

**Bed Management Solution (BMS)
WEBB*2*25**

Technical Manual



March 2022

BMS v2.11

Department of Veterans Affairs

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Revision History

Date	Revision	Description	Author
3/2022	2.11	Updated for Inflow's EIS database replacement	Liberty IT Solutions
	2.9	Updated for Inflow's EVS database replacement	Liberty IT Solutions
5/1/2021	2.8	Updated for replacement of Inflow's AUTHZ database	Liberty IT Solutions
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06/12/2013	0.1	Initial baseline.	Redacted

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1. Introduction

1.1. Purpose

This document is designed to provide sufficient technical information about the Bed Management Solution (BMS) application to the developers and Information Resources Management (IRM) technical personnel to operate and maintain the software.

1.2. BMS Overview

BMS is a real-time, user-friendly Web-based Veterans Health Information Systems and Technology Architecture (VistA) interface for tracking patient movement, bed status and bed availability. It provides performance information that can be used to improve patient flow within, and between, VA Medical Centers (VAMCs).

BMS allows administrative and clinical staff to record, manage and report on the planning, patient- movement, patient occupancy, and other activities related to management of beds. All patient admission, discharge, and transfer movements are sent directly from VistA to BMS.

BMS offers the following features:

- Tracks patient movement through the system;
- Displays patient and bed occupancy status for all beds in the facility and/or Veterans Integrated Service Networks (VISN);
- Provides visibility of bed availability within VAMC's to support emergency management;
- Automates request and assignment of beds;
- Displays and facilitates timely discharge appointments;
- Supports and facilitates efficient flow operations and is a catalyst to process improvement and best practices;
- Provides reports on performance measures associated with bed management and patient flow. BMS provides answers to the following questions:
 - How many beds do we have?
 - How many empty beds do we have?
 - How many available female beds do we have?
 - How many beds are out of service and why?
 - How long does it take to clean a bed?
 - How many patients are waiting for beds in community hospitals?

- How many admissions, transfers, and discharges did my unit have yesterday?
- How many discharges will we have tomorrow?
- How many scheduled admissions do we have for today?

1.3. References

Requirements Specification Document (CLIN: 0002AA; title: Requirements Specification Document; file: Init8_BMS_RSD)

System Design Document; file: BMS_SDD)

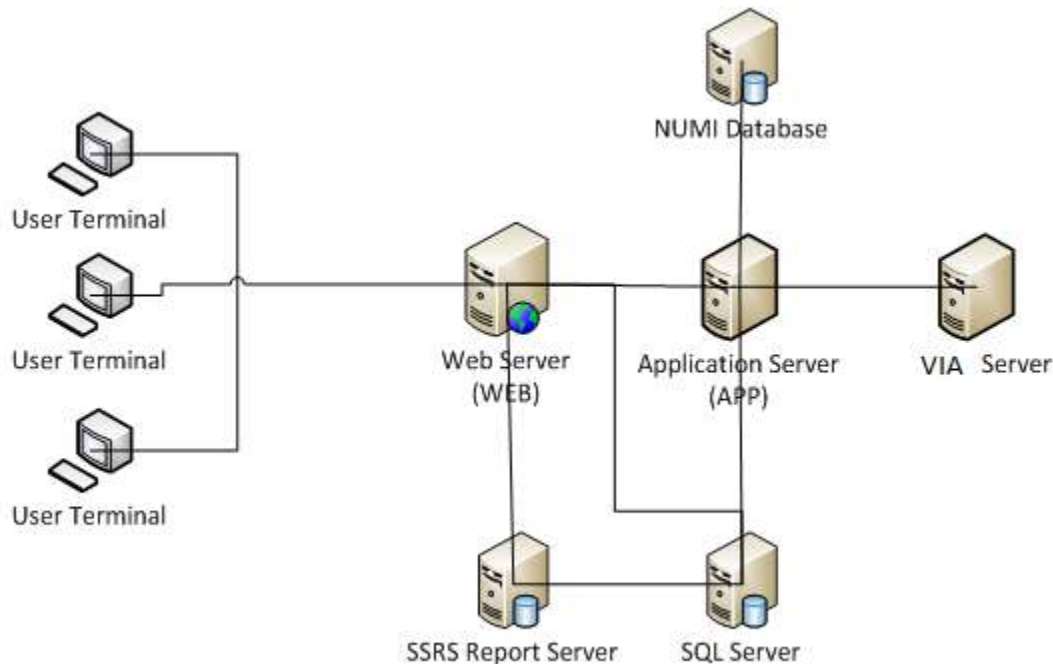
2. Implementation and Maintenance

2.1. BMS Infrastructure Diagram

The BMS application has a list of physical components that can be divided on more physical servers according with their roles.

The following diagram represents a possible schema of physical deployment.

Figure 1– BMS Infrastructure Diagram



BMS is divided into specific components:

1. Persistence layer: SQL Server 2016 Enterprise database
2. Application server layer: Windows Communication Foundation (WCF) Web Services installed as Windows Services
3. Web server layer: Active Server Pages (ASP) .NET Model-View-Controller (MVC) Web application hosted in Internet Information Services (IIS)

4. Data Exchange Servers:
 - a. National Utilization Management Integration (NUMI) SQL Server Database
 - b. VistA integration servers (servers that have access to VistA)

5. Client Layer: Web Application client launched from browsers

2.2. System Requirements (Hardware and Software)

System Requirements (Hardware and Software) BMS requires the creation of a Master Windows Service Account User and numerous facility/Site Service Account Users for execution and operations.

All the BMS Application Services run under a service account.

- AITC has created the Windows User (acc\VAAACBMSPrd) as the master service account that the four BMS Services runs under. This can be referred to as the Master BMS Service Account.
- The <SERVERADDRESS>210 server hosts the three application services:
 - BMS.BedManagerService
- The <ServerAddress>211 server hosts the two application services:
 - BMS.VI.ServiceHost.

All BMS Facilities/Sites require at least one service account for certain site functionality.

- This service account will run the EMS Mobile Page and Whiteboard Kiosk Page functions.
- Under BMS version 1.xx a single service account can be used for both functions.
- The service account that runs the EMS Mobile Page and Whiteboard Kiosk Page functions must not have any Policies assigned that restrict its use to specific computers.

BMS minimum hardware and software requirements are presented below:

Table 1-Server for Web Applications

Basic software:	Microsoft Windows Server 2012 64 bit R2 Standard Microsoft Clustering Services 2008 IIS 8.5 ASP.NET MVC5 .NET Framework 4.7.2
Application software:	Dashboards web application
Processor(s):	16 x Intel Xeon E5520 or equivalent
Memory:	32 GB
Hard disks:	190 GB
Network controller:	Broadcom NetXtreme Gigabit Ethernet, or equivalent

Table 2-Application Server

Server 1	
Basic software:	Microsoft Windows Server 2012 64 bit R2 Standard .NET Framework 4.7.2
Application software:	BMS.BedManagerService
Processor(s):	14 x Intel Xeon E5520 or equivalent
Memory:	65 GB
Hard disks:	190 GB
Network controller:	Broadcom NetXtreme Gigabit Ethernet, or equivalent
Server 2	
Basic software:	Microsoft Windows Server 2012 64 bit R2 Standard .NET Framework 4.7.2
Application software:	BMS.VI.ServiceHost
Processor(s):	12 x Intel Xeon E5520 or equivalent
Memory:	65 GB
Hard disks:	210 GB
Network controller:	Broadcom NetXtreme Gigabit Ethernet, or equivalent

Table 3-Database Server

Basic software:	Microsoft Windows Server 2012 64 bit R2 Standard Microsoft SQL Server 2016 Enterprise .NET Framework 4.6.1
Application software:	Databases used by the services installed on APP
Processor(s):	32 x Intel Xeon E5520 or equivalent
Memory:	320 GB
Hard disks:	2850 GB B: 279GB, C: 80GB, D:90GB, E: 600GB, F: 950GB, L:500GB, P:250GB, T:100GB

Section	Configuration Key/Name	Configuration values (ex.)		Description	
BMS.VI.ServiceHost.exe.config					
configSections	enterpriselibrary.configurationSettings	type="ePractice.Configuration.ConfigurationManagerSectionHandler, MS.Configuration"			
	pagingSortGroup	type="BMS.Utils.PagingSortSection, BMS.Utils" allowDefinition="Everywhere" allowExeDefinition="MachineToApplication" restartOnExternalChanges="true"			
	log4net	type="log4net.Config.Log4NetConfigurationSectionHandler,log4net"			
connectionStrings	BMS_Connection			connectionString="Data Source=<Database Address>;Initial Catalog=BMS;Persist Security Info=False;Integrated Security=SSPI;Pooling=true;Min Pool Size=0;Max Pool Size=100;"	Connection string for the connection to the BMS database.
	BMS_History			connectionString="Data Source=<Database Address>;Initial Catalog=BMS;Persist Security Info=False;Integrated Security=SSPI;Pooling=true;Min Pool Size=0;Max Pool Size=100;"	Connection string for the connection to the BMS_History database.
appSettings	VistaWorker.WorkerDelayTimeSpan	value="0:0:0:30"		Delay time from service start to first processing	

VistaWorker.WorkerPeriodTimeSpan	value="0:0:0:15"			Period between worker processing steps
VistaWorker.BulkSize	value="100"			Maximum number of processed entities in one step
VistaWorker.Enabled	Value="false"			Whether vista worker is enabled or not (true or false)
VistaIntegration.Enabled	value="true"			value="true"
VistaIntegration.SchedulerSecondsLate	value="5"			The time delay of schedulers
VistaIntegration.UpdateBmsPatients	value="true"			Whether update bms patients is enabled or not (true or false)
Smtphost	value="smtp.va.gov"			value="smtp.va.gov"
VistaWorker.VistASitesFilePath	value="VistASites.xml"			The vista sites configuration file name
VistasBedHoldSupported				List of vista sites that support bed hold.
visitorAppPwd	value="UM"	Password used by MDWS to connect to VistA.	value="true"	Whether vista integration is enabled or not (true or false)

visitorUserSiteCode	value="523"			User Site Code used by MDWS to connect to VistA.
visitorUserName	< visitorUserName >			User Name used by MDWS to connect to VistA.
visitorUserDuz	value="<visitorUserDuz >"	User Duz used by MDWS to connect to VistA.	value="localhost"	smtp host
visitorUserSsn	value="<visitorUserSsn >"			User SSN used by MDWS to connect to VistA.
visitorContext	value="<visitorContext >"			Context used by MDWS to connect to VistA.
UsingNewMdwsMethods	value="true"			Whether use new mdws methods for vista integration (true or false)
BMS_EIS_GET_ENTITY_FILTER_PAGE_SIZE	value="1000"			Number of records queried that are brought from EIS in one page.
Changeset	value="72898"			Changeset of the installed build.
NumiSvcAuthenticationKey	value="<NumiSvcAuthenticationKey > "			NUMI service authentication key.
NumiMaxNumberOfSitesPerCall	value="5"			Maximum number of sites that NUMI processes in one call.

