



Rockaway, NJ USA 07886
www.btechinc.com



*Battery Validation Manager –
Software Installation Manual*

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"BVS® OBSERVER",
"BVM STATS",
"BTECH EVENT VIEWER",
"BTECH ENTERPRISE REPORT CREATOR"
SOFTWARE
AND RELATED UTILITY SOFTWARE

END-USER LICENSE AGREEMENT

SOFTWARE PRODUCT LICENSE:

The software specifically designed as a companion product to all BTECH Battery Validation System (BVS) battery monitoring models is called the Battery Validation Manager (BVM). It also includes companion software called the BVS Status Monitor, BVS Observer, Create SQL BVM Files, BTECH Data Backup Utility, Delete Battery System Settings and Data From SQL Database, Extract Locations from SQL Utility, MDB Compacting Utility, and Data Merge Utility. Associated with the BVM software is an optional companion package of software named BVM Tools which consists of the BVM Stats, BTECH Event Viewer, and BTECH Enterprise Report Creator software. In addition, all of these software components hereinafter for the purposes of this document shall be referred to as the "BTECH Software." The BTECH Software package was exclusively developed by BTECH Inc. and is protected by copyright laws and international copyright treaties as well as other intellectual property laws and treaties. The BTECH Software is licensed, not sold.

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TABLE OF CONTENTS

END-USER LICENSE AGREEMENT	3
1. GENERAL INFORMATION	8
1.1 BVM SOFTWARE SUITE OVERVIEW	10
1.2 BVM FILE TYPES	10
2. MINIMUM REQUIREMENTS	11
2.1 MINIMUM HARDWARE REQUIREMENTS	11
2.2 MINIMUM SOFTWARE REQUIREMENTS	12
3. BATTERY VALIDATION MANAGER INSTALLATION	13
3.1 BEFORE STARTING THE INSTALLATION	13
3.2 BVM INSTALLATION STEPS	14
3.3 ADDING LOCATIONS TO BVM	20
3.4 ADDING LOCATIONS TO THE BVS OBSERVER	21
3.5 ADD LOCATIONS TO THE BVS STATUS MONITOR	23
3.6 BVM INSTALLATION ERRORS	24
4. BATTERY VALIDATION MANAGER SQL SETUP	27
4.1 OVERVIEW	27
4.2 INSTALL DATABASE SERVER (SQL SERVER EXPRESS)	29
4.3 CONFIGURE THE BVM DATABASE IN THE SQL DATABASE	39
4.4 INTEGRATE THE BVM SOFTWARE WITH A SQL DATABASE	43
4.5 ADDING LOCATIONS TO SQL FROM BVM DATA DISK	46
4.6 TRANSFERRING BVM LOCATIONS TO SQL FROM EXISTING MICROSOFT ACCESS DATABASES	47
4.7 SQL CLIENT WORKSTATION SETUP	51
5. BATTERY VALIDATION MANAGER SECURITY	56
5.1 OVERVIEW	56
5.2 DATABASE	57
5.3 FILES	58
5.4 SECURITY FEATURES	58
5.5 BVM SECURITY	60
5.6 BVS STATUS MONITOR SECURITY	61
5.7 OBSERVER SECURITY	62
5.8 BVM SOFTWARE DATAFLOW DIAGRAM	64
5.9 UPDATES	65

1. General Information

Customer and Product Support

To obtain assistance and support for any BTECH product, contact the company as described below.

Main Office

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Web Site

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973-983-1120
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Customer Support

techsupport@btechinc.com

Additional Product Technical Information

The following publications are available from BTECH and can be downloaded from the BTECH website as PDF files.

Technical Support Bulletins

BTECH posts technical support bulletins as PDF files on its website. These files and other support materials can be downloaded, as necessary.



Customers are encouraged to check the site periodically to see if important new information has been added.

About This Guide

All the information contained in this guide was current and accurate at time of publication. Check the BTECH website to see if any 'Service' or 'Product' update bulletins have been issued or additional documentation posted following the Guide's publication.

This guide is intended to be printed 'duplexed'. If printed uniplex some blank pages will occur with just heading and footings. This is normal and DOES NOT indicate missing material.

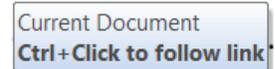
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- Table of Contents, Figures, and Tables List,
- References to Figures and *page numbers* within the text,
- References to Headings and Titles within the text.

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To follow a link in MS Word, place the cursor on a link item. If the tooltip shown to the right appears hold down the Ctrl key and click. The user jumps to the target link location



Adobe PDF Files

Place the cursor on a link item. The cursor changes to a pointing finger (Right). Click and the user jumps to the target link location.



Symbols and Terms Used in the Guide

Throughout the guide there are items set off by themselves and preceded by one of the symbols shown below. The symbol indicates the type of information and its relative importance.

Symbol	Name	Purpose
	Note	Indicates an important point that customers should be aware of.
	Important	Indicates a critical, non-safety related item. In general, failure to comply with these items may result in damage to equipment and voiding of Warranty.



Caution to user: Changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment

1.1 BVM SOFTWARE SUITE OVERVIEW

Battery Validation Monitor (BVM): Enables users to analyze and interpret all measurement data by providing a graphical analysis of performance. It also serves as the direct link to the controller to manipulate system settings, clear alarms, or enter the system's diagnostic mode. Additionally, it provides a real-time discharge data logger that enables users to view ongoing voltage and current information during a discharge event or discharge test.



BVS Observer: Observer is a Windows service that runs in the background on the host PC and periodically collects the latest measurement data from the battery monitoring system controllers. Over time, a valuable battery trend database is built that continually tracks the battery system's performance and compares it with results obtained when the battery system was new.



BVS Status Monitor: Provides the user with a summary of all, or a group of battery systems' status. It provides 'drill-down' functionality from all of the battery systems to individual units by launching the BVM. It also provides the user with an audible and visible alert when new alarms are received by the BVS Observer.



1.2 BVM FILE TYPES

Database Files: BVM installs one or more database files in the "BVMDData" folder. Generally these are "MS Access" files but the user has the option of switching to SQL databases if they prefer.

.bvm File: Main file used by BVM to connect to the database and present the data.

.mdb File: Microsoft database file.

.set File: These are supplied by BTECH and contain the initial controller settings based on manufacturer specifications. Users can override the file content or create new .set files as needed. It is particularly relevant to backing up and restoring the controller settings. When multiple locations are monitored by a controller there will be one .set file for *each location*.

.mib files: These are supplied by BTECH on the software installation disk. They are used when a customer implements SNMP traps in a network environment.



The .bvm and .mdb files **MUST** have matching serial numbers and identical file names, and **MUST** be located in the same directory.

There is *one each* of the following program files for *each* controller in the installation. They are created by BTECH specifically for the site and are identified by the *serial number* of the *unit*. They *must* all be in the same directory on the host computer or the server's hard drive.

- **Sitename+Serial Number.mdb** – This is a Microsoft Access database file.
- **Sitename+Serial Number.bvm** – There will be one of these files for each controller.
- **Sitename+Serial Number.set** – This is a text file containing the site settings.

2. Hardware and Software Requirements

2.1 HARDWARE REQUIREMENTS

Minimum Hardware Requirements

	Operating System	Processor	Memory	HD Space	Display	DVD-ROM
32-bit	Windows 8.1® Windows 10®	1.4 GHz Pentium 4 or later processor that supports SSE2	4 GB	1 GB for programs and small data files	1024 x 768	Required for installation. Alternatively, installation available as a download or on a flash drive. Must be requested.
	Windows 8.1® Windows 10® Windows Server 2012® Windows Server 2016® Windows Server 2019®	2 GHz x64 processor (all x64 processors support SSE2)	4 GB	1 GB for programs and small data files	1024 x 768	Required for installation. Alternatively, installation available as a download or on a flash drive. Must be requested.

Recommended Hardware Requirements for a Monitoring Server (using SQL Server database)

	Operating System	Processor	Memory	HD Space	Display	DVD-ROM
64-bit	Windows Server 2012® Windows Server 2016® Windows Server 2019®	2 GHz x64 processor (all x64 processors support SSE2)	8 GB	5 GB for programs and approximately 20 MB per battery system being monitored.	1024 x 768	Required for installation. Alternatively, installation available as a download or on a flash drive. Must be requested.

The following are also required for proper installation and operation of the software:

- 1 Gigabyte minimum hard drive space for application and small data files. If Microsoft SQL Server is used as the back-end database for installation with more than 10 battery systems, 5 gigabytes minimum hard drive spaces is needed. For the storage of 10 years of data, approximately 20 Megabytes of disk is required per battery system being

monitored. The amount of space required is dependent on the size of the battery system, the number of measurements, discharges, and events archived from the battery monitor.

- Mouse or another pointing device
- Dial modem for operation with one or more BVS units utilizing modem communication over a POTS line.
- Network adapter attached to a TCP/IP network is necessary to use the network communications functions of the software.
- USB or Serial adaptor for using the local communication options.
- The BVM software can be run in a virtual machine environment. The virtual machine must be provided with sufficient processor resources, memory, and disk resources as listed above.

2.2 SOFTWARE REQUIREMENTS

- Windows 8.1®, Windows 10®, Windows Server 2012®, Windows Server 2016®, and Windows Server 2019®

3. Battery Validation Manager Installation

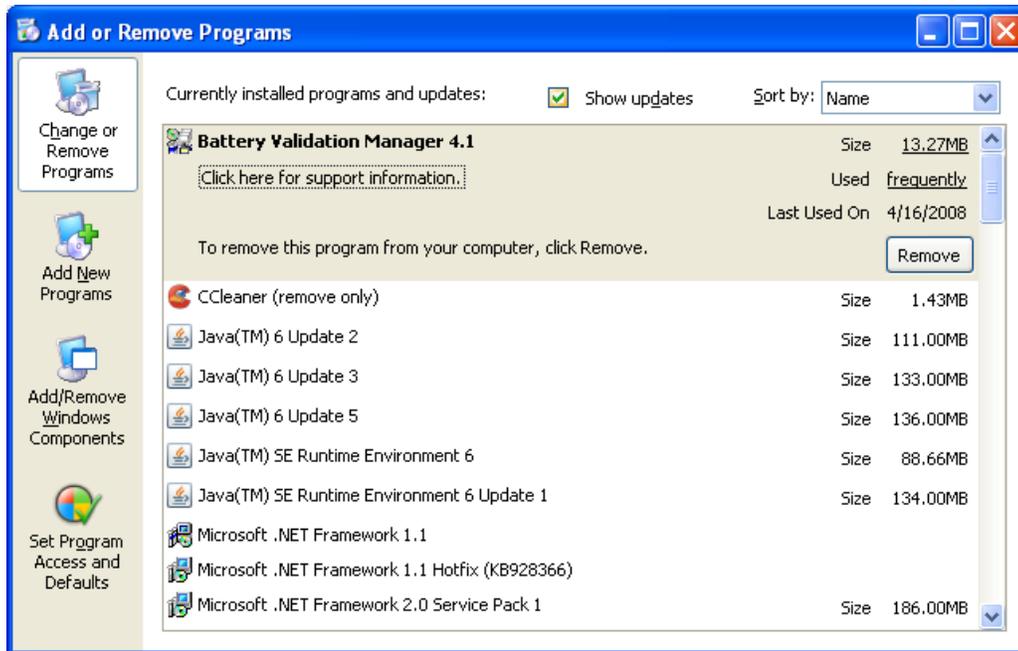
The following steps will install the Battery Validation Manager software on the computer or server. It is advised to follow the steps to avoid unforeseen damage or corruption.



For a step-by-step visual walkthrough, please refer to the how-to videos provided on the installation disc in the Videos folder, or on our website at www.btechinc.com.

3.1 BEFORE STARTING THE INSTALLATION

- Close all other programs on the computer
- Temporarily shutting down any running anti-virus software is recommended.
- If you are not logged in as an administrator, log out and log in as an administrator or have an administrator log in.
- Disconnect any USB cables attached to any BTECH equipment.
- Uninstall any previous versions of the Battery Validation Manager and any associated utilities.



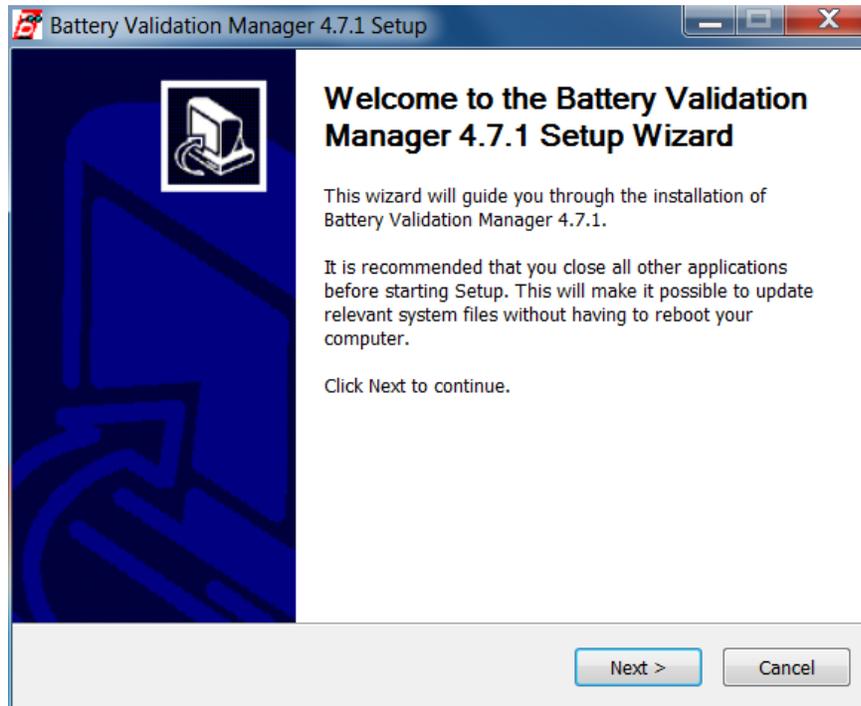
3.2 BVM INSTALLATION STEPS

Step 1 - Locate the BVM_Setup.exe File.

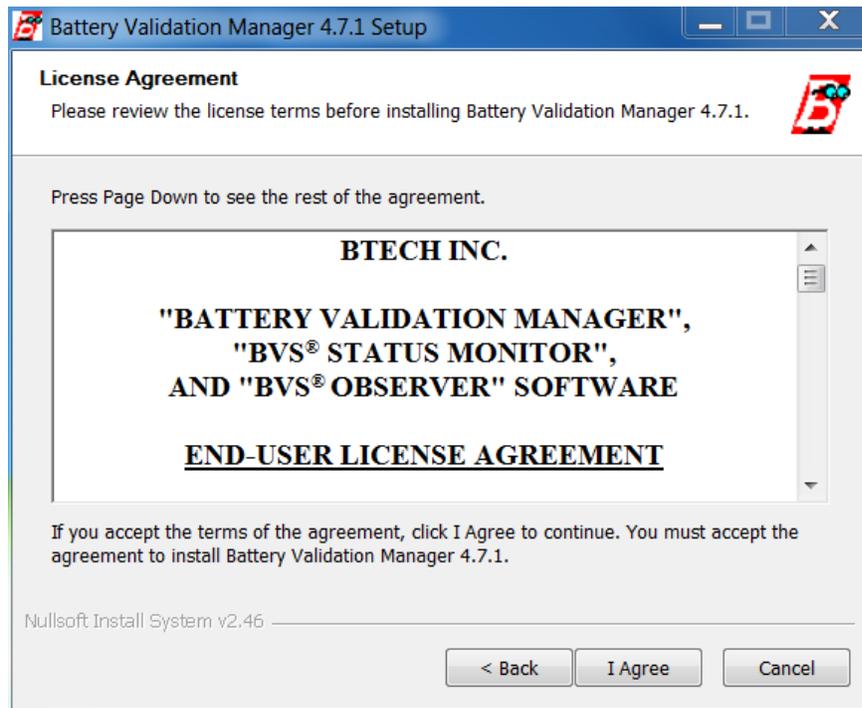
Installing from the supplied DVD	Installing from downloaded link
<p>There are two discs supplied; the BVM Software Installation Disc and the Location Data Disc.</p> <p>Insert the BVM Software Installation disc into your computer's DVD-ROM drive.</p> <p>The BVM installation should begin to run.</p> <p><i>If it does not, click the Start Button and select Run.</i></p> <p><i>Enter D:\BVM_Setup.exe to start the installation (if the computer's DVD drive is not assigned as D, use the appropriate letter for the drive in the command).</i></p>	<p>Locate the downloaded "BVM_Setup.exe" file within the computers file system.</p> <p>Double-click the file to begin the installation, or Right-click and select "Run as Administrator".</p>

[Table 1 - Locating the BVM Setup File](#)

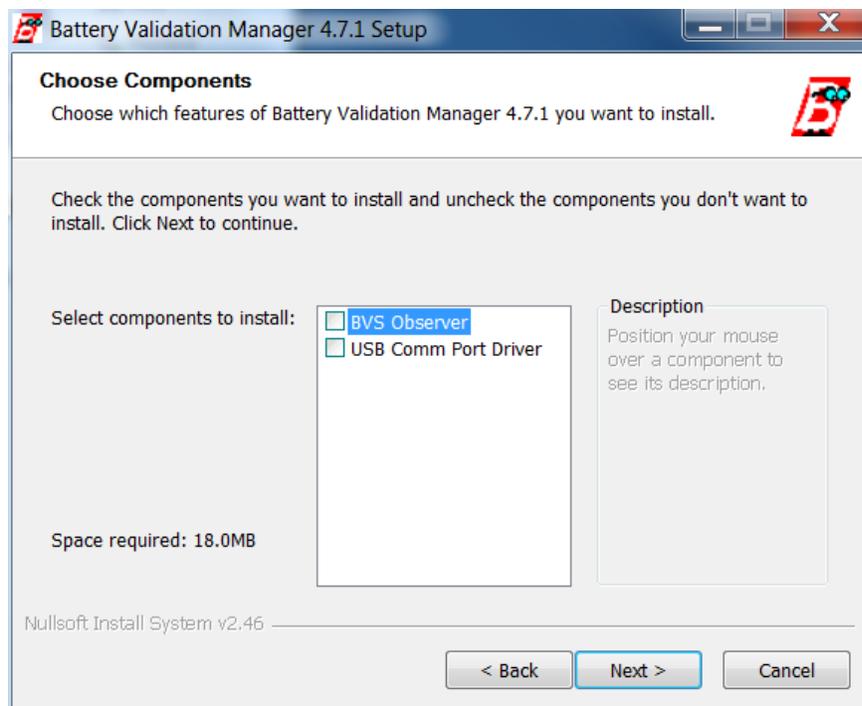
Step 2 - The installation program will begin to run, and a welcome screen will appear. When prompted, click the "Next" button to continue the installation.



