. See Figure 16.

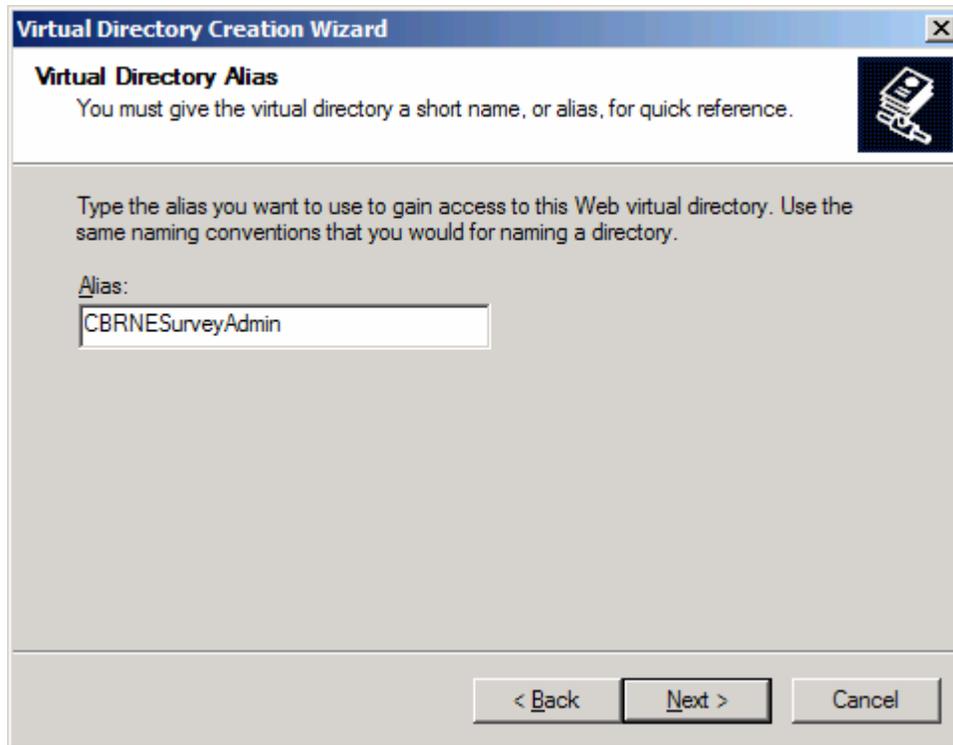


Figure 16: Virtual Directory

3d. Enter the directory where the Web site files are physically located, such as C:\CBRNE\CBRNE_Survey\Sites\CBRNESurveyApp\CBRNESurveyAdmin. See Figure 17.

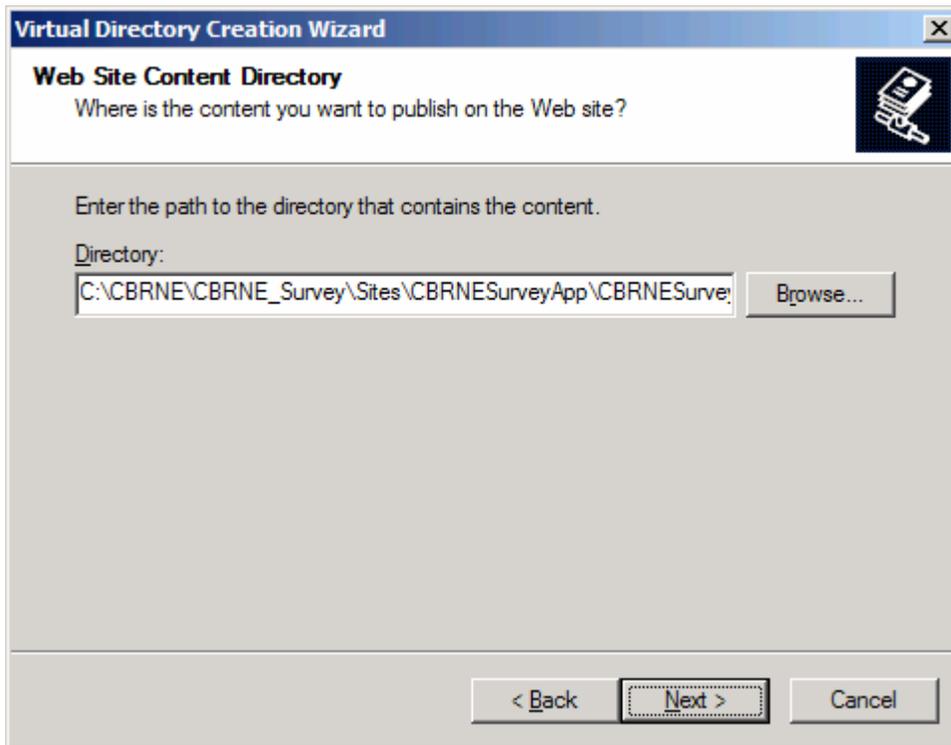


Figure 17: Physical Web site Directory

3e. Accept the default setting for the “Access Permissions.” See Figure 18.