Is_IIS_Single_Instance	value="true"	Whether use SSL endpoint from configuration file. (true or false)
UseCacheEndpointFromConfigWithSsl	value="true"	Whether use SSL endpoint from configuration file.
ProxyPoolMaxCount	value="1000"	value="50"
MdwsEndpointUrl	Several MdwsEndpointUrls are defined in the config file, but are no longer utilized. These will be removed as a Post Inflow enhancement/cleanup task.	
VistaIntegrationJobFailedMaxCount	Value="25"	
VistaIntegrationJobFailedIncrementDateMinutes	value="10"	The maximum number of job failures until the system decides to retry.
VistaIntegrationJobFailedNotificationEmailTo		The time span (minutes) that the system decides to increment job's start date when the threshold of job failures is reached.
VistaIntegrationJobFailedNotificationEmailFrom	value= BMSBackgroundProcessorAgent@va.gov	
BMS_EIS_LongRunningMethodsMaxConcurrentCalls	value="250"	Sender's email used when a job fails.
BMS_Cache_MaxConcurrentCalls	Value="250"	

BMSServiceHostStartType	value="BMS.VI"			value="100"
VistaIntegration.TaskSchedulerDelayMin	value="0"			value="BMS.VI"
VistaIntegration.TaskSchedulerDelayMax	value="10"	value="0"	value="1000"	The maximum number of proxies in the pool.
VistaIntegration.TaskSchedulerDelayStep	value="5"	value="5"	value= http://localhost:82/QuerySvc.asmx value= http://localhost:82/QuerySvc.asmx	MDWS instance URL address.
VistaIntegration.PatientMovementlenDays	Value="60"			
ThreadPoolMaxWorkerThreads	value="200"			
ViaEndpointUrl	https://vdif-lb-vwsl.va.gov/csp/healthshare/hsaccvdappl/BHS.Local.VA.HS.Access.VWSL.Service.BMSRouterService.cls			

	ViaRequestingApp	BMSBatch			Recipient's email used when a job fails. (va_person@va.gov)
	ViaAppToken	<viaAppToken>			
	ViaAppPassword	<viaAppPassword>			
	MinimumFilemanDate	01/01/1992			
	EDISBackgroundProcesses.Enabled	Value="true"			
	PatientOptOutOnProcessing.Enabled	Value="true"			
	FlagEDISAsInHouse	Value="true"			
	SystemUser	"<SystemUsername>"			
	UseEntityCache	Value="true"			
pagingSortGroup/pagingSort	sortColumnCode="entered"	sortColumnName="[A].[CREATION_DATE]"			
	sortColumnCode="patient"	sortColumnName="[PAT].[LAST_NAME], [PAT].[FIRST_NAME]"			
	sortColumnCode="facility"	sortColumnName="[F].[NAME]"			

	sortColumnCode="requestdt"	sortColumnName="[A].[CREATION_DATE]"
	sortColumnCode="specialty"	sortColumnName="[REQSP].[DISPLAY_NAME]"
	sortColumnCode="visn"	sortColumnName="[TR].[FACILITY_VISN]"
	sortColumnCode="region"	sortColumnName="[TR].[FACILITY_REGION]"
	sortColumnCode="eventdt"	sortColumnName="[AEVN].[CREATION_DATE]"
	sortColumnCode="vacatedDate"	sortColumnCode="REQUESTED_DATE"
	configurationSections\configurationSection xsi:type="ReadOnlyConfigurationSectionData" name="securityConfiguration" encrypt="false"	
	storageProvider xsi:type="XmlFileStorageProviderData"	Name="XML File Storage Provider" Path="cachingConfiguration.config"
	storageProvider xsi:type="XmlSerializerTransformerData"	Name="XML Serializer Transformer"
System.runtime.remoting	<application><channels>><channel>	Type="System.Runtime.Remoting.Channels.Tcp.TcpChannel, System.Runtime.Remoting, Version=1.0.5000.0, Culture=neutral, PublicKeyToken=b77a5c561934e089" name="RegularChannel"
System.netconnectionManagement	Address="**"	Maxconnection="2500"

Services/service	name="BMS.ServiceImplementation.BedManagerOperationsCore" behaviorConfiguration="MessageCertificateServiceBehavior"	baseAddress= <a href="http://<ServerAddress>211:16050/BMSOperations">http://<ServerAddress>211:16050/BMSOperations
	name="BMS.ServiceImplementation.BedManagerQueryCore" bindingConfiguration="MessageCertificateServiceBehavior"	baseAddress= <a href="http://<ServerAddress>211:16050/BMSQuery">http://<ServerAddress>211:16050/BMSQuery
	name="BMS.ServiceImplementation.BedManagerCacheCore" bindingConfiguration="MessageCertificateServiceBehavior"	baseAddress= <a href="http://<ServerAddress>211:16050/BMSCache">http://<ServerAddress>211:16050/BMSCache
	name="BMS.ServiceImplementation.ConfigurationOperationsCore" bindingConfiguration="MessageCertificateServiceBehavior"	baseAddress= <a href="http://<ServerAddress>211:16050/BMSConfigurationOperations">http://<ServerAddress>211:16050/BMSConfigurationOperations
	name="BMS.ServiceImplementation.VistaQueryCore" bindingConfiguration="MessageCertificateServiceBehavior"	baseAddress= <a href="http://<ServerAddress>211:16050/VistaQuery">http://<ServerAddress>211:16050/VistaQuery
	Binding name="BackgroundProc"	closeTimeout="00:10:00" openTimeout="00:10:00"

Bindings/basicHttpBinding	essServiceImplServiceSoapBinding"	<pre> receiveTimeout="00:15:00" sendTimeout="00:10:00" allowCookies="false" bypassProxyOnLocal="false" maxReceivedMessageSize="2147483647" useDefaultWebProxy="true" </pre>
	Binding name="BackgroundProcessServiceImplServiceSoapBindingSSL"	<pre> closeTimeout="00:10:00" openTimeout="00:10:00" receiveTimeout="00:15:00" sendTimeout="00:10:00" allowCookies="false" bypassProxyOnLocal="false" maxReceivedMessageSize="2147483647" useDefaultWebProxy="true" hostNameComparisonMode="StrongWildcard" maxBufferSize="2147483647" maxReceivedMessageSize="2147483647" messageEncoding="Text" textEncoding=utf-8" transferMode="Buffered" useDefaultWebProxy="true" <readerQuotas maxDepth="32" maxStringContentLength="2147483647" maxArrayLength="2147483647" maxBytesPerRead="2147483647" maxNameTableCharCount="2147483647"/> <securitymode="Transport"> <transport clientCredentialType="None" proxyCredentialType="None" realm=""/> </pre>
	Binding name="subscriptionBinding"	<pre> maxBufferSize="2147483647" maxReceivedMessageSize="2147483647" closeTimeout="00:10:00" openTimeout="00:10:00" receiveTimeout="00:15:00" sendTimeout="00:10:00" </pre>
	Binding name="messagingBinding"	<pre> maxBufferSize="2147483647" maxReceivedMessageSize="2147483647" closeTimeout="00:10:00" openTimeout="00:10:00" receiveTimeout="00:15:00" sendTimeout="00:10:00" </pre>

	<pre> readerQuotas maxDepth="32" maxStringContentLength="2147483647" maxArrayLength="2147483647" maxBytesPerRead="2147483647" maxNameTableCharCount="2147483647"/> </pre>
Binding name="QuerySvcSoap"	<pre> closeTimeout="00:10:00" openTimeout="00:10:00" receiveTimeout="00:15:00" sendTimeout="00:10:00" allowCookies="false" bypassProxyOnLocal="false" hostNameComparisonMode="StrongWildcard" maxBufferSize="2147483647" maxReceivedMessageSize="2147483647" messageEncoding="Text" textEncoding=utf-8 transferMode="Buffered" useDefaultWebProxy="true" <readerQuotas maxDepth="32" maxStringContentLength="2147483647" maxArrayLength="2147483647" maxBytesPerRead="2147483647" maxNameTableCharCount="2147483647"/> <transport clientCredentialType="None" proxyCredentialType="None" realm=""/> <clientCredentialType="UserName" algorithmSuite="Default"/> </pre>
Binding name="QuerySvcSoap Https"	<pre> closeTimeout="00:10:00" openTimeout="00:10:00" receiveTimeout="00:15:00" sendTimeout="00:10:00" allowCookies="false" bypassProxyOnLocal="false" hostNameComparisonMode="StrongWildcard" maxBufferSize="2147483647" maxReceivedMessageSize="2147483647" messageEncoding="Text" textEncoding=utf-8 transferMode="Buffered" useDefaultWebProxy="true" <readerQuotas maxDepth="32" maxStringContentLength="2147483647" maxArrayLength="2147483647" maxBytesPerRead="2147483647" maxNameTableCharCount="2147483647"/> <transport clientCredentialType="None" proxyCredentialType="None" realm=""/> </pre>