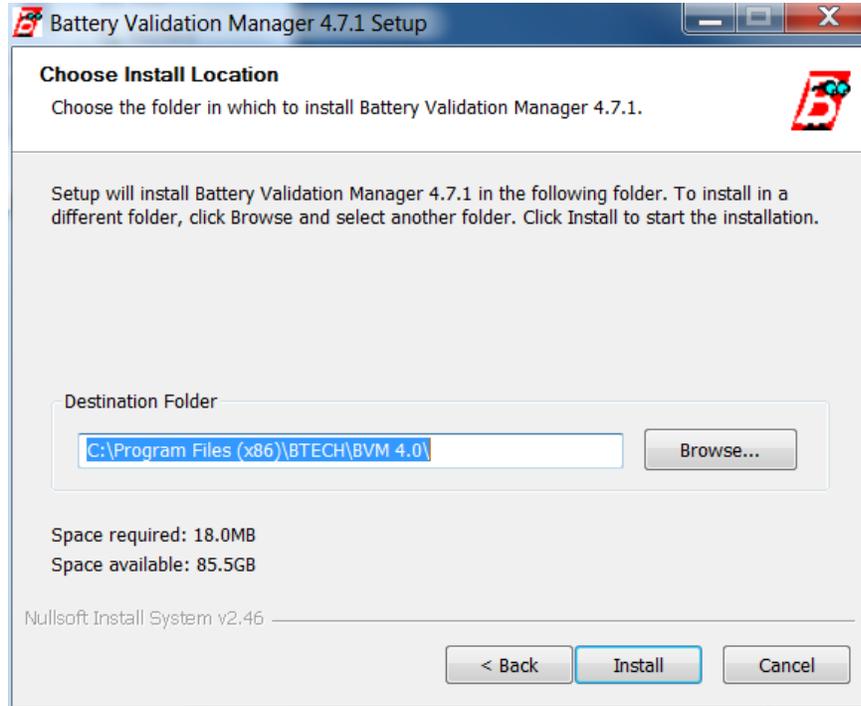
Step 3 - Read the license agreement and then click the **"I Agree"** button to continue.



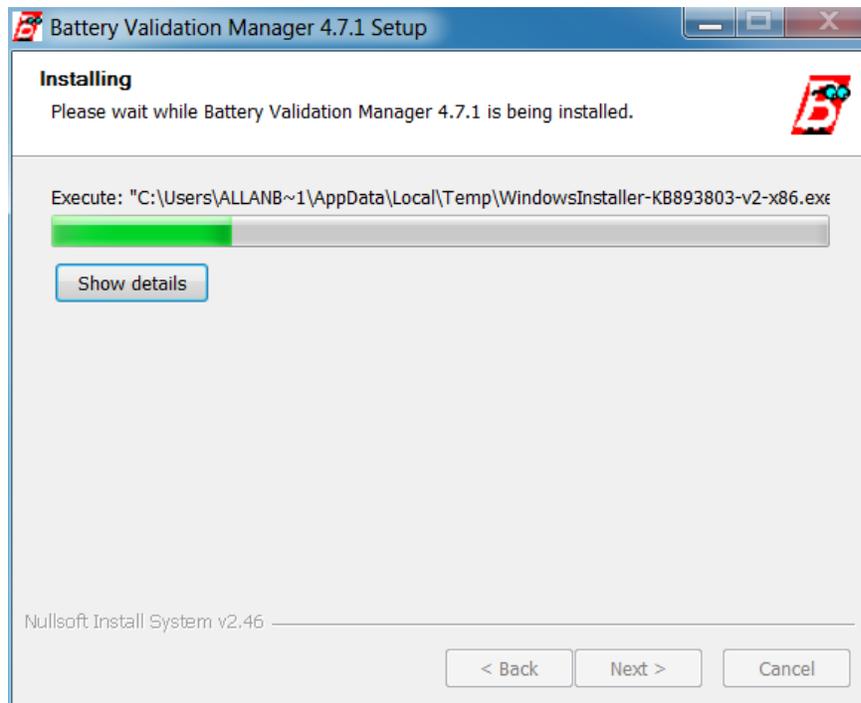
Step 4 - Next select which components of the software you wish to install. The Battery Validation Manager and BVS Status Monitor are always installed. You can choose to also install the BVS Observer (which is a Windows service that automatically gathers data and receives alarms) and/or the drivers for the USB port on the battery monitors. Click the **"Next"** button to continue.



Step 5 - It is recommended to install the software in the destination folder as shown. If you want it to be installed in a different folder, click “**Browse**”, then select where you wish the software to be installed on your computer. Click “**Install**” to install the software.

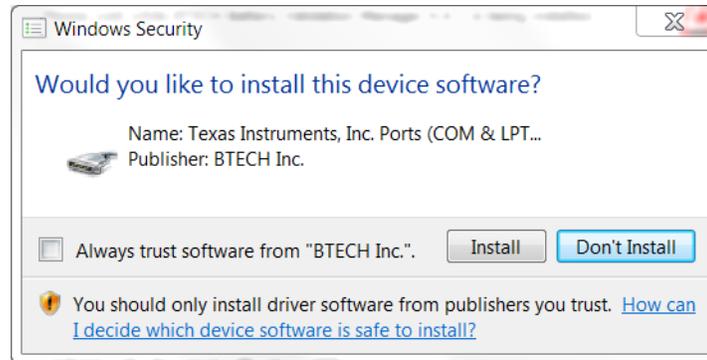


Note: The progress bar may pause periodically, do not close the setup window until the installation is complete.

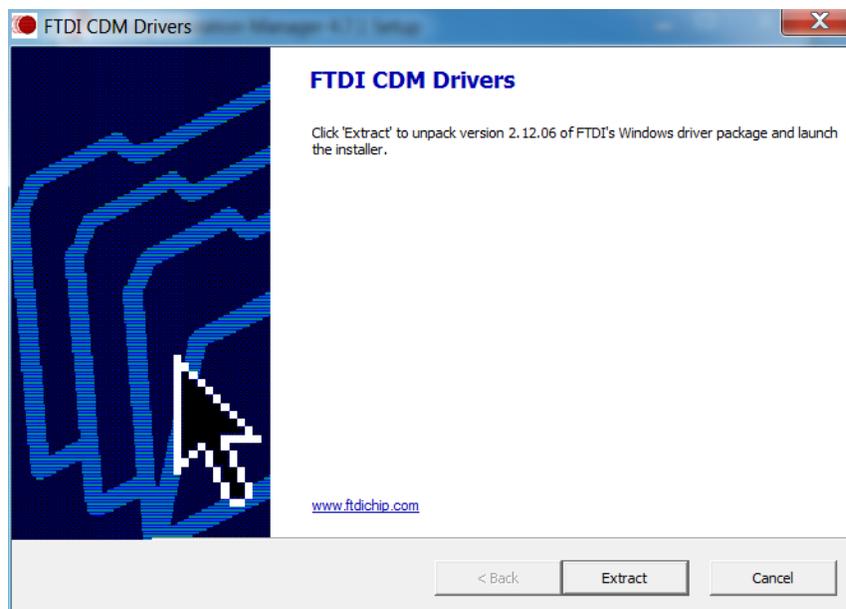


If the USB drivers are not being installed go to **Step 11** -

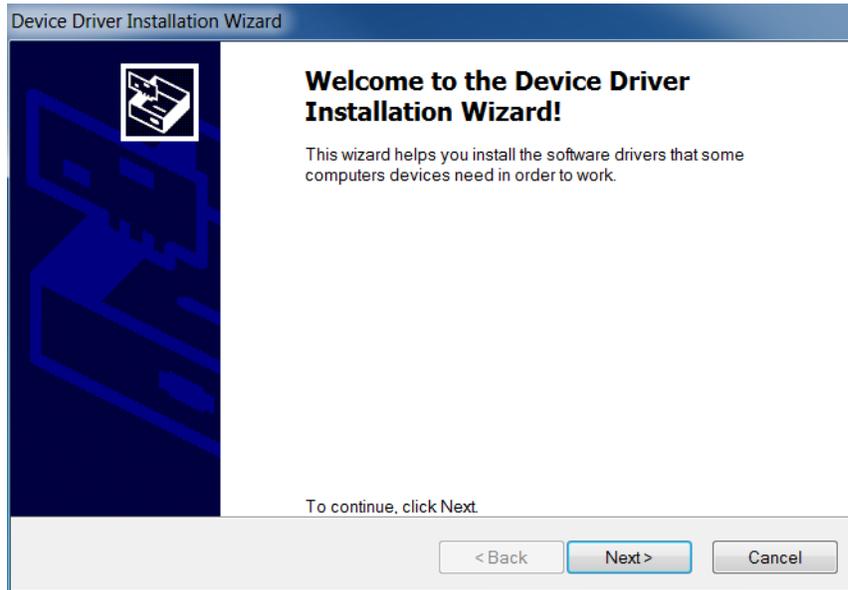
Step 6 - If the USB drivers are to be installed, you will be prompted to allow the installation of a driver from Texas Instruments. Click the **“Install”** button to continue.



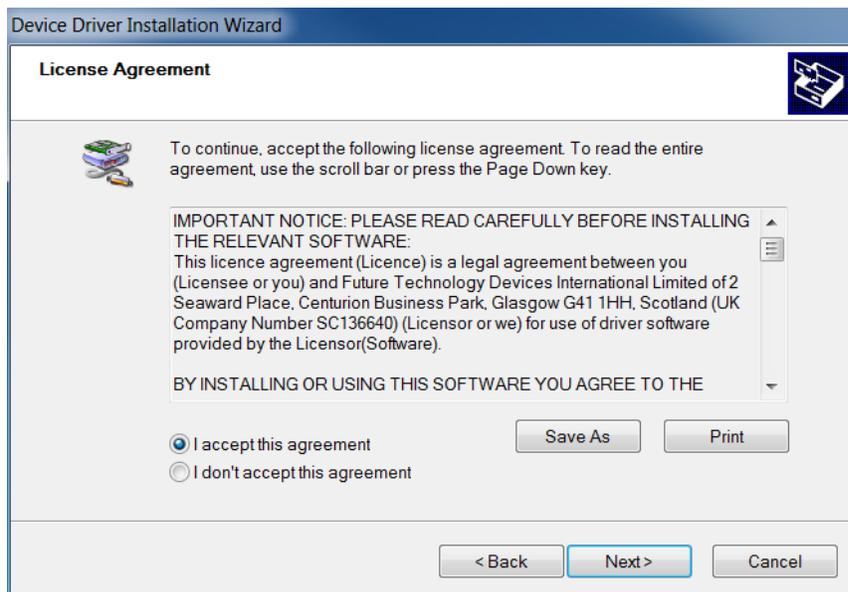
Step 7 - In addition, you will be prompted to extract and install the driver from FTDI. Click the **“Extract”** button to continue.



Step 8 - Then click the “Next” button.



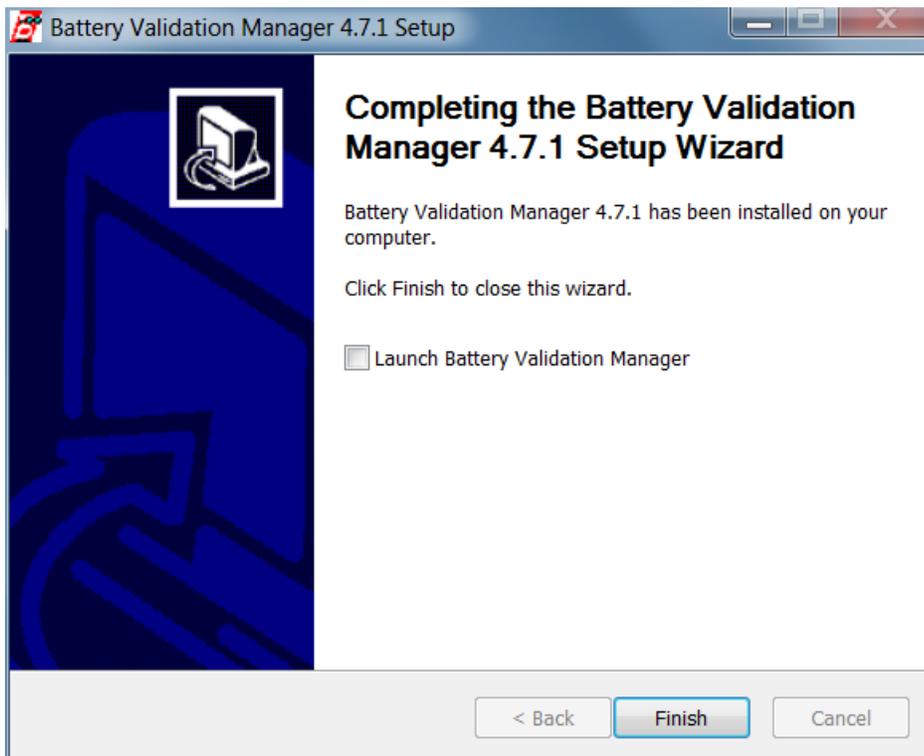
Step 9 - Select “I accept this agreement” and click the “Next” button.



Step 10 - Once the driver installation is complete, click the **“Finish”** button.



Step 11 - Once the installation is complete, click the **“Finish”** button to exit the installation. If you are loading new location files, start the BVM and insert the location data disc. If you receive any errors during the installation and you were installing the BVS Observer, please reference the [“BVM Installation Errors”](#) section to verify the Observer’s services are running.



3.3 ADDING LOCATIONS TO BVM

A “location” refers to a specific *battery system* being monitored by a BTECH controller. The BVM software delivered with the battery monitor includes a .bvm file for *each* controller in the order. These files must be transferred to the BVM application folder manually before battery monitoring can take place.



The .bvm files **MUST** be *transferred* as described in this section. They **CANNOT** be *copied and pasted*.

Starting BVM and Transferring Location Files from the CD

The BTECH-supplied CD includes one or more custom files used by the BVM software (one .bvm file for each controller being added). These files are **NOT** copied during the installation process and must be transferred to the BVM4Data folder on the computer’s hard drive using the BVM application. Each .bvm file is uniquely identified by its *serial number*.