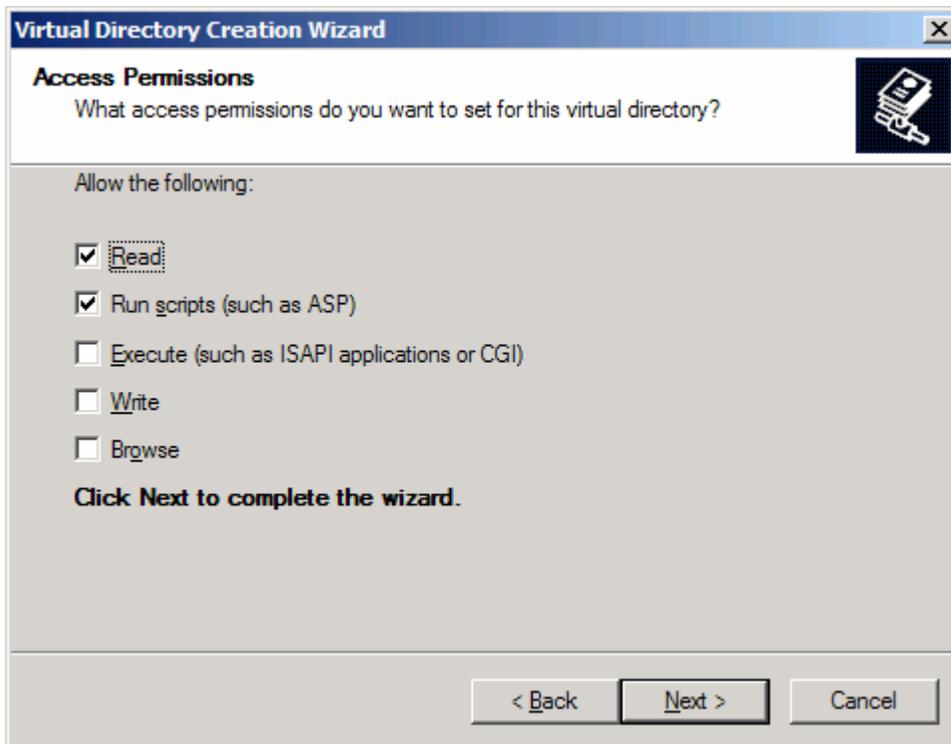


Figure 18: Access Permissions

- 3f. Click “Next” to complete the setting.
4. Edit the Web.Configuration file contained in the CBRNESurveyAdmin folder.

Associated Steps:

4a. Update the path field of line 9 to a location where the log files are to be written.

Note: By default, the publisher mode is set to “Off.” If you want to enable logging, then you should turn it on and give the ASPNET account write access permission to the folder. (See notes in section 6.1.2 on how to change permission to ASPNET).

- a. In <appSettings> session, update the server, uid, and password fields for accessing the database.

```
<appSettings>
  <add key="connectionString"
value="server=servername;uid=username;pwd=password;database=ahraqdb"/>
  <add key="siteTitleName" value="AHRQ-HRSA Survey Administration"
/>
</appSettings>
```

5. Complete.

Appendix B: CBRNE Preparedness Questionnaire Admin Home Page

Preparedness for Chemical, Biological, Radiological, Nuclear, and Explosive Events
Questionnaire For Health Care Facilities

AHRQ
Welcome surveyadmin!

Site Menu

- Home
- Change Password
- Download Data
- Download Data Part 1
- Download Data Part 2
- Log Out

Survey Response Summary Report

Organization	State	POC Email
2	AK	2
3	AK	Survey Summary Report
a	AK	
asda	AK	dsadsa
esafdsaf	AL	
qweqew	AL	1111
This is a Test	AR	hjska@yahoo.com
ewqewqewq	AZ	dsadsadsa@jkdja.com
ABC Hospital	VA	asjhs@bah.com
Jeff	VA	
St. John's	VA	js@yahoo.com
TestB	VA	fddh@uauia.com
		Total: 12