	Binding name="SSLTransport"	maxReceivedMessageSize="2147483647" closeTimeout="00:10:00" openTimeout="00:10:00" receiveTimeout="00:15:00" sendTimeout="00:10:00" <security mode="Transport"/>
wsHttpBinding	Binding name="wsUserName"	maxReceivedMessageSize="2147483647" closeTimeout="00:10:00" openTimeout="00:10:00" receiveTimeout="00:15:00" " sendTimeout="00:10:00" <security mode="Message" messageClientCredentialType="UserName" negotiateServiceCredential="false" algorithm="Default" establishSecurityContext="true"/>
	Binding name="StsWinBinding"	closeTimeout="00:10:00" openTimeout="00:10:00" receiveTimeout="00:15:00" sendTimeout="00:10:00" <security mode="Message" messageClientCredentialType="Windows" negotiateServiceCredential="true" establishSecurityContext="true"/>
	Binding name="MessageCertificate"	maxReceivedMessageSize="2147483647" closeTimeout="00:10:00" openTimeout="00:10:00" receiveTimeout="00:15:00" sendTimeout="00:10:00" <readerQuotas maxDepth="32" maxStringContentLength="2147483647" maxArrayLength="2147483647" maxBytesPerRead="4096" maxNameTableCharCount="16384"/> <security mode="Message" <transport clientCredentialType="None" />
Client	Endpoint binding="basicHttpBinding"	bindingConfiguration"BackgroundProcessServiceImplServiceSoapBinding" contract="BackgroundProcessorServiceInterface"

	name="BackgroundProcessServiceImplPort"
Endpoint binding="basicHttpBinding"	bindingConfiguration="BackgroundProcessServiceImplServiceSoapBindingSSL" contract="BackgroundProcessorServiceInterface" name="BackgroundProcessServiceImplPortSSL"
Endpoint address= http://vaauswebbms211:87/QuerySvc.asmx	Binding="basicHttpBinding" bindingConfiguration="QuerySvcSoap" contract="QuerySvcService.QuerySvcSoap" name="QuerySvcSoap"
Endpoint address= https://vdif-lb-vwsll.va.gov/csp/via-webservices/services/HS.Local.VA.HS.Access.Service.NUMI.NUMIInpatientService.cls	Binding="basicHttpBinding" bindingConfiguration="QuerySvcSoapHttps" contract="BMS.ServicesWrapper.Proxy.InpatientSoap" name="InpatientSoap"
Endpoint address= http://vaausapbms211:16050/BMSQuery	behaviorConfiguration="MessageCertificateCredentials" binding="wsHttpBinding" bindingConfiguration="MessageCertificate" name="BMS.BMSQuery.Windows" contract="BMS.ServiceContracts.IBedManagerQuery"
Endpoint address= http://vaausapbms211:16050/BMSOperations	behaviorConfiguration="MessageCertificateCredentials" binding="wsHttpBinding" bindingConfiguration="MessageCertificate" name="BMS.BMSOperations.Windows" contract="BMS.ServiceContracts.IBedManagerOperations"
Endpoint address= http://vaausapbms211:16050/BMSConfigurationOperations	behaviorConfiguration="MessageCertificateCredentials" binding="wsHttpBinding" bindingConfiguration="MessageCertificate" name="BMS.BMSConfigurationOperations.Windows" contract="BMS.ServiceContracts.IConfigurationOperations" <identity><dns value="IWHM3Services"</identity>

	Endpoint address= http://vaausap.pbms211:16050/VistaQuery	behaviorConfiguration="MessageCertificateCredentials" binding="wsHttpBinding" bindingConfiguration="MessageCertificate" name="BMS.BMSConfigurationOperations.Windows" contract="BMS.VistaQuery.Windows"
	Endpoint address= http://vaausap.pbms211:16050/CacheService	binding="basicHttpBinding" bindingConfiguration="SSLTransport" name="BMS.Cache.Windows.Https" contract="BMS.ServiceContracts.ICacheService"
	Endpoint address= http://vaausap.pbms211:16050/BMSCache	behaviorConfiguration="MessageCertificateCredentials" binding="wsHttpBinding" bindingConfiguration="MessageCertificate" name="BMS.BMSCache.Windows" contract="BMS.BMSCache.Windows"
Behaviors/serviceBehaviors	Behavior name="ServiceBehavior"	<dataContractSerializer maxItemsInObjectGraph="2147483647"/> <serviceDebug includeExceptionDetailInFaults="true"/> <serviceMetadata httpGetEnabled="true"/> <serviceThrottling maxConcurrentCalls="2500" maxConcurrentSessions="2500" /> <serviceCredentials><clientCertificate> <authentication certificateValidationMode="PeerTrust" trustedStoreLocation="LocalMachine" revocationMode="NoCheck" mapClientCertificateToWindowsAccount="false"/></clientCertificate> <serviceCertificate findValue="IWHM3Services" storeLocation="LocalMachine" storeName="My" x509FindType="FindBySubjectName" /></serviceCredentials>
	Behavior name="MessageCertificateCredentials"	<dataContractSerializer maxItemsInObjectGraph="2147483647"/> <clientCredentials><clientCertificate x509FindType="FindBySubjectName" findValue="IWHM3Services" storeName="My" storeLocation="LocalMachine" /> <serviceCertificate><authentication certificateValidationMode="PeerTrust"/><serviceCertificate> </clientCredentials>
System.diagnostics	<trace Autoflush="true" indentsize="2"	<listeners> <add name = "myListener" type="System.Diagnostics.TextWriterTraceListener" initializeData="BMS.VI.trace.log"/></listeners>

	<switches TraceLevelSwitch	Value="2"
Log4net	Root	<level value="OFF"/> <appender-ref ref="SQLAppender"/>
	Appender Name = "FileAppender type="log4net.Appender .FileAppender"	Name = "FileAppender type="log4net.Appender.FileAppender" <file value=log-file.txt"/> <appendToFile value="true"/> <layout type="log4net.Layout.PatternLayout"><conversionPattern value="%date [%6thread] -%gt; &message% <-%newline"/>
	Appender Name= "SQLAppender" type="log4netAsync.Asy ncAdoNetAppender,log 4netAsync"	<bufferSize value="1000"/> <connectionType value="System.Data.SqlClient.SqlConnection, System.Data, Version=1.0.3300.0, Culture=neutral, PublicKeyToken=b77a5c561934e089" /> <connectionString value="data source=vaaussqlbms410;Network Library=DBMSSOCN;initial catalog=BMS_LOG;integrated security=SSPI;persist security info=False;Pooling=true;Min Pool Size=0;Max Pool Size=250;" /> <commandText value="INSERT INTO Log ([Date],[Thread],[Level],[Logger],[Message],[Exception]) VALUES (@log_date, @thread, @log_level, @logger, @message, @exception)" />
		<parameter><parameterName value="@log_date" /><dbType value="DateTime" /> <layout type="log4net.Layout.RawTimeStampLayout" /></parameter>
		<parameter><parameterName value="@thread" /><dbType value="String" /><size value="255" /> <layout type="log4net.Layout.PatternLayout"><conversionPattern value="%thread" </layout></parameter>
		<parameter><parameterName value="@log_level" /><dbType value="String" /> <size value="50" </layout type="log4net.Layout.PatternLayout"> <conversionPattern value="%level" </layout></parameter>
		<parameter><parameterName value="@logger" /><dbType value="String" /><size value="255" </layout type="log4net.Layout.PatternLayout"><conversionPattern value="%logger" </layout></parameter>
		<parameter><parameterName value="@message" /><dbType value="String" /> <size value="4000" /><layout type="log4net.Layout.PatternLayout"> <conversionPattern value="%message" /></layout> </parameter>
		<parameter><parameterName value="@exception" /><dbType value="String" /> <size value="2000" /><layout type="log4net.Layout.ExceptionLayout" /> </parameter>

		<pre><filter type="log4net.Filter.StringMatchFilter"><stringToMatch value="00:00:00.00" /> <acceptOnMatch value="false" /></filter></pre>
		<pre><filter type="log4net.Filter.StringMatchFilter"><stringToMatch value="Entry" /> <acceptOnMatch value="false" /> </filter></pre>
startup	supportedRuntime	Version="4.0" sku=".NETFramework.Version=v4.5"
Runtime	gcServer	Enabled="true"

Section	Configuration Key/Name	Configuration values (ex.)	Description
BMS.ServiceHost.exe.config			
configSections	services	type="WinServiceHost.Configuration.ServicesSection, WinServiceHost" />	
	Enterpriselibrary.configurationSettings	type="ePractice.Configuration.ConfigurationManagerSectionHandler, MS.Configuration" />	
	loggingConfiguration	type="Microsoft.Practices.EnterpriseLibrary.Logging.Configuration.LoggingSettings, Microsoft.Practices.EnterpriseLibrary.Logging" />	
	exceptionHandling	type="Microsoft.Practices.EnterpriseLibrary.ExceptionHandling.Configuration.ExceptionHandlingSettings, Microsoft.Practices.EnterpriseLibrary.ExceptionHandling" />	
	Log4net	type="log4net.Config.Log4NetConfigurationSectionHandler,log4net"/>	
appSettings	LocalServer	Yes	
	UseSecurityContext	1	
	AuditProtocol	None	
	AuditServer	vaausbmsmul45	
	AuditPort	16050	
	ServiceCertificateStoreName	My	
	ServiceCertificateStoreLocation	LocalMachine	
	ServiceCertificateFindType	FindBySubjectName	
	ServiceCertificateFindValue	IWHM3Services	
	ServiceStartupTimeoutSecondsAdd	90	
System.net	connectionManagement	<add address="" maxconnection="2500" />	