Step 1 - Start the BVM software by doing either of the following:

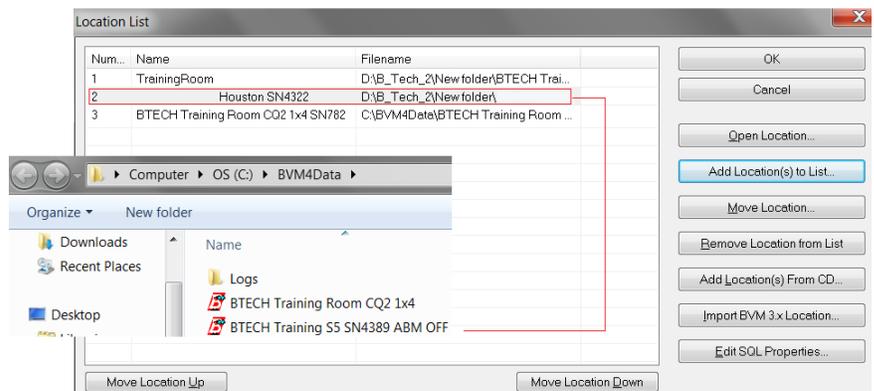
- If there is a BVM icon in the Windows Start menu  click on it,
- Open the Windows Start menu and select “All programs”. Navigate to the BTECH folder and double-click on the Battery Validation Manager 4.x entry.

Step 2 - The first time the BVM software is started, a dialog will appear asking if the user wants to add Locations. Click “**Yes**”. The Location List screen is displayed below

The Location List Screen

Step 1 - In the Location List screen click the “**Add Locations from CD**” button, a *Windows Explorer* dialog opens.

Step 2 - Navigate to the Installation CD if necessary.



Step 3 - In Explorer, select the correct .bvm file using its serial number and click “**Open**”.

Step 4 - The user returns to the *Location List* screen which is populated with the selected file. Repeat this process for each available file. Once all site files have been

added, the CD can be removed from the computer, placed in its *sleeve*, and stored in a *safe* location.

3.4 ADDING LOCATIONS TO THE BVS OBSERVER

The BVS Observer software should be installed anytime the battery monitor will be monitored 24/7 by a dedicated computer or server connected either directly, or over a TCP/IP network.

Adding Locations to Observer

The same locations added to BVM must also be added to Observer. This process is essentially identical to the process used for BVM. Observer has the same hardware and OS requirements as BVM.

Starting Observer and Adding Locations

Observer serves as data collector and automatically retrieves the latest measurements and alarms from the controller on a user-defined schedule. It also builds a battery performance database on the server or host computer. If configured for it can also distribute detailed email and/or cell phone alarm information text messages.

Observer is installed along with the BVM software in the BVM4 folder on the host computer. Like BVM, it must be correctly configured for *each location*. The first time Observer is started, locations must be added to it. To start Observer, use the following procedure.

Step 1 - Navigate to the BVM folder on the computer's hard drive,

Step 2 - Double-click the Observer icon to start the program. The "*Locations.cfg – Observer*" screen is displayed, (see below),

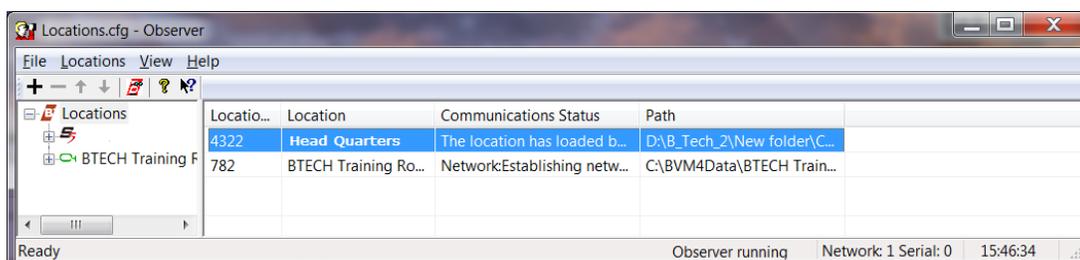
Step 3 - Click on the plus sign (+) or click "**File**" and select "**Add Location(s)**" in the menu list. A Windows Explorer screen opens,

Step 4 - Navigate to the location files to be added, and select them,



To select multiple locations in the Windows Explorer screen, hold down the Control key (Ctrl) and click on the individual locations.

Step 5 - Click "**Open**". The selected files are added in the *Locations.cfg – Observer* screen.



Activating BVS Observer

THE FOLLOWING STEP IS ONLY REQUIRED IF THE ACTIVATE BVS OBSERVER SOFTWARE DIALOG IS DISPLAYED

If the BVS Observer software validation dialog is displayed as part of the initial install process, enter the installation code printed on the CD sleeve (see below). This can occur when 10 or more locations (or controllers) are loaded into the BVS Observer.

Step 1 - Type the 16-character code printed on the CD sleeve into the four boxes shown in the *Activation* dialog. Type four characters in each box, see below.

Step 2 - Click “OK”.

Step 3 - Click “**Activate**” when the *successful installation window* is displayed.



The *Activation* dialog is displayed *only* when a location has *at least* ten (10) controllers installed.



Contact BTECH Technical Support if the Activation Code is missing or was misplaced.

3.5 ADD LOCATIONS TO THE BVS STATUS MONITOR

BVS Status Monitor is an application that provides a summary of the status of one or more battery monitor systems. The use of the Status Monitor is optional and does not affect the function of the Battery Validation Manager or Observer programs. The user can customize the display by loading a background (.png file), (ex. floor plan or overhead view), and placing the icons of the systems in the appropriate locations.

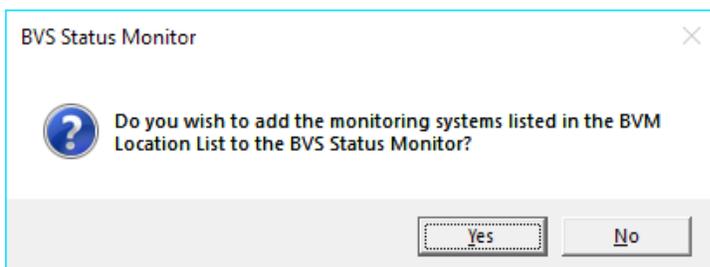
Status Monitor can be configured to scan the location files of the systems at specific intervals and send audio and visual alerts when a system alarm is present. The color of the system icon changes from **GREEN** (normal) to **YELLOW** (maintenance) or **RED** (critical). Placing the cursor over an icon causes an analysis window to be displayed. This provides a summary of the system status from the last measurement, including alert and alarm status. Double-clicking an icon launches BVM for that system.

The following steps will add location(s) to the BVS Status Monitor.

Step 1 - First, make sure that you added the BVM locations to the BVM Location List as stated in Section 3.3.

Step 2 - Launch the **BVS Status Monitor**. It can be found in your Start menu under the BTECH folder.

Step 3 - Assuming the BVM Locations have been added to the BVM Location List, you should be prompted to add the SQL locations to the BVS Status Monitor.



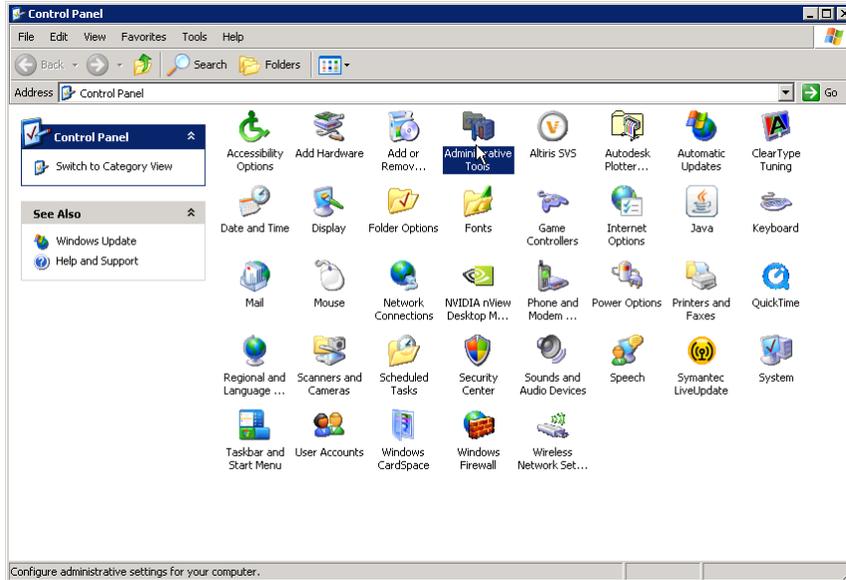
Step 4 - Click **“YES”** to add the locations from the BVM Location List to the Status Monitor.

Step 5 - If you are not prompted to add locations, or not all locations were added, you can manually add them to the BVS Status Monitor by going to **“Location”** → **“Add Location...”** Select the missing locations from the Windows Explorer pop-up and click **“OPEN”** to add them to the BVS Status Monitor.

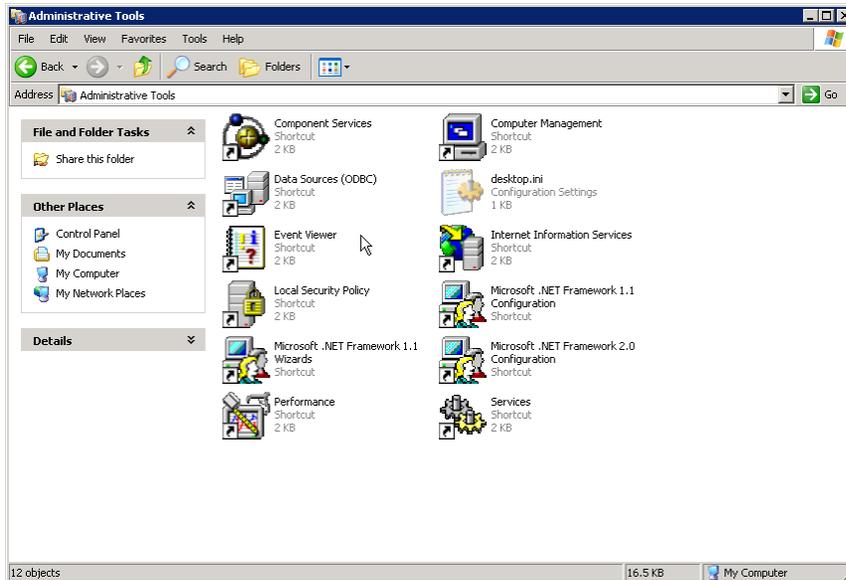
3.6 BVM INSTALLATION ERRORS

If there were any errors and the BVS Observer services were being installed, the installation program may have a problem starting one or both BVS Observer services. You should first check that the services are running by opening the Service Management Console.

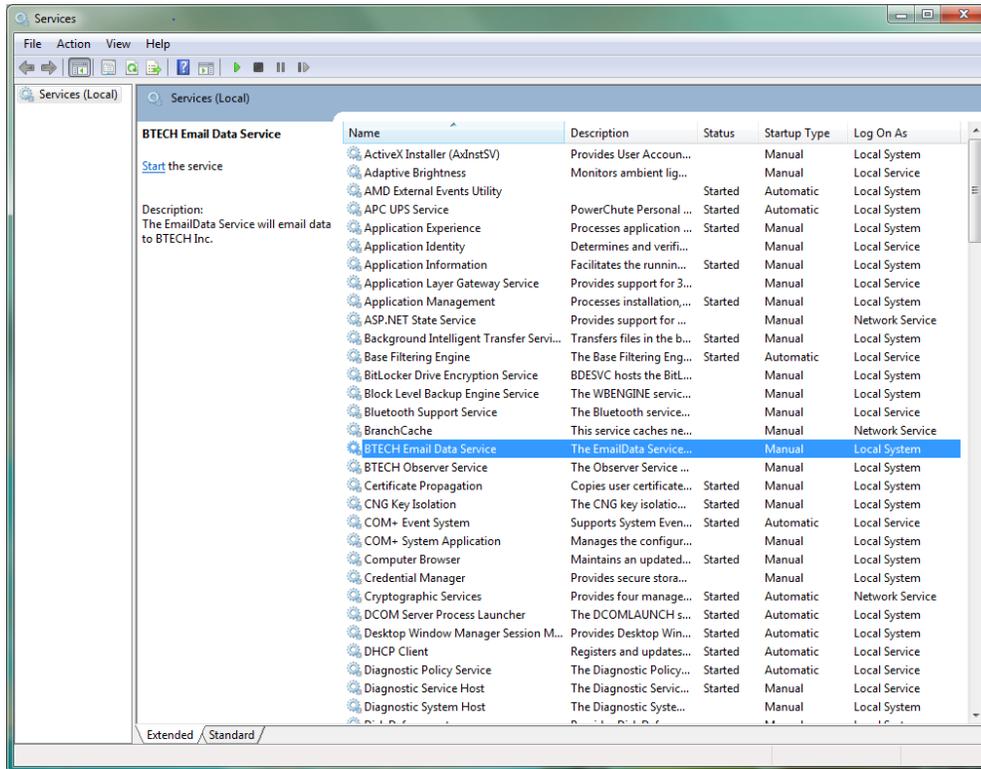
This can be done by first opening the Control Panel from the Start Menu. From the Control Panel, open Administrative Tools.



From Administrative Tools, open the Service Management Console. Check for the BTECH BVS Observer Service and the BTECH Email Data Service in the list of services.



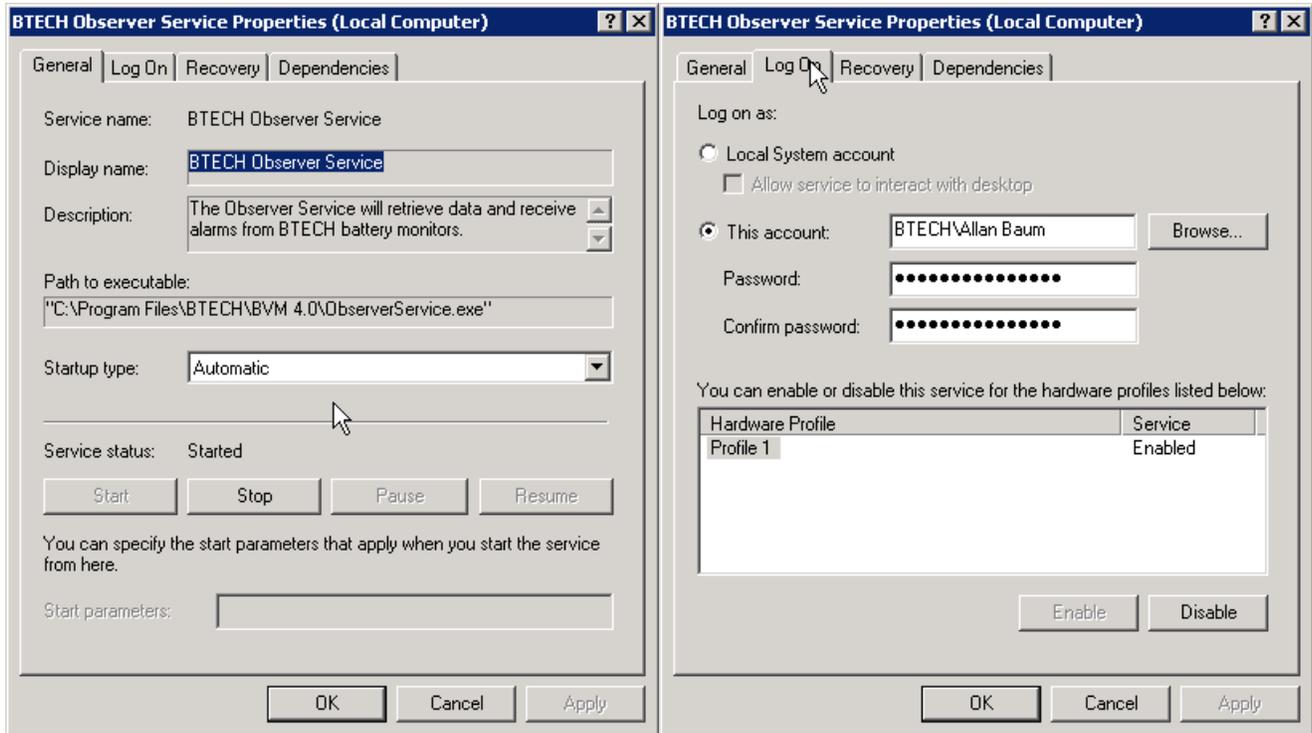
If the services are running, they will be marked as “Started” under the status column. Right-clicking on the listed service will bring up a menu where the service can be started, stopped, and restarted. If the service is not running, select the Start selection to start it.



Any errors that occur when starting a service or while a service is running will be logged in the Event Viewer under the Application log. The Event Viewer can also be found in the Administrative Tools.

Within the Service Management Console, various properties of each service can be changed in the service's Property page.

The startup type can be set as well as starting and stopping the service. The startup type should be set to Automatic to enable both BVS Observer services to start when the computer is powered up.



Under the Log On tab, the account and password of the service can be changed. Normally both BVS Observer services run under the LOCAL SYSTEM account. This allows the BVS Observer services to open location files located on the same computer. If you move the location files to a server or another machine, the logon account information will need to be changed to allow the BVS Observer services to access the server or remote machine. Enter the account and password information in the Log On tab of the BTECH BVS Observer Service. Then stop and then start the service. Repeat this with the BTECH Email Data Service.

4. Battery Validation Manager SQL Setup

4.1 OVERVIEW

For more than ten (10) locations (*or systems*), Microsoft SQL Server should be used as the back-end database for stability and speed. The free version of Microsoft SQL Server named Microsoft SQL Server Express is sufficient for most installations. Microsoft SQL Server Express installations are available on the BVM Software Installation disc in the “SQL Server Setup” folder or can be downloaded from Microsoft.



BVM is compatible with Microsoft SQL Server 2008 R2 or later.

The screenshots in this document may differ based on the version of SQL Server.

Microsoft SQL Server can be used as the backend database to store all the data and most of the settings for BVM, BVS Observer, and the BVS Status Monitor. For those who do not have access to Microsoft SQL Server, SQL Server Express can be used. Microsoft SQL Server Express is freely available and can be downloaded from their website; it is also included on the BVM Software Installation Disk. The installation of SQL Server Express (step 2 below) can be skipped if the BVM database will be installed on an existing MS SQL Server.

For the hardware and software requirements for the installation of BVM and SQL Server, see Section 2 (Hardware and Software Requirements). Also review Microsoft’s requirements for the version of SQL Server that will be installed.

The order for the installation when Microsoft SQL Server is being used should be as follows:

- 1) BVM Installation
- 2) SQL Server Installation (Express or Full)
- 3) BVM Database Setup



If the Online Battery Validation Manager (OBVM – the ASP.NET webapp which allows the data to be accessed through a web browser) will be installed and used, then SQL Server is required to be used as a backend database.

The BVM software can use either SQL Authentication or Windows Authentication to connect to the database server. Windows Authentication can be used when all machines running the BVM software, and the database are part of the same Windows domain. In cases where Windows Authentication cannot be used, SQL Authentication will need to be used.

The type of authentication, username and password will be part of the configuration of each of the software components. By default, there are two SQL logins; one is for web access and the other for BVM access. Each uses the same **Default Password of “NewP@ssw0rd!2345”**. BTECH recommends these passwords be changed to a stronger password.

If you wish to use Windows Authentication, consult with your network administrators on changing the security. SQL logins which are not used should be disabled.



For a step-by-step visual walkthrough, please refer to the how-to videos provided on the BVM Software Installation disc in the Videos folder, or on our website at www.btechinc.com.

4.2 INSTALL DATABASE SERVER (SQL SERVER EXPRESS)

The following steps will install the SQL Server database on the computer or server. Prior to installing the SQL Server database server, the computer should first be checked to see if there is an existing installation of SQL Server.

BVM can be used with an existing installation of Microsoft SQL Server 2008 R2 or later. If there is an existing installation of MS SQL Server on the computer, it can be used and SQL Server Express does not need to be installed (skip to the instructions on installing the BVM_Database).

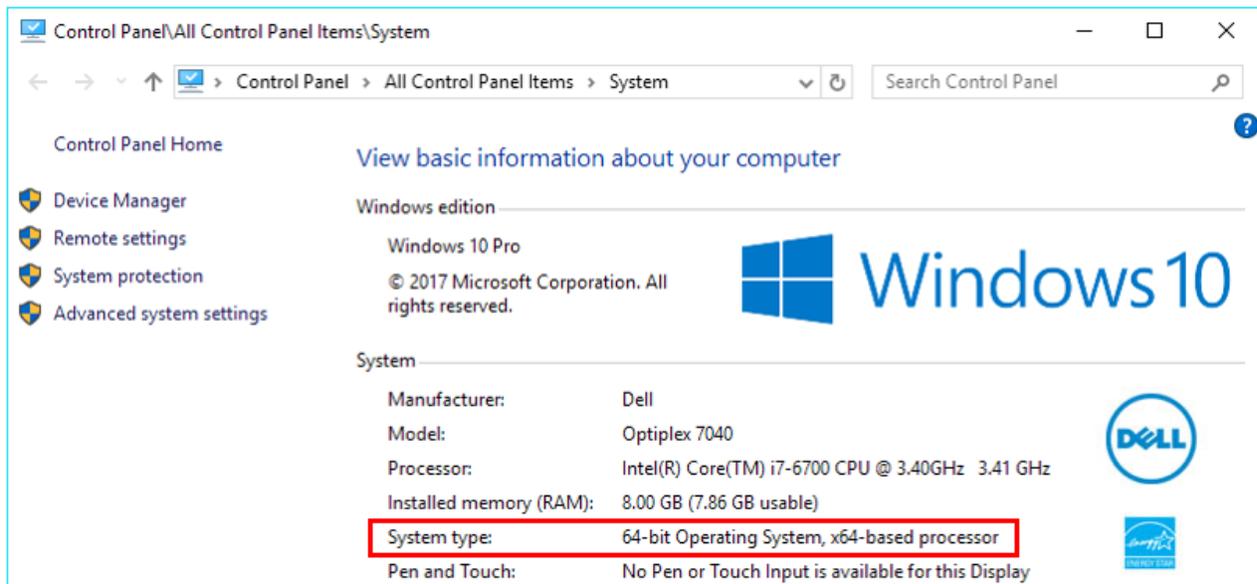
To check your computer to see if Microsoft SQL Server is already installed, open “Apps” in Settings on Windows 8/10 or “Programs and Features” in the Control Panel on Windows 7 to see if Microsoft SQL Server is already listed in the list of installed programs.



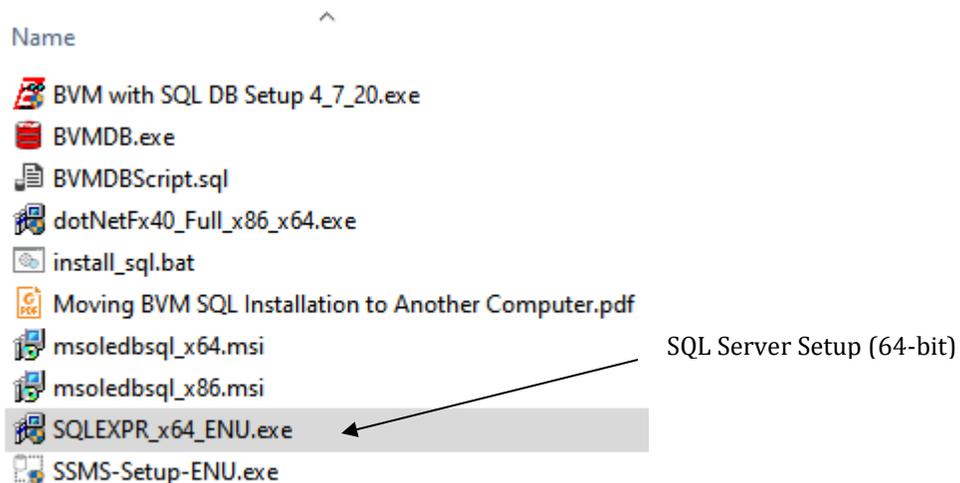
As stated in 4.1 Overview, the Battery Validation Manager should be installed prior to installing the SQL database.

Step 1 - SQL Server Express is available for download from the Microsoft website.

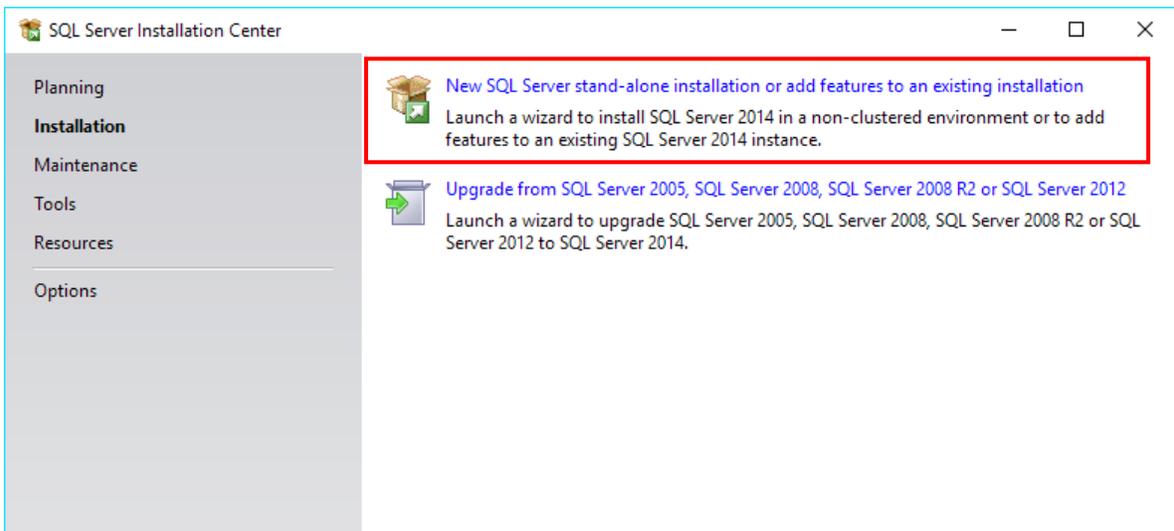
Newer versions are usually available. The Management Studio is also available and BTECH recommends that it also be installed with SQL Server Express. The installation for SQL Server Express 2019 with the SQL Server Management Tools is included on the BVM installation disk. SQL Server 2019 is only available as a 64-bit application, so the host operating system is required to be 64-bit. To check if the operating system is 64-bit, click “**Start**”, right click “**Computer**”, and click “**Properties**”. Under System Type it will specify 32-bit or 64-bit architecture.



Step 2 - To begin the installation, find the appropriate version to be installed on the BVM installation disk in the “SQL Server Setup” folder or in the folder where it was downloaded. The 64-bit version of the installation has a “_x64” in the filename. To begin the installation, double-click the correct file.



Step 3 - The installer will begin extracting and then prompt the user to acknowledge that they want to continue with the installation. After the prompt is acknowledged, the installation will continue, and the SQL Server Installation Center will appear.

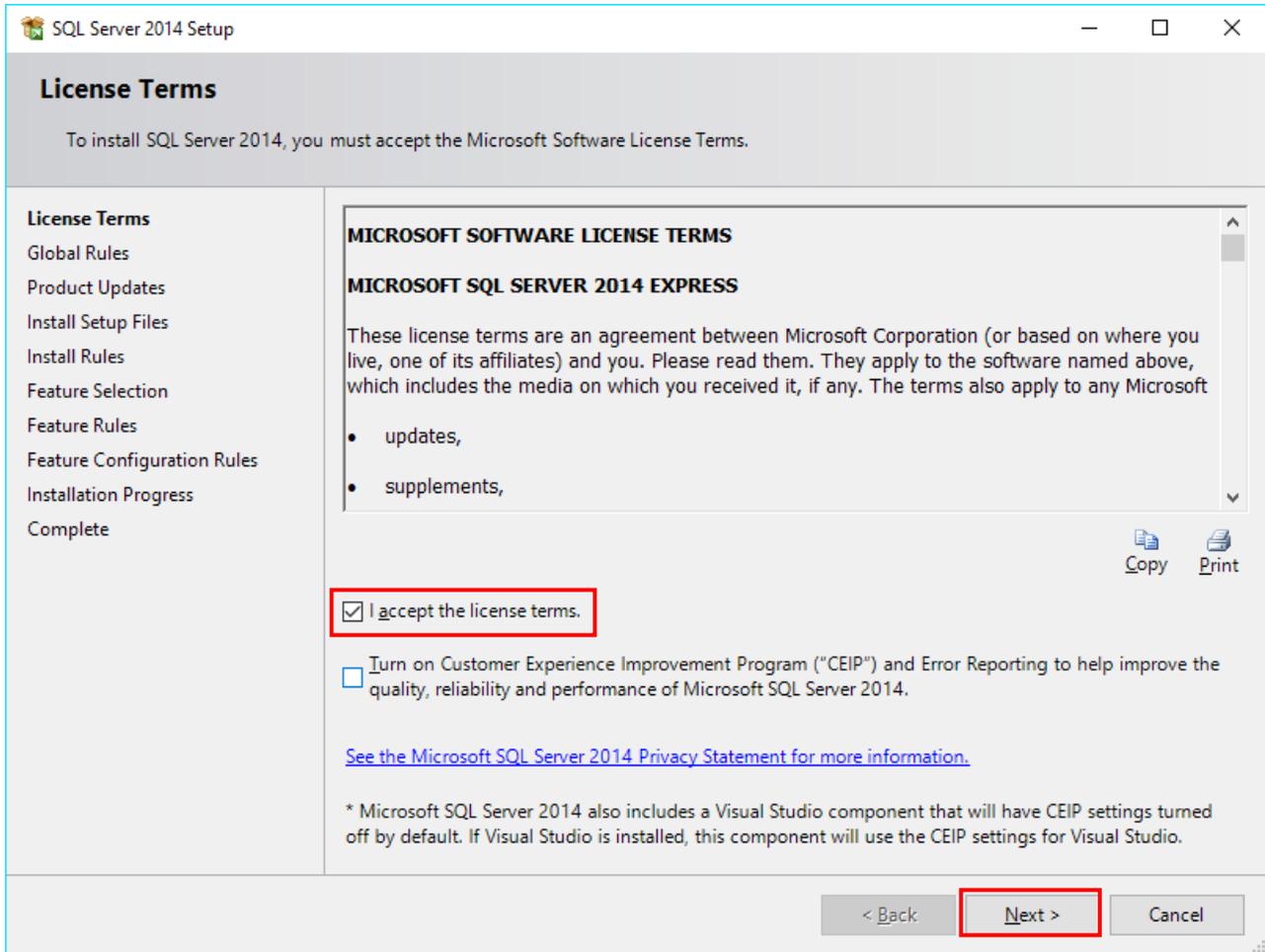


If a previous version of SQL Server existed on the computer, it can be upgraded from the Installation Center screen.

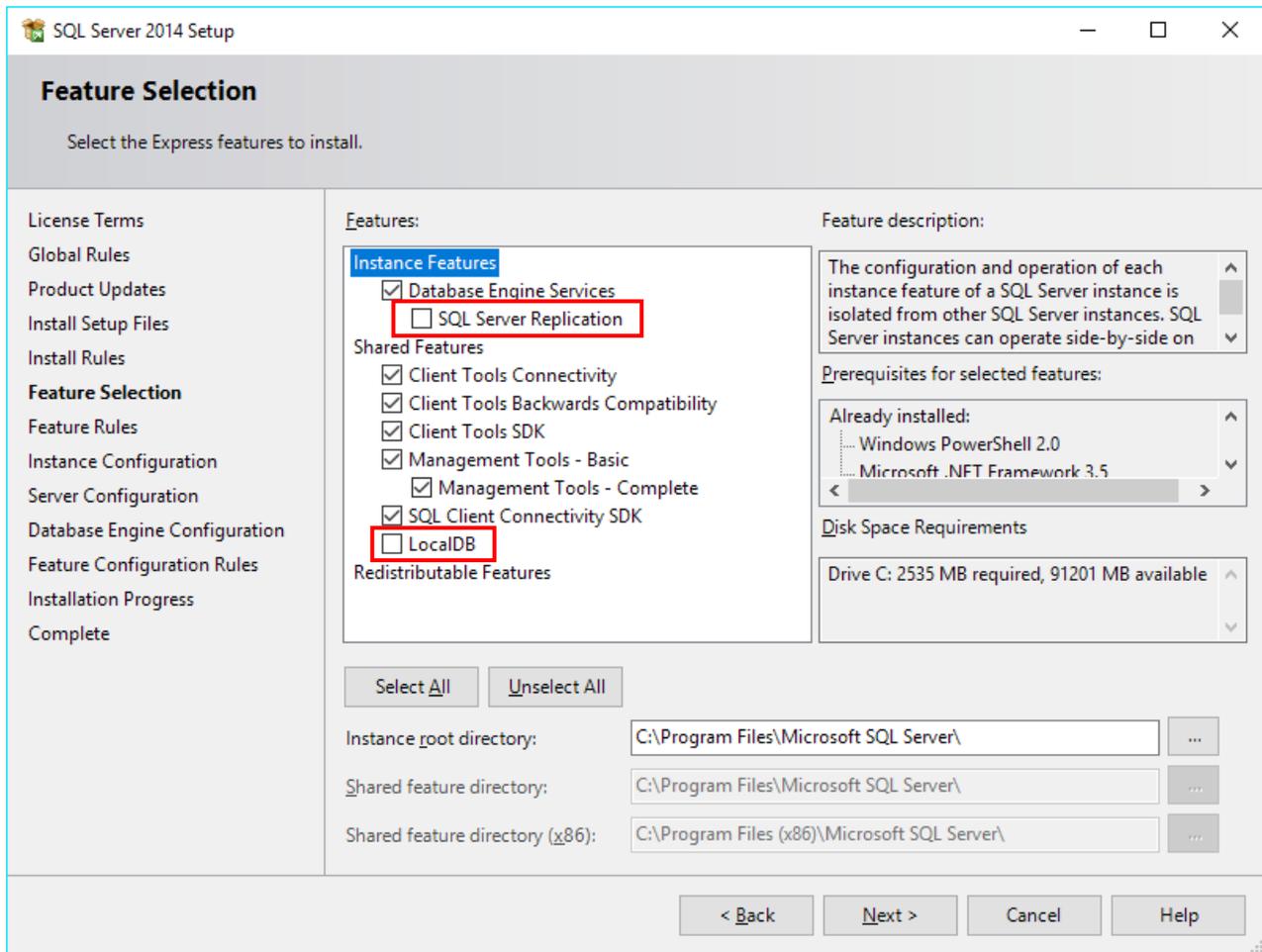
However, BTECH recommends that you first investigate what effects such an upgrade would have on other software present on the computer.