Runtime	assemblyBinding xmlns="urn:schemas-microsoft-com:asm.v1"	<probing privatePath="Shared;PAP;PDP;STS;RS;EIS;EVS"/>	
	gcServer	Enabled="true"	
Services	EVSMMessageRuntime	type="InfoWorld.EVS.CTSService.MessageRuntimeImpl, MessageImpl" />	No longer used
	EVSMMessageBrowse	type="InfoWorld.EVS.CTSService.MessageBrowserImpl, MessageImpl" />	No longer used
	EVSVocabularyRuntime	type="InfoWorld.EVS.CTSService.VocabularyRuntimeImpl, VocabularyImpl" settingsPath="EVS\MessageImpl.dll.config" />	No longer used
	EVSVocabularyBrowse	type="InfoWorld.EVS.CTSService.VocabularyBrowsingImpl, VocabularyImpl" settingsPath="EVS\MessageImpl.dll.config" />	No longer used
	EVSMMapping	type="InfoWorld.EVS.CTSService.MappingImpl, MappingImpl" settingsPath="EVS\MessageImpl.dll.config" />	No longer used
	EVSMMessageEdit	type="InfoWorld.EVS.CTSService.CTSMMessageEdit, CTSEdit" settingsPath="EVS\MessageImpl.dll.config" />	No longer used
	EVSVocabularyEdit	type="InfoWorld.EVS.CTSService.CTSEditVocabulary, CTSEdit" settingsPath="EVS\MessageImpl.dll.config" />	No longer used
	EVSMMappingEdit	type="InfoWorld.EVS.CTSService.CTSEditCodeMapping, CTSEdit" settingsPath="EVS\MessageImpl.dll.config" />	No longer used
	EVSXaml	type="InfoWorld.EVS.XamlService.XamlFilter, XamlImpl" settingsPath="EVS\MessageImpl.dll.config" />	No longer used
	EVSWrapper	type="InfoWorld.EVS.EVSWrapper.EVSWrapper, EVSWrapper" settingsPath="EVS\EVSWrapper.dll.config" />	No longer used
	EVSImport	type="InfoWorld.EVS.CTSService.CTSImportImpl, CTSImport" settingsPath="EVS\MessageImpl.dll.config" />	No longer used
	EVSExport	type="InfoWorld.EVS.CTSExport.CTSExport, CTSExport" settingsPath="EVS\MessageImpl.dll.config" />	No longer used
	EVSBulkEdit	type="InfoWorld.EVS.CTSEditBulk.CTSEditBulk, CTSEditBulk" settingsPath="EVS\MessageImpl.dll.config" />	No longer used

EVS/MessageAdministration	type="InfoWorld.WSEventing.Notifications.MessageAdministration, WSEventing" settingsPath="EVS\MessageImpl.dll.config" />	No longer used
EVS/SubscriptionAdministration	type="InfoWorld.WSEventing.Subscriptions.SubscriptionAdministration, WSEventing" settingsPath="EVS\MessageImpl.dll.config" />	No longer used
EISQuery	type="InfoWorld.EIS.QueryFunctionsImpl, EISServiceImplementation" />	No longer used
EISAdministration	type="InfoWorld.EIS.AdministrationImpl, EISServiceImplementation" />	No longer used
EISEntityManagement	type="InfoWorld.EIS.EntityManagementImpl, EISServiceImplementation" />	No longer used
EISServiceMetadata	type="InfoWorld.EIS.ServiceMetadataManagementImpl, EISServiceImplementation" />	No longer used
EISBulkEntityManagement	type="InfoWorld.EIS.BulkEntityManagement, EISServiceImplementation" />	No longer used
EISSubscriber	type="InfoWorld.EIS.Subscriber, EISServiceImplementation" />	No longer used
EISReceive	type="InfoWorld.EIS.Receive, EISNotifications" settingsPath="EIS\EISServiceImplementation.dll.config" />	No longer used
EISLink	type="InfoWorld.EIS.LinkAlgorithmManagement, EISServiceImplementation" />	No longer used
EISAuthSubscriber	type="InfoWorld.Security.Authorization.AuthorizationSubscriber.AuthorizationSubscriber, AuthorizationSubscriber" settingsPath="EIS\EISServiceImplementation.dll.config" />	No longer used
EISNotificationWorker	type="InfoWorld.WSEventing.Notifications.NotificationWorker, WSEventing" isWcfService="false" settingsPath="EIS\EISServiceImplementation.dll.config" />	No longer used
EIS/MessageAdministration	type="InfoWorld.WSEventing.Notifications.MessageAdministration, WSEventing" settingsPath="EIS\EISServiceImplementation.dll.config" />	No longer used
EIS/SubscriptionAdministration	type="InfoWorld.WSEventing.Subscriptions.SubscriptionAdministration, WSEventing" settingsPath="EIS\EISServiceImplementation.dll.config" />	No longer used
ReportsService	type="InfoWorld.RS.ServiceImplementation.ReportingService, RS.ServiceImplementation" />	

EnterpriseLibrary.configurationSettings	configurationSections/configurationSection	<pre> xsi:type="ReadOnlyConfigurationSectionData" name="connectionConfiguration" encrypt="false"><storageProvider xsi:type="XmlFileStorageProviderData" name="XML File Storage Provider" path="connectionConfiguration.config" /> <dataTransformer xsi:type="XmlSerializerTransformerData" name="Xml Serializer Transformer"><includeTypes><includeType name="ServicesDatabaseConnectionProviderData" type="ePractice.Connection.SingleDatabase.Configuration.ServicesDatabaseConnectionProviderData, Connections.SingleDatabase, Version=1.0.0.0, Culture=neutral, PublicKeyToken=null" /></includeTypes></dataTransformer> </pre>
	keyAlgorithmStorageProvider	Xsi:nil="true"
loggingConfiguration	tracingEnabled="true"	defaultCategory="General"
	logFilters	<pre> <add name="Priority" type="Microsoft.Practices.EnterpriseLibrary.Logging.Filters.PriorityFilter, Microsoft.Practices.EnterpriseLibrary.Logging" minimumPriority="0" /> </pre>
		<pre> <add name="LogEnabled Filter" type="Microsoft.Practices.EnterpriseLibrary.Logging.Filters.LogEnabledFilter, Microsoft.Practices.EnterpriseLibrary.Logging, Version=2.0.0.0, Culture=neutral, PublicKeyToken=null" enabled="true" /> </pre>
	categorySources	<pre> <add name="Info" switchValue="All"><listeners><add name="Flat File Destination" /></listeners></add> </pre>
		<pre> <add name="Debug" switchValue="All"><listeners><add name="Flat File Destination" /></listeners><add> </pre>
		<pre> <add name="Error" switchValue="All"><listeners><add name="Flat File Destination" /></listeners> </add> </pre>
specialSources	<pre> errors name="errors" switchValue="All"><listeners><add name="Event Log Destination" /></listeners> </errors> </pre>	
Listeners	<pre> <add name="Event Log Destination" type="Microsoft.Practices.EnterpriseLibrary.Logging.TraceListeners.FormattedEventLogTraceListener, Microsoft.Practices.EnterpriseLibrary.Logging" listenerDataType="Microsoft.Practices.EnterpriseLibrary.Logging.Configuration.FormattedEventLogTrace ListenerData, Microsoft.Practices.EnterpriseLibrary.Logging" source="Trace Utils" formatter="Text Formatter" machineName="." /> </pre>	
	<pre> <add name="Flat File Destination" type="Microsoft.Practices.EnterpriseLibrary.Logging.TraceListeners.FlatFileTraceListener, Microsoft.Practices.EnterpriseLibrary.Logging" </pre>	

		<pre>listenerDataType="Microsoft.Practices.EnterpriseLibrary.Logging.Configuration.FlatFileTraceListenerData, Microsoft.Practices.EnterpriseLibrary.Logging" fileName="RLUSService.log" header="-----header- -----" footer="-----footer-----" formatter="Text Formatter" /></pre>
		<pre><add name="Console Destination" type="InfoWorld.EAI.TraceUtils.ConsoleTraceListener, InfoWorld.EAI.TraceUtils" listenerDataType="Microsoft.Practices.EnterpriseLibrary.Logging.Configuration.CustomTraceListenerData , Microsoft.Practices.EnterpriseLibrary.Logging" formatter="Text Formatter" /></pre>
	Formatters	<pre><add name="Text Formatter" type="Microsoft.Practices.EnterpriseLibrary.Logging.Formatters.TextFormatter, Microsoft.Practices.EnterpriseLibrary.Logging" template="Timestamp: {timestamp}&#xD;&#xA;Message: {message}&#xD;&#xA;Category: {category}&#xD;&#xA;Priority: {priority}&#xD;&#xA;Severity: {severity}&#xD;&#xA;Machine: {machine}&#xD;&#xA;Application Domain: {appDomain}&#xD;&#xA;Process Id: {processId}&#xD;&#xA;Process Name: {processName}&#xD;&#xA;Win32 Thread Id: {win32ThreadId}&#xD;&#xA;" /></pre>
exceptionHandling	exceptionPolicies	<pre><add name="Global Policy"><exceptionTypes><add name="Exception" type="System.Exception, scorb, Version=2.0.0.0, Culture=neutral, PublicKeyToken=b77a5c561934e089" postHandlingAction="None"> <exceptionHandlers><add name="Global Handler" type="InfoWorld.EAI.TraceUtils.GlobalExceptionHandler, InfoWorld.EAI.TraceUtils" /> </exceptionHandlers></add></exceptionTypes></add></pre>
		<pre><add name="Rethrow Policy"><exceptionTypes><add name="Exception" type="System.Exception, scorb, Version=2.0.0.0, Culture=neutral, PublicKeyToken=b77a5c561934e089" ostHandlingAction="NotifyRethrow"><exceptionHandlers /></add></exceptionTypes></add></pre>
		<pre><add name="Replace Policy"><exceptionTypes><add name="Exception" type="System.Exception, mscorlib, Version=2.0.0.0, Culture=neutral, PublicKeyToken=b77a5c561934e089" ostHandlingAction="ThrowNewException"><exceptionHandlers><add name="Replace Handler" type="Microsoft.Practices.EnterpriseLibrary.ExceptionHandling.ReplaceHandler, Microsoft.Practices.EnterpriseLibrary.ExceptionHandling" exceptionMessage="Replaced Exception: User is not authorized to perform the requested action." replaceExceptionType="System.ApplicationException, mscorlib, Version=2.0.0.0, Culture=neutral, PublicKeyToken=b77a5c561934e089" /> </exceptionHandlers></add></exceptionTypes></add></pre>
System.diagnostics	Trace	<pre>Autoflush="true" indentsize="0"</pre>
		<pre><listeners><add initializeData="BMS-Services.log" type="System.Diagnostics.TextWriterTraceListener" name="myListener" /></listeners></pre>
Log4net	Root	<pre><level value="OFF"/> <appender-ref ref="SQLAppender"/></pre>