For a new installation, click on the **“New installation or add features to an existing installation”** text.

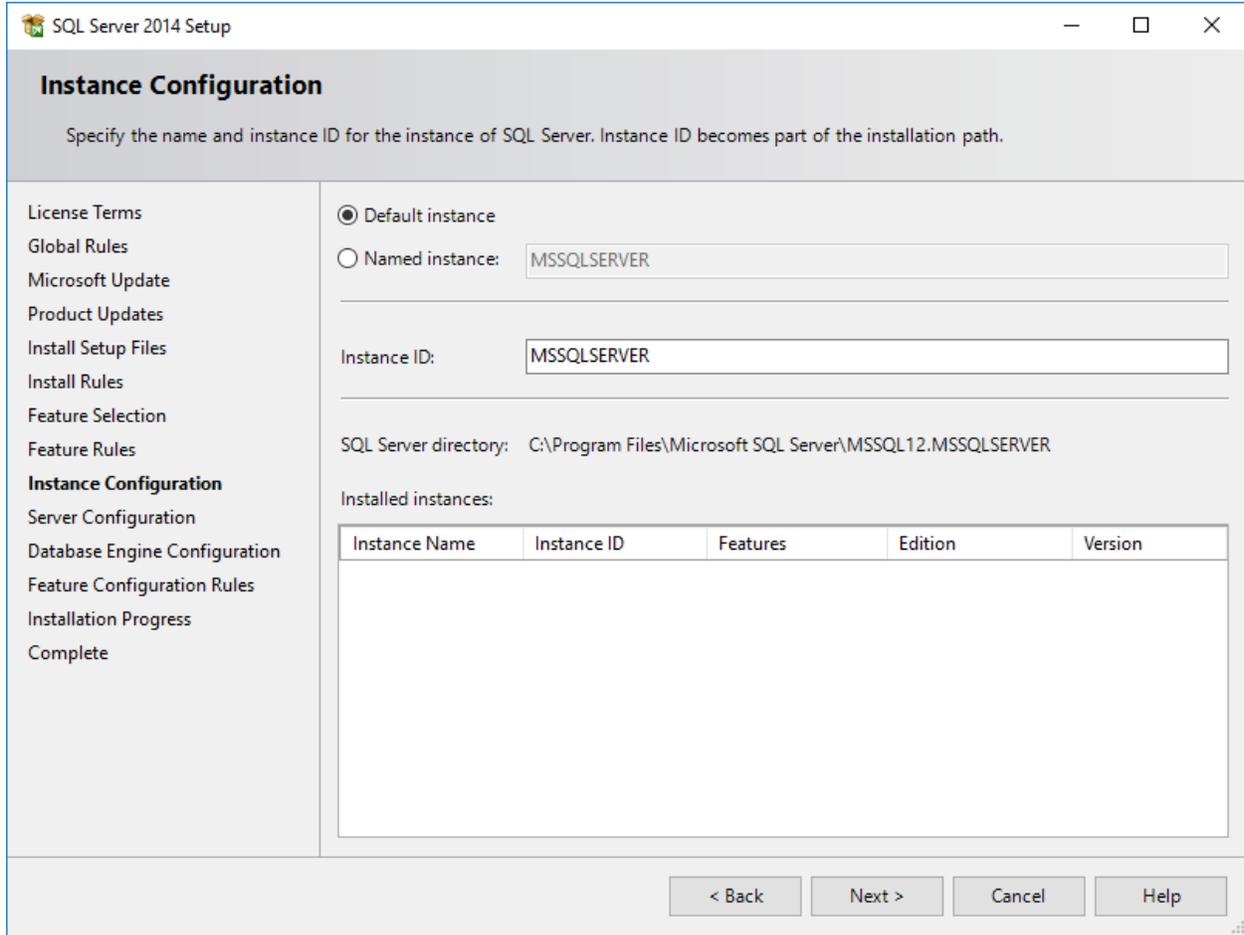
Step 4 - Once the text is clicked, the installation process will continue, and the License Terms will appear. Click the **“I accept the license terms”** checkbox and click the **“Next >”** button to continue.



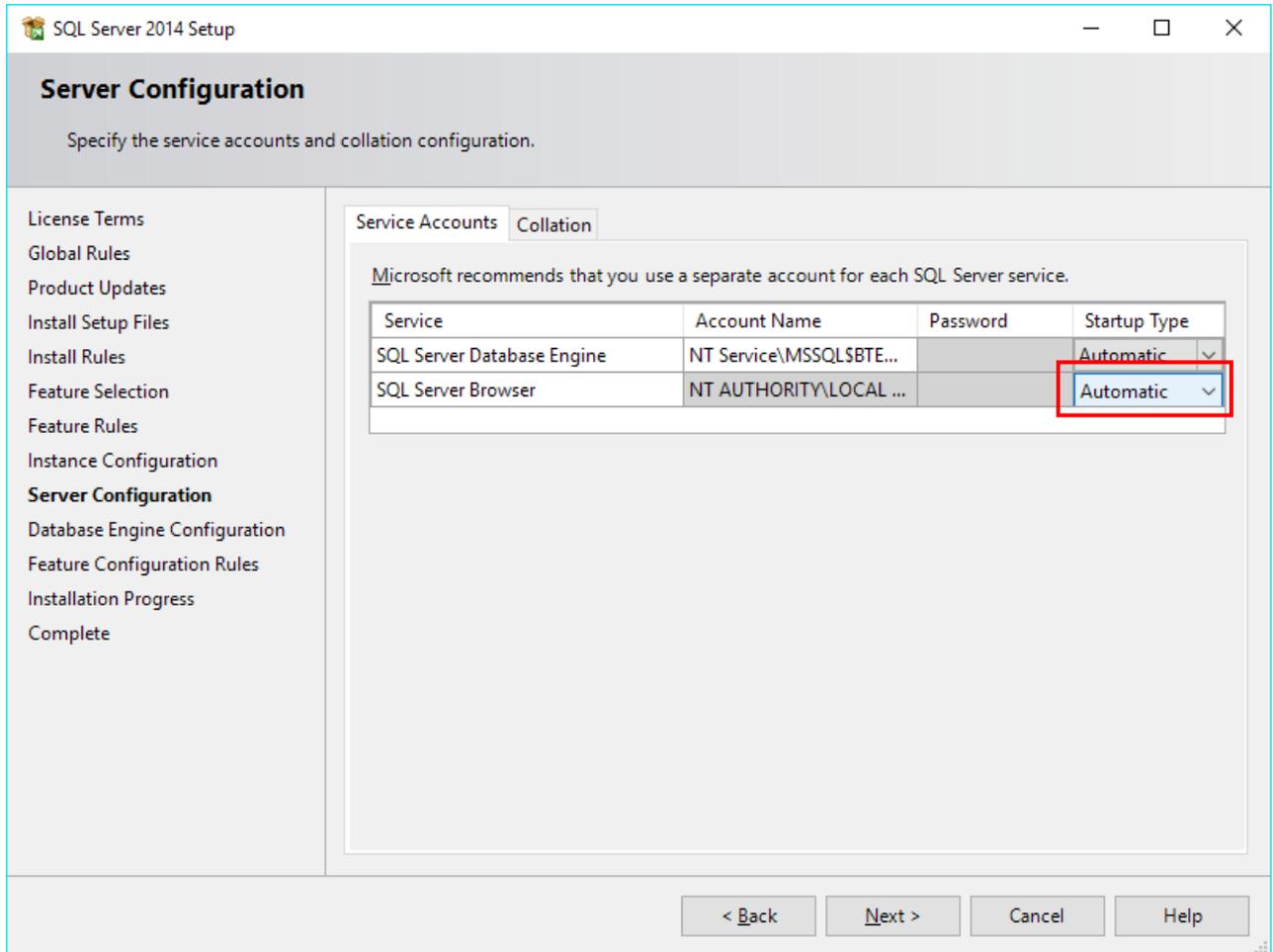
Step 5 - The installation will continue, and a window will show support files used in the installation being extracted. When this process is complete, the installation will display the Feature Selection whereby default, several features are selected. **Un-check** the “**SQL Server Replication**” and “**LocalDB**” features but make sure the “**Database Engine Services**” and the “**Management Tools – Basic**” features remain selected. Click the “**Next >**” button to continue with the installation.



Step 6 - The installation will continue, and the Instance Configuration will appear. Select **“Default Instance”**. When this instance is installed, it can be accessed in the BVM, BVS Observer, and OBVM configuration by specifying the machine’s name. Click the **“Next >”** button to continue.



Step 7 - The installation will continue, and the Server Configuration will appear. In this screen, set the Startup Type to “**Automatic**” for the SQL Server Browser service. Click the “**Next >**” button to continue.



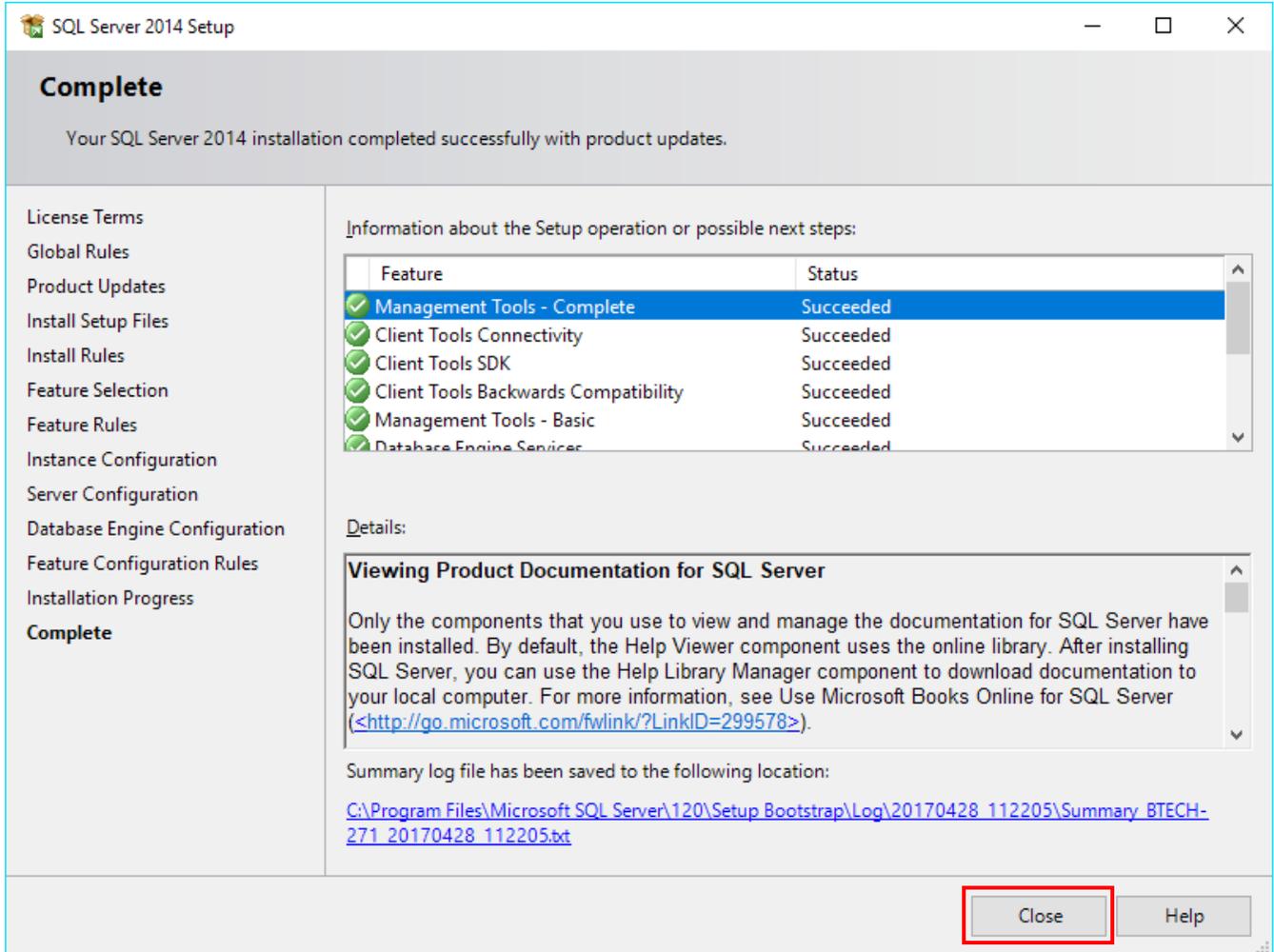
Step 8 - The Database Engine Configuration will then appear. In the Server Configuration tab, under the Authentication Mode, chose “**Mixed Mode**” and create and enter a complex password for the “sa account” (SQL Administrator) user. Make sure to record the password and keep it in a safe place.

Click the “**Next**” button to continue the installation. The installation will run for 10 to 20 minutes depending on the speed of the computer.



Note: The password needs to be a mix of upper and lower-case letters, numbers, and non-alphanumeric characters at least ten characters in length.

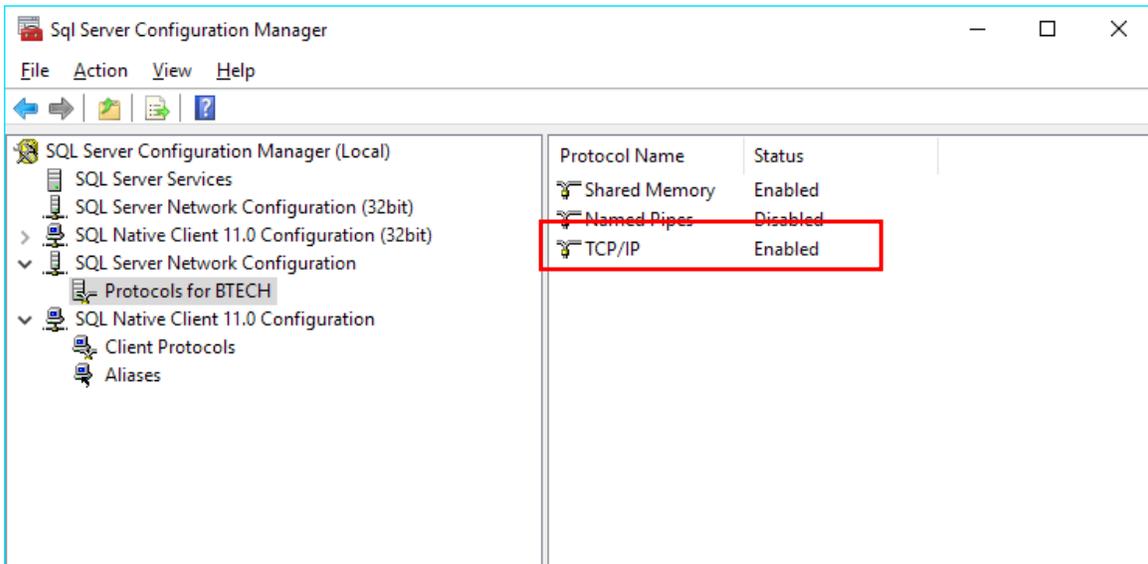
Step 9 - Once the installation is complete, the Complete window will appear. Acknowledge the window by clicking the **“Close”** button. Once the window closes, the SQL Server Installation Center screen will be visible. Close that window by clicking the **“X”** in the top right corner.



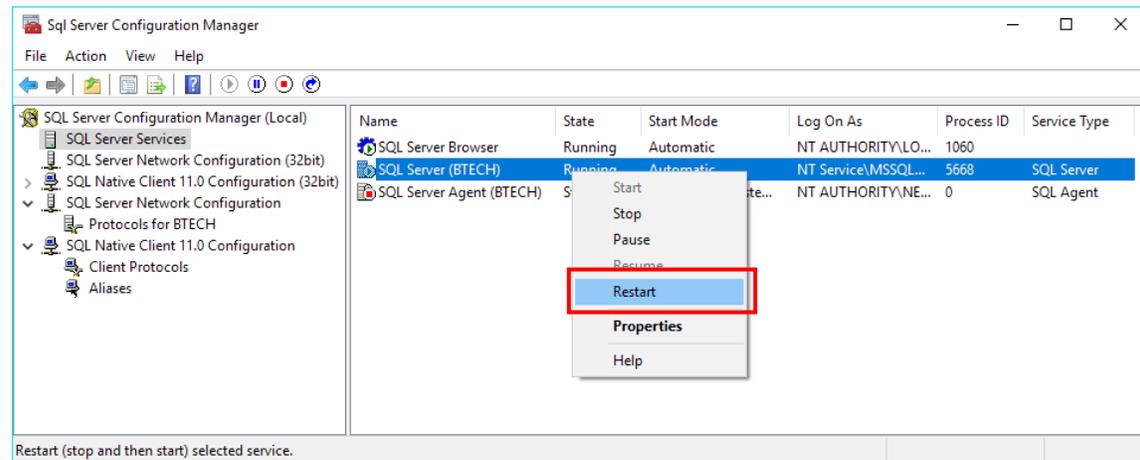
Step 10 - After finishing the SQL installation, run Windows Update to update SQL Server Express with the latest updates.

Step 11 - Once the installation and Windows Update is complete, the TCP/IP protocol will need to be enabled.

To enable TCP/IP, launch the SQL Server Configuration Manager which can be found in the Start Menu under the Microsoft SQL Server folder, and within the Configuration Tools group. Expand the **“SQL Server Network Configuration”** group to show **“Protocols for BTECH”** and select it to show the protocols on the right side of the screen. Right-click on **“TCP/IP”** and choose **“Enable.”**



Then under **“SQL Server Services”** section, right-click on **“SQL Server (BTECH)”** service and choose **“Restart.”**



4.3 CONFIGURE THE BVM DATABASE IN THE SQL DATABASE

Once the Battery Validation Manager software and the SQL database have been installed, the database needs to be configured in order for the BVM software to use it.



Note: You can manually run the “BVMDBScript.sql” setup script if you have security concerns. It can be found in the SQL Server Setup folder on the installation disk. You must modify or remove the “Name” and “Filename” parameters for the Database and Database Log files found in the script on lines 4 and 6.

Step 1 - Run the BVMDB.exe to install the BVM_Database on SQL Server. It can be found on the BVM installation disk in the “SQL Server Setup” folder or in the folder where it was downloaded.

Step 2 - Type in the address to the SQL server instance where you wish to install the BVM_Database. The SQL server can be local or remote.

BVM Database Deployment Tool v1.0.0

View About

This tool automatically deploys the BVM SQL Database necessary for measurement and alarm storage.

SQL Server
(local)

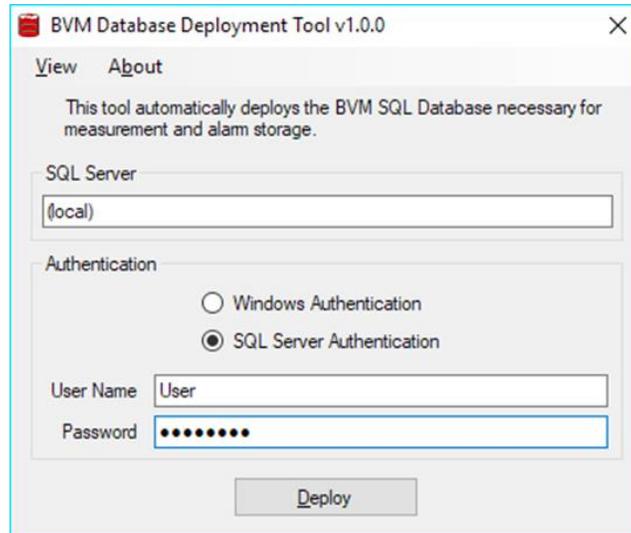
Authentication

Windows Authentication
 SQL Server Authentication

User Name
Password

Deploy

Step 3 - Specify the authentication method that you wish to use when connecting to the SQL server. If you choose “SQL Server Authentication”, you will also need to specify valid username and password credentials in order to connect.



Step 4 - Click the “**Deploy**” button to complete the installation. You will be prompted to continue. When you answer “**Yes**”, it will install the database and notify you when it is complete.

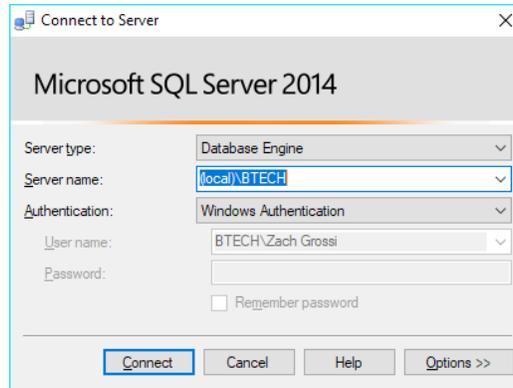
OPTIONAL - Change the SQL Authentication Login Information (Steps 5 - 9)

Step 5 - If you are using SQL Authentication, you can change the logins for the database in SQL Server Management Studio. Launch the SQL Server Management Studio from the Start Menu.



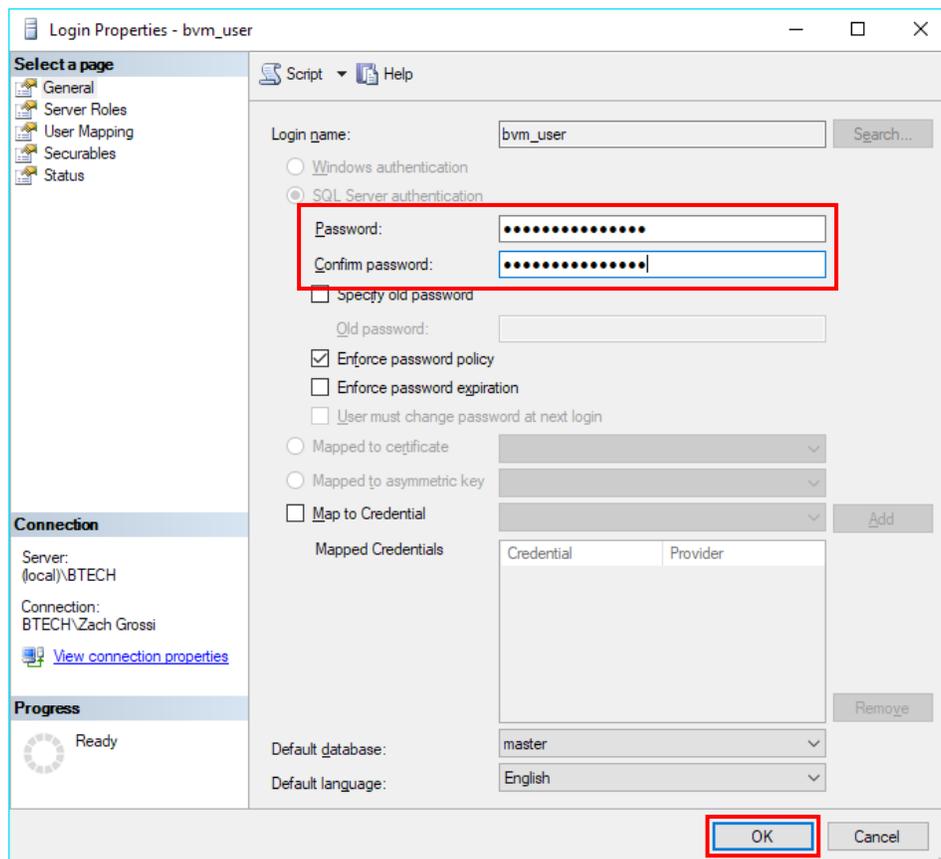
Note: Based on the version of SQL Server, the SQL Server Management Studio (SSMS) may not be installed during the SQL installation steps and it must be installed separately. **Search for “SSMS” on Microsoft’s website to download a copy of the Management Studio.**

Step 6 - Select the database server instance to connect to in Server Name. It usually will be the name of the computer or (local). If you are using a non-default instance, make sure the correct instance is specified.



Step 7 - Click “**Connect**” to continue. Navigate the tree on the left of the screen (“Object Explorer”) to the logins by first expanding the SQL Server, expand the Security folder, and then expand the Logins folder.

Step 8 - Right-click on the “bvm_user” login and select properties. Enter the new password in the Password field, confirm it by entering it into the Confirm Password field, and then click the “**OK**” button to continue. The password is required to be eight characters long and contain at least one upper case, one lower case, and one numeric character. Repeat this process for the “bvmweb_user” login. {Default Password: “NewP@ssw0rd!2345”}



Note: It is recommended to Unselect the “Enforce Password policy” checkbox if allowed by your IT administrator.

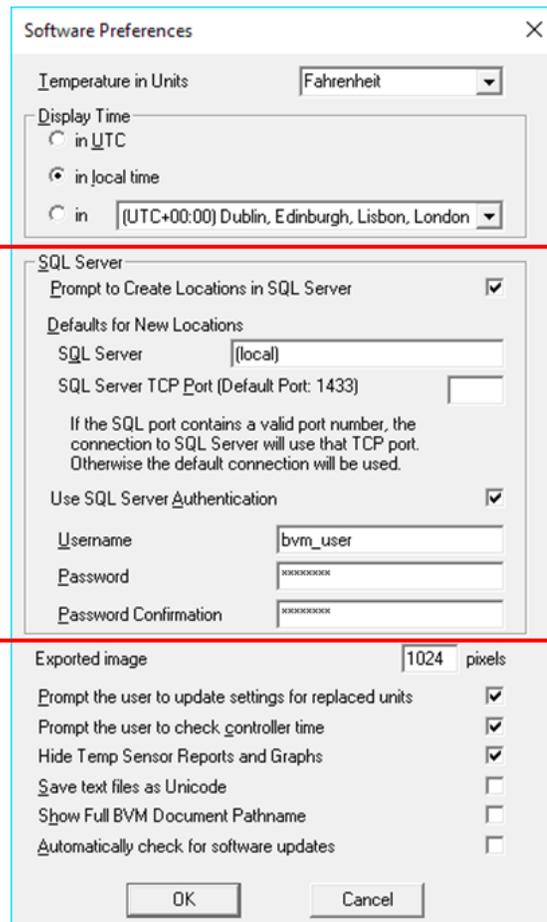
Step 9 - Close or minimize the SQL Server Management Studio.

4.4 INTEGRATE THE BVM SOFTWARE WITH A SQL DATABASE

If the Battery Validation Software has not been installed previously, follow the standard instructions on installing the BVM software to install the BVM, BVS Observer, and the BVS Status Monitor. Once the BVM software installation is complete, continue by configuring the software.

If you are using SQL Authentication to connect to SQL Server, both the BVM and BVS Observer need to be configured to use SQL Authentication.

Step 1 - Launch the BVM software and open “**Preferences**” under the “**Settings**” menu.



Step 2 - Enable BVM to load locations into the BVM Database on SQL Server by checking the “**Prompt to Create Locations in SQL Server**” checkbox.

Step 3 - Enter the name of the SQL Server instance in the “SQL Server” field. If the BVM Database is installed on the current machine, the SQL Server should be “(local)” as shown above. If the BVM Database is on a remote machine, the SQL Server should be the network hostname of the machine hosting the SQL Server.

If the SQL server was set up to use SQL Authentication:

Step 4 - Enable SQL Server Authentication by placing a check in the associated checkbox.

Step 5 - The Username field should contain “bvm_user”. Enter the password in the two Password fields. If you have changed the password, use the new password; otherwise, enter the default password of “NewP@ssw0rd!2345”.

Step 6 - Click “**OK**” and close BVM.

Step 7 - Launch the BVS Observer and select the Observer Settings from the File menu.

The screenshot shows the "Observer Settings" dialog box with the "SQL Settings" tab selected. A red box highlights the "Use SQL Server authentication" checkbox (checked), the "Username" field (containing "bvm_user"), the "Password" field (masked with dots), and the "Password Confirmation" field (masked with dots). Below this, there is a checkbox for "The Observer will backup the SQL BVM database" (checked) and a "Backup SQL" button. At the bottom of the dialog are "OK", "Cancel", and "Help" buttons.

Step 8 - Go to the "SQL Settings" tab.

Step 9 - "Enable SQL Server Authentication" by placing a check in the associated checkbox.

Step 10 - The Username field should contain "bvm_user". Enter the password in the Password and Password Confirmation fields. If you have changed the password, use the new password; otherwise enter the default password of: "NewP@ssw0rd!2345".

Step 11 - Click "OK" and close the BVS Observer.

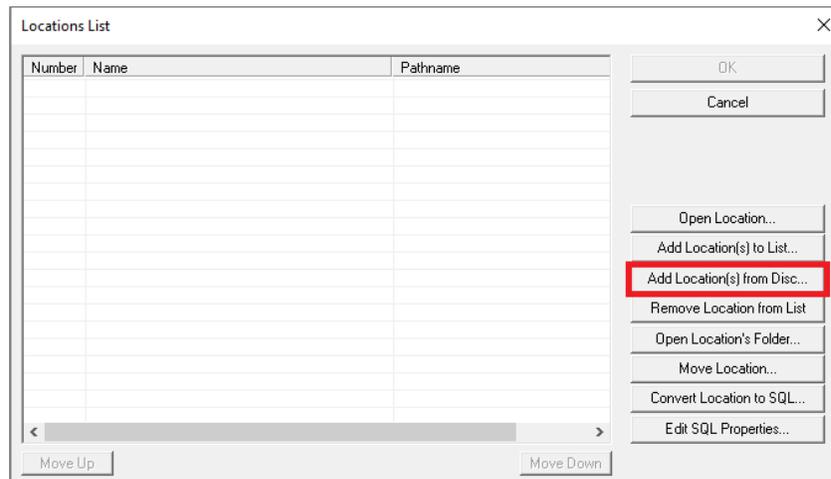
4.5 ADDING LOCATIONS TO SQL FROM BVM DATA DISK

The BTECH-supplied CD includes one or more custom files used by the BVM software (one .bvm file for each system being added). These files are NOT copied during the installation process and must be transferred to the BVM4Data folder on the computer's hard drive using the BVM application.

Step 1 - Configure BVM to work with SQL, following the instructions listed in Section 4.4 "Integrate the BVM Software with a SQL Database" in the preceding section.

Step 2 - Insert the disk labeled "BVM Location Data Disk" into the computer and open the Battery Validation Manager software.

Step 3 - In the Locations List dialog box (*shown below*) click "**Add Location(s) from Disk**". Windows Explorer will open and display the .bvm files on the BVM Data CD.



Step 4 - Select all the appropriate .bvm files and click "**OK**".



Note: You can select a group of files by clicking on the first file, holding down the **SHIFT** key, and then select the last file in the group. You can also select multiple individual files by holding down the **CTRL** key, and then select all of the individual files.

Step 5 - A window will appear asking if you would like to load the BVM data into SQL, click "**Yes**".

Step 6 - Once all site files have been added, the CD can be removed from the computer, placed in its sleeve, and stored in a safe location. All of the Location files will now have their data kept in the SQL database.



Important Note: The BVM Location List and BVM Database are separate entities. Adding/removing entries on the location list does not alter the data stored in the SQL Database unless otherwise specified (as in Step 3 above).

4.6 TRANSFERRING BVM LOCATIONS TO SQL FROM EXISTING MICROSOFT ACCESS DATABASES

BVM installations consisting of fewer than 10 systems will generally use Microsoft Access as a database. **However, if the number of locations exceeds 10 systems, the data MUST be converted into a SQL database.** The conversion process is described below. These steps are only necessary if the existing Microsoft Access database(s) include battery data that needs to be migrated into SQL.