<p>Appender Name = "FileAppender type="log4net.Appender. FileAppender"</p>	<p>Name = "FileAppender type="log4net.Appender.FileAppender"</p> <p><file value=log-file.txt"/> <appendToFile value="true"/> <layout type="log4net.Layout.PatternLayout"><conversionPattern value="%date [%6thread] -%gt; &message% &lt;-%newline"/></p>
<p>Appender Name= "SQLAppender" type="log4net.Async. AdoNetAppender,log4 netAsync"</p>	<p><bufferSize value="1000"/> <connectionType value="System.Data.SqlClient.SqlConnection, System.Data, Version=1.0.3300.0, Culture=neutral, PublicKeyToken=b77a5c561934e089" /> <connectionString value="data source=vaaussqlbms410;Network Library=DBMSSOCN;initial catalog=BMS_LOG;integrated security=SSPI;persist security info=False;Pooling=true;Min Pool Size=0;Max Pool Size=250;" /> <commandText value="INSERT INTO Log ([Date],[Thread],[Level],[Logger],[Message],[Exception]) VALUES (@log_date, @thread, @log_level, @logger, @message, @exception)" /></p> <p><parameter><parameterName value="@log_date" /><dbType value="DateTime" /> <layout type="log4net.Layout.RawTimeStampLayout" /></parameter></p> <p><parameter><parameterName value="@thread" /><dbType value="String" /><size value="255" /> <layout type="log4net.Layout.PatternLayout"><conversionPattern value="%thread" /></layout></parameter></p> <p><parameter><parameterName value="@log_level" /><dbType value="String" /><size value="50" /><layout type="log4net.Layout.PatternLayout"><conversionPattern value="%level"></layout></parameter></p> <p><parameter><parameterName value="@logger" /><dbType value="String" /><size value="255" /><layout type="log4net.Layout.PatternLayout"><conversionPattern value="%logger" /></layout></parameter></p> <p><parameter><parameterName value="@message" /><dbType value="String" /><size value="4000" /><layout type="log4net.Layout.PatternLayout"><conversionPattern value="%message" /></layout></parameter></p> <p><parameter><parameterName value="@exception" /><dbType value="String" /><size value="2000" /><layout type="log4net.Layout.ExceptionLayout" /> </parameter></p> <p><filter type="log4net.Filter.StringMatchFilter"><stringToMatch value="00:00:00.00" /><acceptOnMatch value="false" /></filter></p> <p><filter type="log4net.Filter.StringMatchFilter"><stringToMatch value="Entry" /><acceptOnMatch value="false" /> </filter></p>

2.3. Configuration Parameters

This section describes configuration parameters of the BMS Application.

Table 4-BMS Web Configuration Parameters

File	Section	Configuration key	Configuration values (ex.)	Description
Web.config	configuration/ appSettings/	webpages:Version	1.0.0.0	Version of the web site.
		ClientValidationEnabled	true/false	Gets or sets a value that indicates whether client-side validation is enabled.
	key	UnobtrusiveJavaScriptEnabled	true/false	Gets or sets a value that indicates whether unobtrusive JavaScript is
		ReportsPath	/BMS	Path of the reports in the reporting services.
		BMS.EVSDictionaryCacheSize	512	Cache size for the vocabulary service, representing the number of concepts cached.
		VAURL	http://vaww.esm.infoshare.va.gov/ PMIC/Projects/BMS/ Implement/default.aspx	BMS Sharepoint Site.
		TICKETURL	http://vaww.esm.infoshare.va.gov/ PMIC/Projects/BMS/ Implement/HDPProcess/ default.aspx	Enter a defect and enhancement ticket.
		THRESHOLD	5	Threshold value used to compare wait time value of the patient from the Patients Pending Placement List in order to display an alert on the Patients Pending Placement List.
		WhiteboardAjaxRefreshRate	300	Time in seconds of AJAX refresh rate of the whiteboard page.
		WhiteboardRealRefreshRate	60	Time in minutes of standard refresh rate of the whiteboard page.
		HomePageRefreshRate	300	Time in seconds of refresh rate of the home page.
		BMS_EIS_GET_ENTITY_ FILTR_PAGE_SIZE	1000	Number of records queried that are brought from EIS in one page. no longer used.

File	Section	Configuration key	Configuration values (ex.)	Description
		BMS_EVS_GET_CONCEPT_PAGE_SIZE	1000	Number of records queried that are brought from EVS in one page. No longer
		SmtpHost	VA_MAIL_SERVER	Mail Server host.
		BMS_EIS_LongRunningMethodsMaxConcurrentCalls	250	
		BMS_Cache_MaxConcurrentCalls	250	
		Vs:EnableBrowserLink	false	
		UseSSOi	true	
		UseDirectWhiteboard	false	
		SSOiLogOffURL	https://ssologon.iam.va.gov/central/anding.aspx	
		EncryptionPassword	<encryption password>	
		MailerReplyTo	<BMS Mailer email address>	
		Aspnet:MaxHttpCollectionKeys	100000	
		BMSReportServerURL	<BMS Report Server URL>	
		SystemUser	<BMS System Username>	
		UseEntityCache	true	
		DisplayDetailedErrorMessage	true/false	If set to true displays detailed error message, otherwise displays a generic message ("Please contact BMS

File	Section	Configuration key	Configuration values (ex.)	Description
		Is_IIS_Single_Instance	true/false	If set to true a single IIS instance is used. If set to false multiple IIS instances are used (not recommended).
		ProxyPoolMaxCount	1000	The maximum number of proxies in the pool.
	configuration/system.serviceModel/bindings/wsFederationHttpBinding/binding/security/message/issuer	address	http://vaserver:17050/STS/Windows	STS Windows address used by WindowsBinding.
	configuration/system.serviceModel/bindings/wsFederationHttpBinding/binding/security/message/issuer	address	http://vaserver:17050/STS/	STS address used by WSFederationHttpBinding_Authenticated Service binding.
	configuration/system.serviceModel/client/endpoint	address	http://vaserver:17050/authsvc/upnidentity	Security Authentication client endpoint address.
	configuration/system.serviceModel/client/endpoint	address	http://vaserver:17050/RS	Reporting Services client endpoint address.
	configuration/system.serviceModel/client/endpoint	address	http://vaserver:17050/QueryFunctions	EIS QueryFunctions client endpoint address.
	configuration/system.serviceModel/client/endpoint	address	http://vaserver:17050/QueryFunctions	EIS QueryFunctions Windows authentication client endpoint address.
	configuration/system.serviceModel/client/endpoint	address	http://vaserver:17050/EntityManagement	EIS EntityManagement client endpoint address.
	configuration/system.serviceModel/client/endpoint	address	http://vaserver:17050/EntityManagement	EIS EntityManagement Windows authentication client endpoint address.

File	Section	Configuration key	Configuration values (ex.)	Description
	client/endpoint			
	configuration/system.serviceModel/client/endpoint	address	http://vaserver:17050/PAP	PAP client endpoint address.
	configuration/system.serviceModel/client/endpoint	address	http://vaserver:17050/PAP	PAP Windows authentication client endpoint address.
	configuration/system.serviceModel/client/endpoint	address	http://vaserver:17050/PDP	PDP client endpoint address.
	configuration/system.serviceModel/client/endpoint	address	http://vaserver:17050/PDP	PDP Windows authentication client endpoint address.
	configuration/system.serviceModel/client/endpoint	address	http://vaserver:17050/CTSVocabularyRuntime	CTS VocabularyRuntime client endpoint address.
	configuration/system.serviceModel/client/endpoint	address	http://vaserver:17050/CTSVocabularyBrowse	CTS VocabularyBrowse client endpoint address.
	configuration/system.serviceModel/client/endpoint	address	http://vaserver:17050/CTSMessageBrowse	CTS MessageBrowse client endpoint address.
	configuration/system.serviceModel/client/endpoint	address	http://vaserver:17050/CTSMessageRuntime	CTS MessageRuntime client endpoint address.
	configuration/system.serviceModel/client/endpoint	address	http://vaserver:17050/CTSMessageEdit	CTS MessageEdit client endpoint address.