BVM is compatible with Microsoft SQL Server 2008 R2 or later.



Note: During the conversion process, existing MS Access database files are backed up to a separate sub-directory. They can be recovered using the Windows backup/recovery functionality and then opened in MS Access.

To migrate existing BVM databases into the SQL server, the process should be as follows:

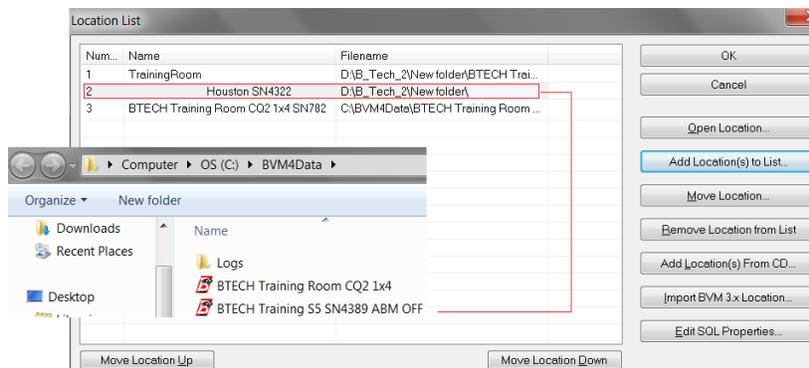
- 1) Remove the BVM Locations from the Battery Validation Manager
- 2) Remove Locations from the BVS Status Monitor
- 3) Remove the Locations from the BVS Observer
- 4) Add the BVM Locations into the SQL server.
- 5) Configure the BVM Suite in an SQL Environment.

Removing Location(s) from the Battery Validation Manager



Note: The steps in this section are only necessary to be performed when there is an existing BVM / BVS Observer installation with BVM Locations in the Location list.

Step 1 - Start BVM and navigate to the Locations List screen.



Step 2 - Select all of the current locations and click **“Remove Location from List”** and click **“OK”**. All of the locations are removed from the Location List screen.

NOTE: Each location must be selected and removed individually.

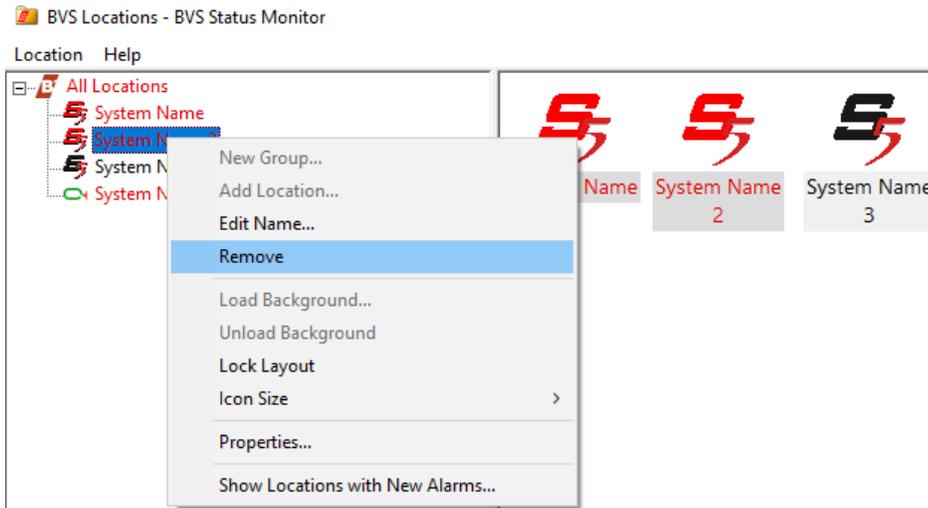
Remove Location(s) from the Status Monitor

Step 1 - Open the BVS Status Monitor. “Start Menu” -> “Programs” -> “BTECH” -> “BVS Status Monitor 4.#”



Step 2 - Highlight the location to remove by Left-Clicking one time. This can be done either in the tree menu on the left, or in the location map on the right.

Step 3 - Right-Click the Location and select the “**Remove**” option from the list.



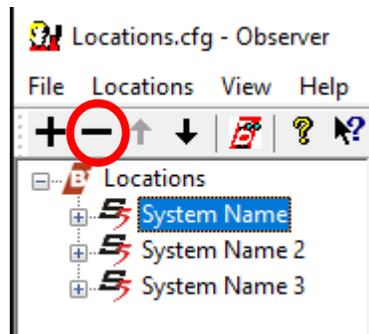
Step 4 - Repeat Step 2 & Step 3 for each location in the status monitor until all the locations have been removed.

Remove Locations from the BVS Observer

Step 1 - Open the BVS Observer. “Start Menu” -> “Programs” -> “BTECH” -> “Observer 4.#”



Step 2 - Highlight the location to remove by selecting it in the location tree on the left.



Step 3 - With the location highlighted, click on the minus sign in the tool bar. (*Circled in red in the preceding screenshot.*)

Step 4 - Repeat these steps until all of the locations have been removed from the Observer location list.

Adding BVM Location(s) into the SQL Server Database

Step 1 - Configure BVM to work with SQL, following the instructions listed in section 4.4 “Integrate the BVM Software with a SQL Database”

Step 2 - In the Locations List screen click “**Add Location(s) to List**”. Windows Explorer opens and displays the .bvm files in the computer’s BVM4Data directory.

Step 3 - Select all the appropriate .bvm files.



Note: You can select a group of files by clicking on the first file, holding down the **SHIFT** key, and then select the last file in the group. You can also select multiple individual files by holding down the **CTRL** key, and then select all of the individual files.

Step 4 - A popup will display asking if you would like to load the BVM data into SQL, click “**Yes**”.

All the Location files’ data will be copied into the SQL database.



Important Note: The BVM Location List and BVM Database are separate entities. Adding/removing entries on the location list does not alter the data stored in the SQL Database unless otherwise specified (as in Step 3 above).

Configure the BVM Suite in an SQL Environment

The BVM, BVS Observer, and the Status Monitor are compatible with an SQL database once the steps above to convert MS Access files to SQL have been performed. Note that the steps below must be performed separately for each application.

The BVM and Status Monitor's (but not the BVS Observer's) location lists are user-dependent, so adding the converted SQL BVM files to the location list will need to be performed for each user. (This does not mean that the files need to be converted to SQL again, just that the files must be added to the location lists for each user.)

Step 1 - Start the BVM, BVS Observer or Status Monitor. If the BVM Home screen is displayed, close it.

Step 2 - In the blank BVM screen, open the Location List screen by selecting **"File"** then **"Open"** in the menu bar or clicking the File icon  in the icon bar.

Step 3 - If you have already removed the old BVM location files from the Location List(s) as directed in the above section **"Removing Locations from BVM, Observer, and Status Monitor"**, skip down to **Step 6**.

Step 4 - Select each of the current locations and click **"Remove Locations from List"**. Click **"OK"**. All the locations are removed from the Location List screen. NOTE: Each location must be selected and removed individually.

Step 5 - Close and re-open the program and navigate to the Location List screen.

Step 6 - Click **"Add Locations to List(s)"**.

Step 7 - Windows Explorer opens and displays the .bvm files on the computer's hard drive.

Step 8 - Select all of the appropriate .bvm files (with the **"_SQL"** suffix) and click **"OK"**.



If the BVM files being added do NOT have the **_SQL** suffix, then those locations have **NOT** been added to SQL yet. Follow the steps above, under the **"Adding Locations to SQL"** heading, to convert them to SQL first and then follow the steps from this section.

These files, utilizing SQL, have now been added to the program.

4.7 SQL CLIENT WORKSTATION SETUP

Configuring BVM Software Suite for Remote SQL Access

Once MS SQL Server and BVS Observer have been installed and configured on a computer/server/virtual machine and locations have been added to the SQL database, client workstations can be set up to interact with the server so long as they have network access. Make sure that the SQL Server and client workstation(s) allow SQL communication through the machines' firewalls and network security. This document will walk you through the installation and configuration of BVM on these client workstations. If you have not already setup the SQL Server and BVS Observer, please follow the preceding instructions.

Install BVM on Client Workstation

Step 1 - Start by installing BVM on the client workstation. This can be done by following the instructions for installing the BVM software in Section 3.2 "BVM Installation Steps"

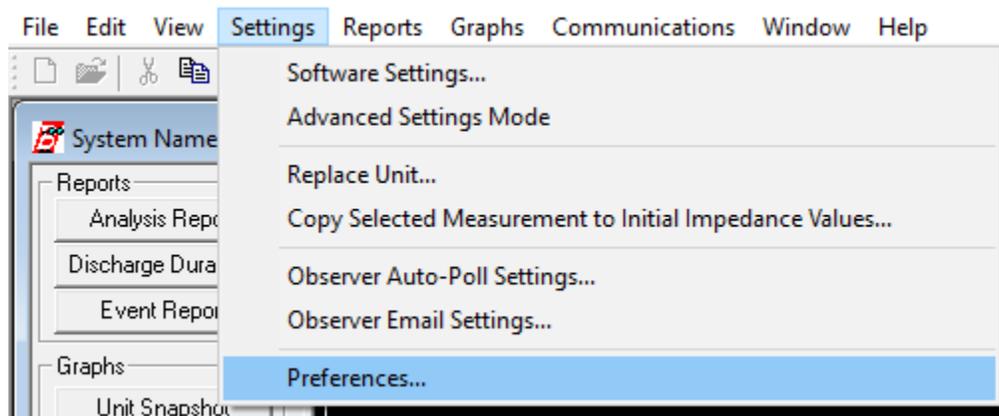


NOTE: It is very important that you do NOT install BVS Observer on client workstations.

Configure BVM to Access the SQL Database

Once the BVM software installation is complete, continue by configuring the software.

Step 2 - Launch the Battery Validation Manager Software and open the software Preferences window by Clicking on "**Settings**" in the menu bar and then "**Preferences.**"



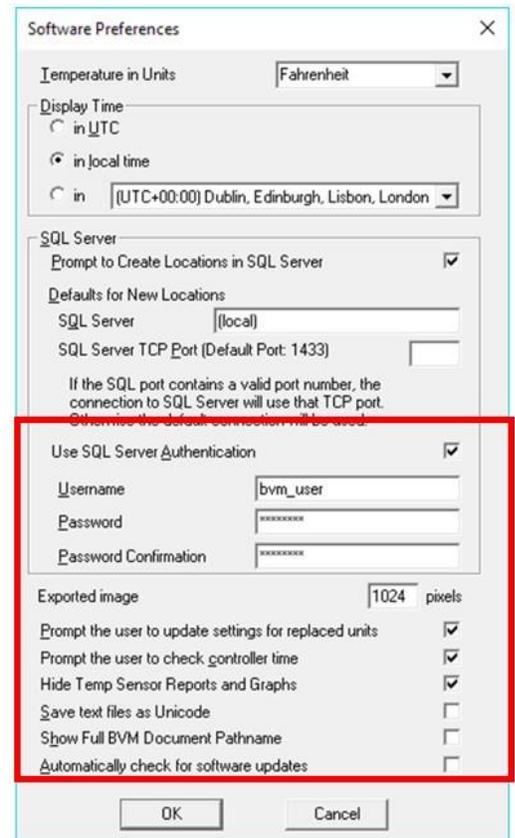
Step 3 - Enable BVM to communicate with the SQL Server by checking the “**Prompt to Create Locations in SQL Server**” checkbox.

Step 4 - Enter the name of the SQL Server instance in the **SQL Server** field. Since the BVM Database is installed and configured on a remote machine, the SQL Server should be set to the name of the machine with SQL Server installed or its associated IP address.

Step 5 - If using SQL Server Authentication to login to the remote SQL Server, enable “**SQL Server Authentication**” by placing a check in the associated checkbox. Enter “bvm_user” into the **Username** field and enter the password into the two **Password** fields. If you have changed the password during SQL server setup and configuration, use the new password; otherwise enter the default password of “NewP@ssw0rd!2345”.

Step 6 - If using Windows Authentication, the associated checkbox should be unchecked. This will also require that the SQL Server’s domain user(s)/group(s) under **BVM_Database** be given the same SQL roles and permissions as the “bvm_user” user account. You can manage these user(s)/group(s) in SQL Server Manager under **Databases → BVM_Database → Security → Users**.

Step 7 - Click “**OK**” to save the changes and close BVM.



Creating BVM Location files from the SQL Database

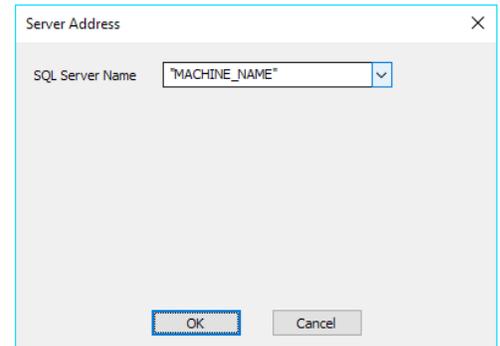
Now that BVM has been installed and configured to communicate with the SQL Server, the .bvm location files need to be created using the information within the SQL database. These files are necessary for accessing the BVM location data for each system.

Step 1 - Launch the **Create SQL BVM Files** program. It can be found in your Start menu within the BTECH folder.



Step 2 - In the SQL Server field, enter the SQL Server Machine Name or the associated IP address.

If you have trouble trying to connect to the SQL Server, you can click the “...” button next to the SQL Server field. This will bring up the SQL Server browser window. By clicking the dropdown arrow, the program will scan the network trying to find SQL Servers. Select the appropriate SQL Server and click “**OK**”.



Step 3 - In the Destination Folder field, enter the path to the directory that you would like to export SQL BVM files into. You can also click the “...” button to bring up a Windows Explorer dialog to choose the directory. It is highly recommended that you use the default directory of “C:\BVM4Data\”.

Step 4 - Click “**OK**” and wait for a short period of time while the data is extracted from the SQL database. Verify that the destination directory now contains the SQL BVM files. The file names will end with “_SQL” when the BVM file is associated with a SQL Database.



Add Locations to the BVM Location List

Now that the SQL BVM files have been created, they need to be added in the BVM Location List (and, optionally, the BVS Status Monitor as well).

Step 1 - Open the Battery Validation Manager (BVM) software. BVM can be found in the Start Menu under the BTECH folder.

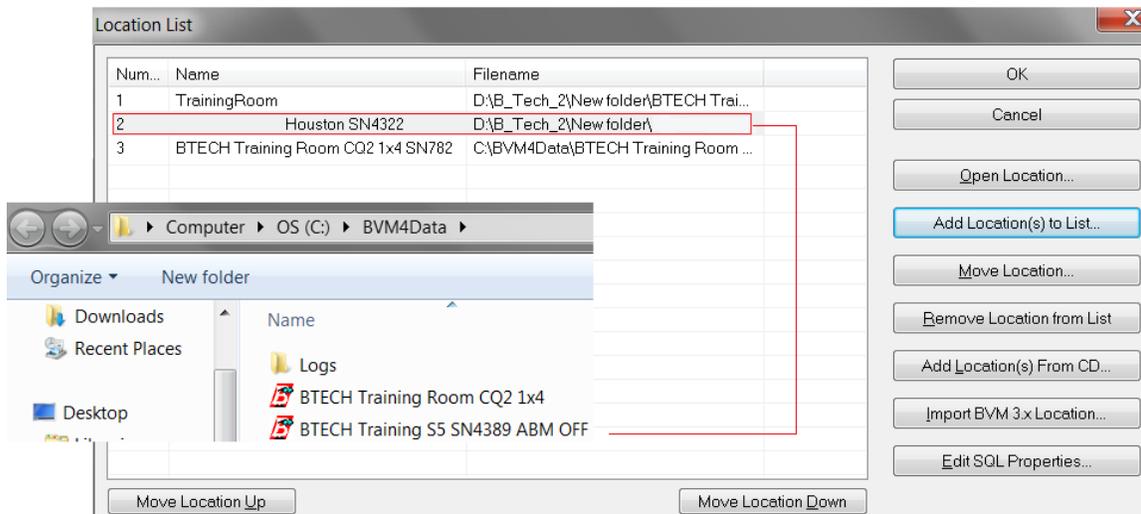
Step 2 - In the Locations List screen click **“Add Location(s) to List”**. Windows Explorer opens and displays the .bvm files in the computer’s BVM4Data directory.

Step 3 - Select all the appropriate SQL .bvm files (the files that were just created in the previous section and now have **“_SQL”** at the end of the file name) and click **“OK”**.