File	Section	Configuration key	Configuration values (ex.)	Description
	configuration/system.serviceModel/client/endpoint	address	http://vaserver:17050/CTSVocabularyEdit	CTS VocabularyEdit client endpoint address.
	configuration/system.serviceModel/client/endpoint	address	http://vaserver:17050/BMSConfigurationOperations	BMS ConfigurationOperations client endpoint address.
	configuration/system.serviceModel/client/endpoint	address	http://vaserver:17050/BMSConfigurationOperations	BMS ConfigurationOperations Windows authentication client endpoint address.

File	Section	Configuration key	Configuration values (ex.)	Description
	configuration/system.serviceModel/client/endpoint	address	http://vaserver:17050/BMSQuery	BMS Query client endpoint address.
	configuration/system.serviceModel/client/endpoint	address	http://vaserver:17050/BMSOperations	BMS Operations client endpoint address.
	configuration/system.serviceModel/client/endpoint	address	http://vaserver:17050/TransferWF	Transfer workflow client endpoint address.
	configuration/system.serviceModel/client/endpoint	address	http://vaserver:17050/BMSWF	BMS workflow client endpoint address.
	configuration/system.serviceModel/client/endpoint	address	http://vaserver:17050/WaitingListWF	Patients Pending Placement List workflow client endpoint address.
	configuration/system.serviceModel/client/endpoint	address	http://vaserver:17050/BedCleanWF	Bed clean workflow client endpoint address.
	configuration/system.serviceModel/client/endpoint	address	http://vaserver:17050/BedUnavailableWF	Bed Unavailable workflow client endpoint address.
	configuration/system.serviceModel/client/endpoint	address	http://vaserver:17050/VistaQuery	Vista Query client endpoint address.
	configuration/system.serviceModel/client/endpoint	address	http://vaserver:17050/VistaQuery	Vista Query Windows authentication client endpoint address.
	System.web	httpCookies RequireSSL=true		

File	Section	Configuration key	Configuration values (ex.)	Description
	System.web		httpRuntime requestPathInvalidCharacters="" maxQueryStringLength="20480" maxRequestLength="4096" requestValidationMode="4.0" executionTimeout="110" targetFramework="4.5" />	
	System.web		sessionState timeout="1440"	
	System.web		customErrors mode="Off"	
	System.web		compilation debug="true" targetFramework="4.7.2"	
	System.web	Assemblies	assembly="System.Web.Helpers, Version=3.0.0.0, Culture=neutral, PublicKeyToken=31BF3856AD364E 35" />	
	System.web	Assemblies	assembly="System.Web.Mvc, Version=5.0.0.0, Culture=neutral, PublicKeyToken=31BF3856AD364E 35" />	
	System.web	Assemblies	assembly="System.Web.WebPages, Version=3.0.0.0, Culture=neutral, PublicKeyToken=31BF3856AD364E 35" />	
	System.web	Assemblies	assembly="System.Web.Abstractions, Version=4.0.0.0, Culture=neutral, PublicKeyToken=31BF3856AD364E 35" />	
	System.web	Assemblies	assembly="System.Web.Routing, Version=4.0.0.0, Culture=neutral, PublicKeyToken=31BF3856AD364E 35" />	

File	Section	Configuration key	Configuration values (ex.)	Description
	System.web	Assemblies	assembly="DevExpress.Data.v20.1, Version=20.1.7.0, Culture=neutral, PublicKeyToken=b88d1754d700e49a" />	
	System.web	Assemblies	assembly="DevExpress.Web.v20.1, Version=20.1.7.0, Culture=neutral, PublicKeyToken=b88d1754d700e49a" />	
	System.web	Assemblies	assembly="DevExpress.Utils.v20.1, Version=20.1.7.0, Culture=neutral, PublicKeyToken=b88d1754d700e49a" />	
	System.web	Assemblies	assembly="DevExpress.Web.Mvc5.v20.1, Version=20.1.7.0, Culture=neutral, PublicKeyToken=b88d1754d700e49a" />	
	System.web	Assemblies	assembly="DevExpress.Printing.v20.1.Core, Version=20.1.7.0, Culture=neutral, PublicKeyToken=b88d1754d700e49a" />	
	System.web	buildProviders	extension=".rdlc" type="Microsoft.Reporting.RdlBuildProvider, Microsoft.ReportViewer.WebForms, Version=11.0.0.0, Culture=neutral, PublicKeyToken=89845dcd8080cc91" />	
	System.web	Authentication mode="Forms"	<forms requireSSL="true" loginUrl="~/Account/LogOn" timeout="50000000" />	
	System.web	Authorization	<deny users="?" /><allow users="*" />	

File	Section	Configuration key	Configuration values (ex.)	Description
	System.web	Membership/providers	name="BmsMembershipProvider" type="BMS.Authentication.BmsMembershipProvider" enablePasswordRetrieval="false" enablePasswordReset="false" requiresQuestionAndAnswer="false" applicationName="/" requiresUniqueEmail="true" passwordFormat="Clear" description="Authenticates users in STS" decryptionKey="68d288624f967bce6d93957b5341f931f73d25fef798ba75" validationKey="65a31e547b659a6e35fdc029de3acce43f8914cb1b24fff3e1aef13be438505b3f5becb5702d15bc7b98cd6fd2b7702b46ff63fdc9ea8979f6508c82638b129a" />	
	System.web	pages	controlRenderingCompatibilityVersion="3.5" clientIDMode="AutoID" validateRequest="true">	namespace="System.Web.Helpers"
	System.web	pages	controlRenderingCompatibilityVersion="3.5" clientIDMode="AutoID" validateRequest="true">	namespace="System.Web.Mvc" />
	System.web	pages	controlRenderingCompatibilityVersion="3.5" clientIDMode="AutoID" validateRequest="true">	namespace="System.Web.Mvc.Ajax"
	System.web	pages	controlRenderingCompatibilityVersion="3.5" clientIDMode="AutoID" validateRequest="true">	namespace="System.Web.Mvc.Html"
	System.web	pages	controlRenderingCompatibilityVersion="3.5" clientIDMode="AutoID" validateRequest="true">	namespace="System.Web.Routing"

File	Section	Configuration key	Configuration values (ex.)	Description
	System.web	pages controlRenderingCompatibilityVersion="3.5" clientIDMode="AutoID" validateRequest="true">	namespace="System.Web.WebPages"	
	System.web	pages controlRenderingCompatibilityVersion="3.5" clientIDMode="AutoID" validateRequest="true">	namespace="DevExpress.Utils"	
	System.web	pages controlRenderingCompatibilityVersion="3.5" clientIDMode="AutoID" validateRequest="true">	namespace="DevExpress.Web"	
	System.web	pages controlRenderingCompatibilityVersion="3.5" clientIDMode="AutoID" validateRequest="true">	namespace="DevExpress.Web.Mvc"	
	System.web	pages controlRenderingCompatibilityVersion="3.5" clientIDMode="AutoID" validateRequest="true">	namespace="DevExpress.Web.Mvc.UI"	
	System.web	httpHandlers	<add verb="**" path="Reserved.ReportViewerWebControl.axd" type="Microsoft.Reporting.WebForms.HttpHandler, Microsoft.ReportViewer.WebForms, Version=11.0.0.0, Culture=neutral, PublicKeyToken=89845DCD8080CC91" />	
	System.web	httpHandlers	<add type="DevExpress.Web.ASPxUploadProgressHttpHandler, DevExpress.Web.v20.1, Version=20.1.7.0, Culture=neutral, PublicKeyToken=b88d1754d700e49a" verb="GET,POST" path="ASPxUploadProgressHandlerPage.ashx" validate="false" />	

File	Section	Configuration key	Configuration values (ex.)	Description
	System.web	httpHandlers	<add type="DevExpress.Web.ASPxHttpHandlerModule, DevExpress.Web.v20.1, Version=20.1.7.0, Culture=neutral, PublicKeyToken=b88d1754d700e49a" verb="GET,POST" path="DX.ashx" validate="false" />	
	System.web	httpModules	<add type="DevExpress.Web.ASPxHttpHandlerModule, DevExpress.Web.v20.1, Version=20.1.7.0, Culture=neutral, PublicKeyToken=B88D1754D700E49A" name="ASPxHttpHandlerModule" />	
	Location path="CacheService.svc"	Authorization	Allow users="?" Allow users="**"	
	Location path="Content"	Authorization	Allow users="**"	
	location path="Scripts"	Authorization	Allow users="**"	
	location path="EMSMobileLogon"	Authorization	Allow users="**"	
	location path="WardWhiteboardUrl"	Authorization	Allow users="**"	
	System.webserver	Validation	validateIntegratedModeConfiguration="false"	

File	Section	Configuration key	Configuration values (ex.)	Description
	System.webserver	httpProtocol	<customHeaders> <add name="X-Frame-Options" value="SAMEORIGIN">	
	System.webserver	Modules	<add type="DevExpress.Web.ASPxHttpHandlerModule, DevExpress.Web.v20.1, Version=20.1.7.0, Culture=neutral, PublicKeyToken=B88D1754D700E49A" name="ASPxHttpHandlerModule" /><add name="CASiteMinderWebagentModule" preCondition="integratedMode,bitness64" /><add name="CASiteMinderWebagentModule-32" preCondition="integratedMode,bitness32" />	
	System.webserver	security	<requestFiltering> <requestLimits maxQueryString="20480" maxAllowedContentLength="300000" /> </requestFiltering>	
	System.webserver	Handlers	<remove name="UrlRoutingModule" />	
	System.webserver	Handlers	<add name="handler-wa-32" path="*" verb="*" modules="IsapiModule" scriptProcessor="D:\SiteMinder\webagent\win32\bin\ISAPI6WebAgent.dll" resourceType="Unspecified" requireAccess="None" preCondition="classicMode,bitness32" />	

File	Section	Configuration key	Configuration values (ex.)	Description
	System.webserver	Handlers	<add name="CASiteMinderWebAgentHandler-fcc-32" path="*.fcc" verb="*" modules="CASiteMinderWebagentModule-32" resourceType="Unspecified" precondition="integratedMode,bitness32" />	
	System.webserver	Handlers	<add name="CASiteMinderWebAgentHandler-ntc-32" path="*.ntc" verb="*" modules="CASiteMinderWebagentModule-32" resourceType="Unspecified" precondition="integratedMode,bitness32" />	
	System.webserver	Handlers	<add name="CASiteMinderWebAgentHandler-ccc-32" path="*.ccc" verb="*" modules="CASiteMinderWebagentModule-32" resourceType="Unspecified" precondition="integratedMode,bitness32" />	
	System.webserver	Handlers	<add name="CASiteMinderWebAgentHandler-scc-32" path="*.scc" verb="*" modules="CASiteMinderWebagentModule-32" resourceType="Unspecified" precondition="integratedMode,bitness32" />	

File	Section	Configuration key	Configuration values (ex.)	Description
	System.webserver	Handlers	<add name="CASiteMinderWebAgentHandler-kcc-32" path="*.kcc" verb="*" modules="CASiteMinderWebagentModule-32" resourceType="Unspecified" precondition="integratedMode,bitness32" />	
	System.webserver	Handlers	<add name="handler-wa" path="*" verb="*" modules="IsapiModule" scriptProcessor="D:\SiteMinder\webagent\win64\bin\ISAPI6WebAgent.dll" resourceType="Unspecified" requireAccess="None" precondition="classicMode,bitness64" />	
	System.webserver	Handlers	<add name="CASiteMinderWebAgentHandler-fcc" path="*.fcc" verb="*" modules="CASiteMinderWebagentModule" resourceType="Unspecified" precondition="integratedMode,bitness64" />	
	System.webserver	Handlers	<add name="CASiteMinderWebAgentHandler-ntc" path="*.ntc" verb="*" modules="CASiteMinderWebagentModule" resourceType="Unspecified" precondition="integratedMode,bitness64" />	

File	Section	Configuration key	Configuration values (ex.)	Description
	System.webserver	Handlers	<pre><add name="CASiteMinderWebAgentHan dler-ccc" path="*.ccc" verb="*" modules="CASiteMinderWebagentM odule" resourceType="Unspecified" preCondition="integratedMode,bitnes s64" /></pre>	
	System.webserver	Handlers	<pre><add name="CASiteMinderWebAgentHan dler-scc" path="*.scc" verb="*" modules="CASiteMinderWebagentM odule" resourceType="Unspecified" preCondition="integratedMode,bitnes s64" /></pre>	
	System.webserver	Handlers	<pre><add name="CASiteMinderWebAgentHan dler-kcc" path="*.kcc" verb="*" modules="CASiteMinderWebagentM odule" resourceType="Unspecified" preCondition="integratedMode,bitnes s64" /></pre>	
	System.webserver	Handlers	<pre><add name="ReportViewerWebControlHa ndler" preCondition="integratedMode" verb="*" path="Reserved.ReportViewerWebC ontrol.axd" type="Microsoft.Reporting.WebForm s.HttpHandler, Microsoft.ReportViewer.WebForms, Version=11.0.0.0, Culture=neutral, PublicKeyToken=89845DCD8080CC 91" /></pre>	

File	Section	Configuration key	Configuration values (ex.)	Description
	System.webserver	Handlers	<pre><add type="DevExpress.Web.ASPxUpload ProgressHandler, DevExpress.Web.v20.1, Version=20.1.7.0, Culture=neutral, PublicKeyToken=b88d1754d700e49 a" verb="GET,POST" path="ASPxUploadProgressHandler Page.ashx" name="ASPxUploadProgressHandle r" preCondition="integratedMode" /></pre>	
	System.webserver	Handlers	<pre><add type="DevExpress.Web.ASPxHttpHa ndlerModule, DevExpress.Web.v20.1, Version=20.1.7.0, Culture=neutral, PublicKeyToken=b88d1754d700e49 a" verb="GET,POST" path="DX.ashx" name="ASPxHttpHandlerModule" preCondition="integratedMode" /></pre>	
	System.webserver	directoryBrowse	Enabled="false"	
	System.webserver	rewrite	<pre><rules><rule name="HTTP to HTTPS redirect" stopProcessing="true"> <match url="(*)" /> <conditions><add input="{HTTPS}" pattern="off" /> </conditions><action type="Redirect" url="https://{HTTP_HOST}/{R:1}" redirectType="Found" /> </rule></rules></pre>	

File	Section	Configuration key	Configuration values (ex.)	Description
	System.webserver	isapiFilters	<pre><filter name="SiteMinder Agent" path="D:\SiteMinder\webagent\win64 \bin\ISAPI6WebAgent.dll" enabled="true" preCondition="classicMode,bitness6 4" /><filter name="SiteMinder Agent- 32" path="D:\SiteMinder\webagent\win32 \bin\ISAPI6WebAgent.dll" enabled="true" reCondition="classicMode,bitness32" /></pre>	
	System.webserver	httpErrors	existingResponse="PassThrough"	
	Runtime	assemblyBinding xmlns="urn:schemas-microsoft-com:asm.v1"	<pre><dependentAssembly> <assemblyIdentity name="System.Web.Helpers" publicKeyToken="31bf3856ad364e3 5" /><bindingRedirect oldVersion="1.0.0.0-3.0.0.0" newVersion="3.0.0.0" /> </dependentAssembly> <dependentAssembly> <assemblyIdentity name="System.Web.WebPages" publicKeyToken="31bf3856ad364e3 5" /><bindingRedirect oldVersion="0.0.0.0-3.0.0.0" newVersion="3.0.0.0" /> </dependentAssembly> <dependentAssembly> <assemblyIdentity name="System.Web.Mvc" publicKeyToken="31bf3856ad364e3 5" /><bindingRedirect oldVersion="0.0.0.0-5.2.3.0" newVersion="5.2.3.0" /> </dependentAssembly></pre>	
	Runtime	NetFx40_LegacySecurityPolicy	Enabled="true"	
	System.servicemode	serviceHostingEnvironment	multipleSiteBindingsEnabled="true"	

File	Section	Configuration key	Configuration values (ex.)	Description
	System.servicemode 	Services	<pre><service name="BMS.Web.CacheService" behaviorConfiguration="BasicBinding Behavior"><host> <baseAddresses><add baseAddress="https://vaww.bms- preprod.va.gov:443/CacheService.sv c" /></baseAddresses> </host><endpoint address="" binding="basicHttpBinding" bindingConfiguration="SSL Transport " contract="BMS.ServiceContracts.ICa cheService" /></service></pre>	
	System.servicemode 	Bindings/WSHttpBindings/binding	<pre>name="wsUserName" maxReceivedMessageSize="214748 3647" closeTimeout="00:10:00" openTimeout="00:10:00" receiveTimeout="00:15:00" sendTimeout="00:10:00"> <security mode="Message"> <message clientCredentialType="UserName" negotiateServiceCredential="false" algorithmSuite="Default" establishSecurityContext="true" /> </security></pre>	
	System.servicemode 	Bindings/WSHttpBindings/binding	<pre>name="StsWinBinding" closeTimeout="00:10:00" openTimeout="00:10:00" receiveTimeout="00:15:00" sendTimeout="00:10:00"> <security mode="Message"> <message clientCredentialType="Windows" negotiateServiceCredential="true" establishSecurityContext="true" /> </security></pre>	

File	Section	Configuration key	Configuration values (ex.)	Description
	System.servicemode 	Bindings/WSHttpBindings/binding	<pre> name="MessageCertificate" maxReceivedMessageSize="214748 3647" closeTimeout="00:10:00" openTimeout="00:10:00" receiveTimeout="00:15:00" sendTimeout="00:10:00"> <readerQuotas maxDepth="32" maxStringContentLength="21474836 47" maxArrayLength="2147483647" maxBytesPerRead="4096" maxNameTableCharCount="16384"/ ><security mode="Message"> <transport clientCredentialType="Certificate"/> </security> </pre>	
	System.servicemode 	Bindings/basicHttpBinding/binding	<pre> name="defaultBasicHttpsBinding"> <security mode="TransportWithMessageCrede ntial"><transport clientCredentialType="None" proxyCredentialType="None" realm="" /><message clientCredentialType="Certificate" algorithmSuite="Default" /> </security> </pre>	

File	Section	Configuration key	Configuration values (ex.)	Description
	System.servicemode 	Bindings/basicHttpBinding/binding	<pre> name="InpatientSoap" closeTimeout="00:01:00" openTimeout="00:01:00" receiveTimeout="00:10:00" sendTimeout="00:01:00" allowCookies="false" bypassProxyOnLocal="false" hostNameComparisonMode="Strong Wildcard" maxBufferSize="2147483647" maxReceivedMessageSize="214748 3647" messageEncoding="Text" textEncoding="utf-8" transferMode="Buffered" useDefaultWebProxy="true"> <readerQuotas maxDepth="32" maxStringLength="21474836 47" maxArrayLength="2147483647" maxBytesPerRead="2147483647" maxNameTableCharCount="214748 3647" /><security mode="None"> <transport clientCredentialType="None" proxyCredentialType="None" realm="" /><message clientCredentialType="UserName" algorithmSuite="Default" /> </security> </pre>	
	System.servicemode 	Bindings/basicHttpBinding/binding	<pre> name="SSLTransport" maxReceivedMessageSize="214748 3647" closeTimeout="00:10:00" openTimeout="00:10:00" receiveTimeout="00:15:00" sendTimeout="00:10:00"> <security mode="Transport" /> </pre>	