Step 4 - The battery data can now be accessed by clicking on the location name in the Location List and clicking **“OK”**.



Note: The BVM Location List and BVM Database are separate entities. Adding/removing entries on the location list does not alter the data stored in the SQL Database.



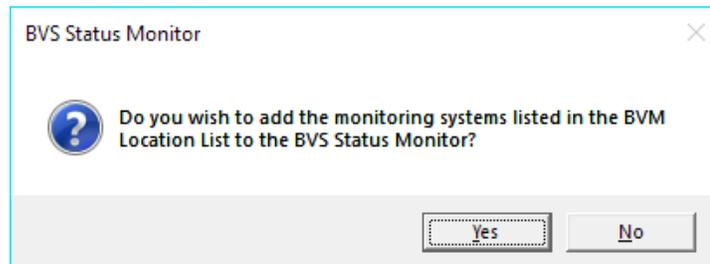
Add Locations to the BVS Status Monitor *(Optional)*

If you would like to use the BVS Status Monitor on client workstation(s):

Step 1 - First, make sure that you have followed Steps 1 – 4 above to add the SQL locations to the BVM Location List.

Step 2 - Launch the **BVS Status Monitor**. It can be found in your Start menu under the BTECH folder.

Step 3 - As long as you have BVM Locations added to the BVM Location List, you should be prompted to add the SQL locations to the BVS Status Monitor.



Step 4 - Click **“YES”** to add the locations from the BVM Location List to the Status Monitor.

Step 5 - If you are not prompted to add locations, or not all locations were added, you can manually add them to the BVS Status Monitor by going to **“Location”** → **“Add Location...”** Select the missing locations from the Windows Explorer pop-up and click **“OPEN”** to add them to the BVS Status Monitor.

5. Battery Validation Manager Security

5.1 OVERVIEW

The Battery Validation Manager (BVM) is a suite of software which works with BTECH's battery monitors (Battery Validation System [BVS]) to retrieve, archive, analyze, and interpret battery measurement data to determine the battery system's health. Each piece of software in the suite runs under Windows. The BVM software development is controlled by BTECH's ISO 9001:2016 quality management system which implements a secure development lifecycle.

This section provides recommendations for securing the BVM software.

Recommended Reading:

- BVM Configurations Setup Guide
- S5 BVM Software & System Operating Manual

The BVM software suite includes several useful utilities in addition to the following most commonly used software applications:

- Battery Validation Manager
- BVS Observer
- BVS Status Monitor

Battery Validation Manager

- Enables users to analyze and interpret all measurement data by providing a graphical analysis of performance along with accompanying reports.
- Serves as the direct link to the controller to retrieve data and events, clear data and events, modify system settings, or enter the system's diagnostic mode.
- Serves as a real-time discharge data logger by enabling users to view real-time voltage and current information during a discharge or discharge test.

BVS Observer

- Runs unattended as a Windows Service without any user interaction (except for initial configuration).
- Only one instance of this software should be running simultaneously (preferably on a server or dedicated workstation).

- Automatically retrieves and stores the latest battery data from multiple battery monitors on a regular configurable basis.
- Distributes analysis and events via email.

BVS Status Monitor

- Graphically displays multiple systems' status using color coded icons, providing the user a summary view of the site's battery monitors.
- Direct access to the BVM software allows the user to "drill-down" into each battery monitor.
- Mouse "hover-over" access to summary information for each battery monitor.
- Provides the user with an audible and visible alert when new events are received.

5.2 DATABASE

The BVM software suite requires a database management system to store the battery monitor's data. The BVM software can use either Microsoft Access or Microsoft SQL Server.

Microsoft Access

By default, the BVM software utilizes a Microsoft Access database. (Microsoft Access itself is not required.) Each battery system monitored by a BVS has a separate database. The software stores all the information related to one battery system along with battery measurement data and events in its own database. With each battery monitor purchased, BTECH ships the pre-configured database in Microsoft Access (".mdb" file extension). The maximum number of battery systems using an Access database that can be loaded into the BVS Observer is ten (10).

Microsoft SQL Server

For more than ten (10) battery systems, Microsoft SQL Server must be used as the back-end database due to stability and speed. It can also be used if there are less than ten battery systems. Using Microsoft SQL Server provides better performance, stability, and security. The free version of Microsoft SQL Server named Microsoft SQL Server Express is sufficient for most installations. If a Microsoft SQL Server installation is already available, it can also be used.

5.3 FILES

By default, the BVM software stores associated files in C:\BVM4Data. It is recommended the permissions to the folder and its contents be changed to limit access to only those personnel allowed to access the BVM software. Each battery system monitor has a few files associated with it which allow the BVM software to access the battery system data:

- **.bvm File** - Key file used by BVM to connect to the database and access battery system settings and data. The file only contains the location name and information for the software to know how to find the battery monitoring system data.
- **.mdb File** - Microsoft Access database file - Used if the data and settings are stored in Access. If a battery system's data and settings are migrated to SQL from Access, the .bvm and .mdb file will be moved to a Backup folder. This can eventually be deleted.
- **.set File** - This file is supplied by BTECH and contains the initial controller configuration based on manufacturer specifications. Users can override the file content or create new .set files as needed. It is particularly relevant to backing up and restoring the controller configuration.



The .bvm and .mdb files **MUST** have matching serial numbers and identical file names, and **MUST** be located in the same directory.

5.4 SECURITY FEATURES

- All software within the Battery Validation Manager suite is digitally signed by a Digital Certificate.
- The BVM software is shipped with available security options enabled, thus mitigating configuration related security risks.
- All passwords used in the BVM software should be of adequate length and include upper- and lower-case letters as well as numbers. This includes user authentication as well as the SQL Server login password.
- The information stored within the database includes battery measurement data, system settings, user settings and limit setpoints associated with the battery monitoring system. Since the database management system controls access to the data, the security of the data and settings is dependent on the database management system being used.
 - Although the Microsoft Access database is password protected, the security in Microsoft Access is very rudimentary and can easily be defeated. For securing BVM data, BTECH does not recommend using Microsoft Access.
 - Microsoft SQL Server should be used if security is a concern. Access to the data can be controlled through either Windows AD authentication and / or the built-in security. SQL Server also has the ability to encrypt the data in transit and on

the disk. Both of these functions are under the control of the database administrator and not controlled by the BVM software. A certificate from an Active Directory Certificate Authority is needed to secure the communications to the database server. See the Microsoft documentation for more details on how to implement these security measures. The documentation is titled *Enable encrypted connections to the Database Engine* (<https://docs.microsoft.com/en-us/sql/database-engine/configure-windows/enable-encrypted-connections-to-the-database-engine?view=sql-server-ver15>) and *Transparent Data Encryption* on the Microsoft website (<https://docs.microsoft.com/en-us/sql/relational-databases/security/encryption/transparent-data-encryption?view=sql-server-ver15>).

5.5 BVM SECURITY

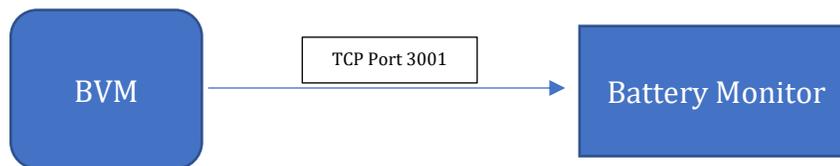
User Security

Access to each battery system's data from BVM can be controlled with a name, password, and permission level. There are three permission levels which can be assigned to each user:

- **Technician** - The technician level limits the user to viewing data. Technicians are prohibited from deleting data in the software or the controller, clearing alarms on the controller, and from making changes to the settings of the software or the controller. This means they cannot reset alarms, clear discharge data, retrieve from or load initial impedance measurements into the controller.
- **Supervisor** - The supervisor level allows the user access to everything except they cannot use the Manage Users function to add, change, or delete users.
- **Administrator** - The administrator level has no limitations and has full access to all aspects and features of the software. The first user added, and last user removed must be an administrator.

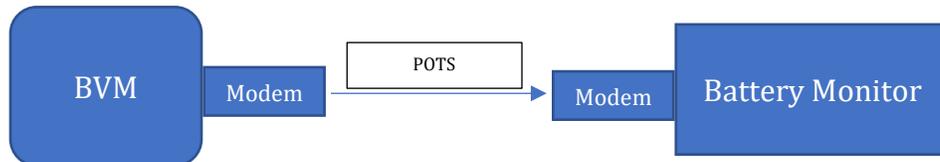
Network Communication to Battery Monitor Controller

- All network communication is outbound from the software, therefore the BVM application does not require any open ports. The destination TCP port for communications from the BVM on the battery monitor controller is 3001.
- The network connection to the battery monitor controllers is not encrypted. The network communication between the BVM and the battery monitor controller should be within a protected network and not transit the Internet. If the network communication needs to transit the Internet, it should be protected by using a VPN.



Phone Communications to Battery Monitor Controller

- All phone communication is outbound from the BVM application.
- The public phone network is not secure, therefore communications to any battery monitor controller using the public phone network cannot be considered secure.



5.6 BVS STATUS MONITOR SECURITY

The BVS Status Monitor cannot and does not allow any changes to settings of a battery monitoring controller or the data and settings of that site's data. It only allows the viewing of events and a global summary analysis of data.

Users can start the BVM application for a specific battery monitor controller from within the BVS Status Monitor. Once BVM opens the selected system, the user security for that site will be enforced.

5.7 OBSERVER SECURITY

The Observer consists of two components:

Observer Application

The Observer application executes under the security context of the currently logged on user. This application allows the user to add and/or remove battery monitor controllers from the location list that are monitored by the Observer Service. The Observer application does not use the BVM user authentication profiles; therefore, any user can modify the location list, adjust the auto-poll settings, and change the email settings. The Observer application must be located on the same machine as the Observer Service.

Observer Service

Executes as a Windows Service called "BTECH Observer Service". The service is configured by default to run under the Local Service identity. If the Observer Service needs network access to access remote network resources, the "Log On As" setting can be changed to the Network Service identity. Or another user can be created and the "Log On As" setting changed to that user.

Security

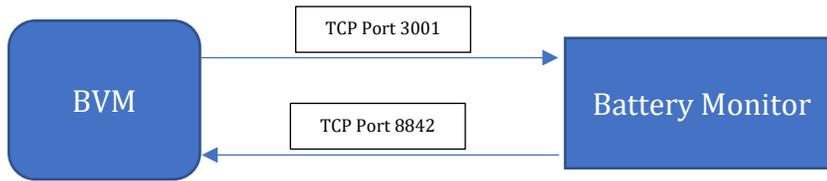
The global Observer settings and list of locations is saved in the "Locations.cfg" file stored in the BVM4Data folder. Security can be increased by modifying the ACLs on the BVM4Data folder to limit access to allowed users.

The machine on which the Observer is installed should preferably be a server or VM which is running continuously. User interaction with the Observer should be limited to administrators or facility managers.

Network Communication to Battery Monitor Controller

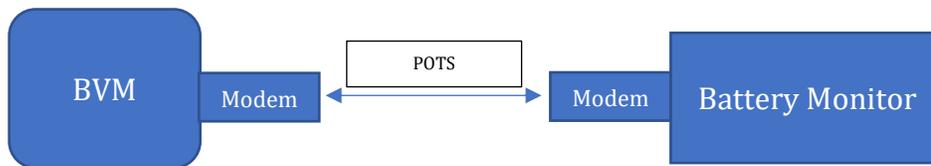
- All polling consists of outbound network communication from the Observer Service. The destination TCP port on the battery monitor controller is 3001.
- The network connection to the battery monitor controllers is not encrypted. The TCP port for incoming network communication to the Observer Service can be set in the Observer application but defaults to 8842. The network communication between the BVM and the battery monitor controller should be within a protected network and not transit the Internet. If the network communication needs to transit the Internet it should be protected by using a VPN.
- Events are received from battery monitoring controllers through an open TCP port (default 8842). The firewall on the Windows machine hosting the Observer should have its network firewall enabled. The BVM installation software creates an exception in the Windows firewall for the Observer Service. It is recommended this be modified to limit the attack surface. This can be done by limiting the source IP range to the subnet

containing the battery monitoring controllers or even to the IP addresses assigned to the battery monitors themselves.

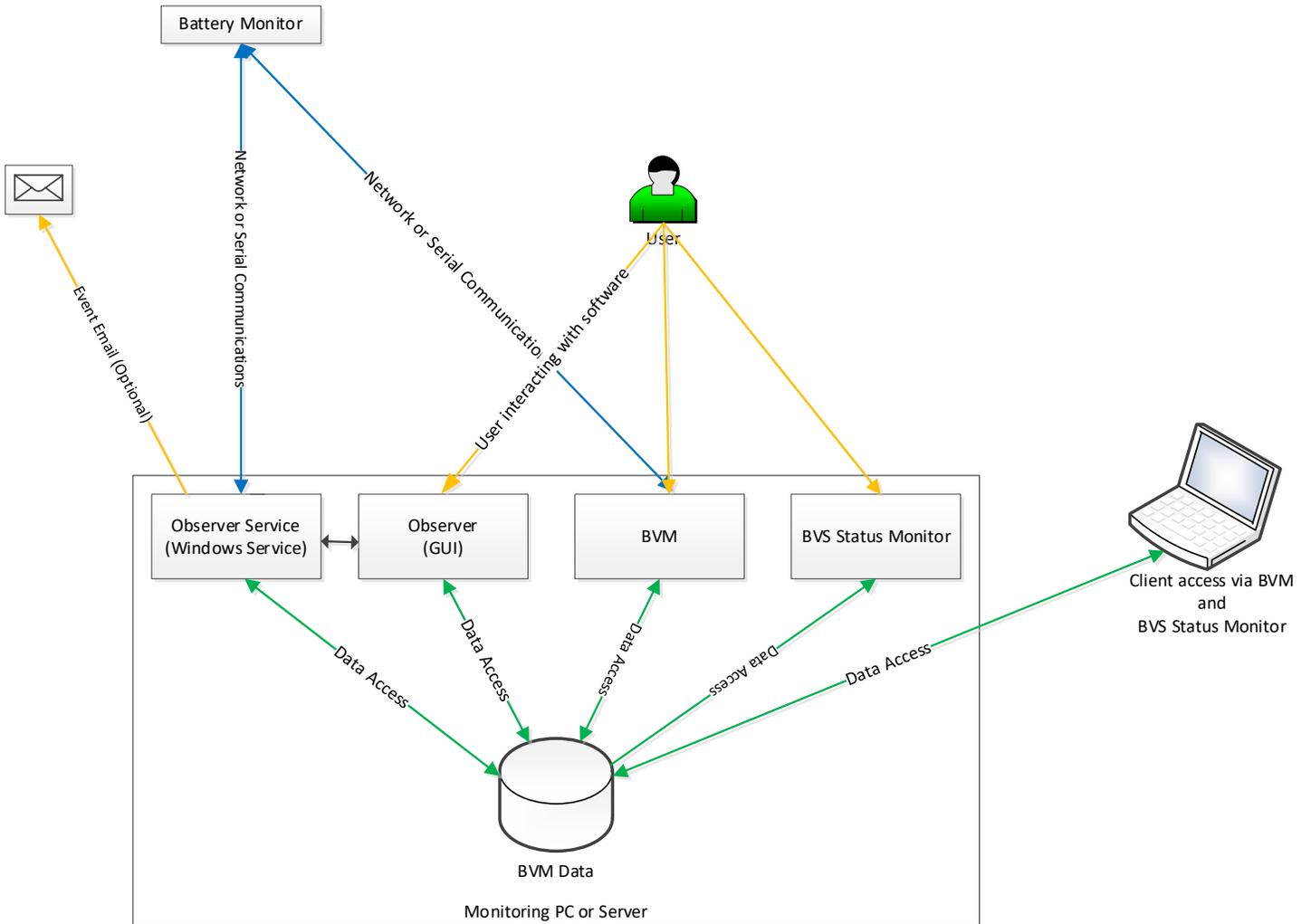


Phone Communication to Battery Monitor Controller

- All polling to battery monitors via phone modem is out bound.
- Events are received from battery monitoring controllers via a phone modem.
- The public phone network is not secure so communications to any systems using the public phone network cannot be considered secure.
- BTECH no longer ships phone modems in the controller of the battery monitor unless that option is specifically selected.



5.8 BVM SOFTWARE DATAFLOW DIAGRAM



5.9 UPDATES

BTECH regularly releases updates for the BVM software. These updates fix bugs, improve security, and add features. Updates can be found at <http://www.btechinc.com/software-downloads>. To contact BTECH with any questions or comments (including security related), you can email techsupport@btechinc.com or call 973-983-1120.