File	Section	Configuration key	Configuration values (ex.)	Description
	System.servicemode	Behaviors\serviceBehaviors\behavior	name="BasicBindingBehavior"<dataContractSerializer maxItemsInObjectGraph="2147483647" /><serviceDebug includeExceptionDetailInFaults="true" /><serviceMetadata httpGetEnabled="true" /><serviceThrottling maxConcurrentCalls="2500" maxConcurrentSessions="2500" />	
	System.servicemode	Behaviors\endpointbehaviors\behavior	name="DataContractSerializer"><dataContractSerializer maxItemsInObjectGraph="2147483647" /></DataContractSerializer>	
	System.servicemode	Behaviors\endpointbehaviors\behavior	name="MessageCertificateCredentials"><dataContractSerializer maxItemsInObjectGraph="2147483647" /><clientCredentials><clientCertificate x509FindType="FindBySubjectName" findValue="IWHM3Services" storeName="My" storeLocation="LocalMachine" /></clientCredentials>	
Log4net		root	<level value="OFF" /> <appender-ref ref="SQLAppender" />	
Log4net		Appender Name = "FileAppender type="log4net.Appender.FileAppender"	Name = "FileAppender type="log4net.Appender.FileAppender"	
Log4net		Appender Name = "FileAppender type="log4net.Appender.FileAppender"	<file value=log-file.txt" /><appendToFile value="true" /><layout type="log4net.Layout.PatternLayout"><conversionPattern value="%date [%6thread] -%gt; &message% <-%n" />	

File	Section	Configuration key	Configuration values (ex.)	Description
	Log4net	Appender Name= "SQLAppender" type="log4netAsync.AsyncAdoNetAppender, log4netAsync"	<bufferSize value="1000"/> <connectionType value="System.Data.SqlClient.SqlCo nnection, System.Data, Version=1.0.3300.0, Culture=neutral, PublicKeyToken=b77a5c561934e08 9" /> <connectionString value="data source=vaaussqlbms410;Network Library=DBMSSOCN;initial catalog=BMS_LOG;integrated security=SSPI;persist security info=False;Pooling=true;Min Pool Size=0;Max Pool Size=250;" /> <commandText value="INSERT INTO Log ([Date],[Thread],[Level],[Logger],[Me ssage],[Exception]) VALUES (@log_date, @thread, @log_level, @logger, @message, @exception)" >	
	Log4net	Appender Name= "SQLAppender" type="log4netAsync.AsyncAdoNetAppender, log4netAsync"	<parameter><parameterName value="@log_date" /><dbType value="DateTime" /> <layout type="log4net.Layout.RawTimeStam pLayout" /></parameter>	
	Log4net	Appender Name= "SQLAppender" type="log4netAsync.AsyncAdoNetAppender, log4netAsync"	<parameter><parameterName value="@thread" /><dbType value="String" /><size value="255" > <layout type="log4net.Layout.PatternLayout" ><conversionPattern value="%thread" ></layout></parameter>	

File	Section	Configuration key	Configuration values (ex.)	Description
	Log4net	Appender Name= "SQLAppender" type="log4netAsync.AsyncAdoNetAppender, log4netAsync"	<parameter><parameterName value="@log_level" /><dbType value="String" /><size value="50" /><layout type="log4net.Layout.PatternLayout" ><conversionPattern value="%level"></layout></paramete r>	
	Log4net	Appender Name= "SQLAppender" type="log4netAsync.AsyncAdoNetAppender, log4netAsync"	<parameter><parameterName value="@logger" /><dbType value="String" /><size value="255" /><layout type="log4net.Layout.PatternLayout" ><conversionPattern value="%logger" /></layout></parameter>	
	Log4net	Appender Name= "SQLAppender" type="log4netAsync.AsyncAdoNetAppender, log4netAsync"	<parameter><parameterName value="@message" /><dbType value="String" /><size value="4000" /><layout type="log4net.Layout.PatternLayout" ><conversionPattern value="%message" /></layout> </parameter>	
	Log4net	Appender Name= "SQLAppender" type="log4netAsync.AsyncAdoNetAppender, log4netAsync"	<parameter><parameterName value="@exception" /><dbType value="String" /><size value="2000" /><layout type="log4net.Layout.ExceptionLayo ut" /> </parameter>	

File	Section	Configuration key	Configuration values (ex.)	Description
	Log4net	Appender Name= "SQLAppender" type="log4netAsync.AsyncAdoNetAppender, log4netAsync"	<filter type="log4net.Filter.StringMatchFilter ><stringToMatch value="00:00:00.00" ><acceptOnMatch value="false" ></filter>	
	Log4net	Appender Name= "SQLAppender" type="log4netAsync.AsyncAdoNetAppender, log4netAsync"	<filter type="log4net.Filter.StringMatchFilter ><stringToMatch value="Entry" ><acceptOnMatch value="false" /> </filter>	

2.4. Ward Whiteboard Kiosk Mode Display Configuration (BMS Whiteboard Kiosk Setup)

An electronic kiosk (or computer kiosk) houses a computer terminal designed to function while preventing users from accessing system functions. BMS has adopted the use of electronic kiosks to provide sites with the capability to setup Large Screen Displays for the BMS Ward Whiteboard for greater visibility. The Whiteboard Kiosk is read only access page that presents an overview of the beds in the current facility (or in the selected ward) and allows the user to assess at a glance the bed availability in their facility (or ward). Kiosk mode locks down the user interface to protect applications from accidental or deliberate misuse. These displays should be placed carefully, considering that confidential patient data (Social Security Number) should not be in view of people who are not authorized to see it.

Figure 2– BMS Ward Whiteboard Screen

BED	PT	STAFF	ATTENDING	COMMENTS	DISCH STATUS	BED STATUS	WARD	REPLY	LOS WARD
CR400-1T									
CR400-2T									
CR500-1T									
CR500-2T									
CR700-1T			SHALE, JOHN				T CR - GENERAL CWT/TR	🚫	17:04
CR700-2T			KHZE, KARLA				T CR - GENERAL CWT/TR	🚫	23:04
CR700-2T			SHALE, JOHN				T CR - GENERAL CWT/TR	🚫	21:04

Setting up for the BMS Whiteboard Kiosk involves a series of steps that most often are performed by IT staff with access to Local Site network configuration and/or staff with authority to request the required Local Site and Active Directory (AD) network configuration changes.

Steps for configuring the BMS Whiteboard Kiosk can be divided into three major categories:

- The Ward Whiteboard Kiosk URL
- The Network User for BMS Kiosk Access
- The Kiosk Workstation for Local Site Use

Each category involves a series of required steps to ensure successful operation of the Kiosk. Following is an outline of the process to setup and configure the BMS Whiteboard Kiosk for a local site.

- 1) Create the Ward Whiteboard Kiosk URL. See details in [2.4.1 Create the Ward Whiteboard Kiosk URL](#)
 - a) Determine the BMS Whiteboard Parameters for Kiosk Operation and Setup
 - b) Test the URL in a browser
- 2) Set up a default user for the kiosk. See details in [2.4.2 Set up a default user for the BMS Kiosk](#)
 - a) Set up the Network User for BMS Access
 - b) Configure the Whiteboard Kiosk Default Login User in BMS

- c) Assign a Role to the Whiteboard Kiosk Default User in BMS
- 3) *Set up the Workstation / Kiosk Machine. See details in [2.4.3 Set up the Workstation / Kiosk Machine](#)*
- a) Disable the Screen Saver
 - b) Configure the Power Settings to Disable Sleep and Standby Mode
 - c) Configure Auto Log in Option and stop MS Lync from opening upon start up
 - d) Set the URL as the Home Page in IE
 - e) Add https://<servername>.gov to “Trusted Sites” in IE
 - f) Add to the start-up commands (Windows) the launch of the browser
 - g) Close IE, and restart to test
 - h) Set Registry Keys to configure Kiosk for local Site use

2.4.1. Create the Ward Whiteboard Kiosk URL

The Ward Whiteboard display uses parameters to determine the behavior of the display. For example, the whiteboard can display a specific ward or ALL wards for a site by setting the parameter **wardName**. Below is a description for each whiteboard display parameter along with available options for each.

Table 5-Ward Whiteboard URL Configuration Parameters

Parameter	Short Description	Options
facilityCode	Code of facility (e.g., BROCKTON = BRK).	Enter the 3 character facility ID.
wardName	Name of BMS Ward Name. To see all the wards the value that needs to be configured is ALL.	These are the BMS WARDS as defined in the Facility, Site Options, VistA Ward Add/Edit. The Ward name value should match the "BMS WARD GROUP TEXT". A single ward can be entered or the value "ALL" to display all the wards at the facility.
splitScreen	To split the page in two tables enters the value "Yes".	Yes No
displayPTCode	How the patient should be displayed under the column "Patient" (full name or 1st+Last 4) or LastName. LastName is required for Kiosk mode due to Privacy regulations.	FirstAndLast4 LastName
genderColorCode	To change the background color for the row according with patient's gender.	Blue/Pink None
displayFooterCensus	To view the footer census.	Yes No
displayStaffAttending	What column is displayed in the table? (Staff column, Attending column or both).	Staff and Attending Staff Attending
scrollRate	The timer interval will affect the scrolling speed. This parameter can be absent. (If specified then it represents seconds).	Null or an integer value.

2.4.2. Set up a Default User for the BMS Kiosk

Create a network service account for accessing the BMS page. Make sure that it is in an Organizational Unit (OU) that will not get the Enterprise System Engineering (ESE) Federal Desktop Core Configuration (FDCC) / US Government Configuration Baseline (USGCB) User Settings. Set the “Log on to” so the account can only log onto the kiosk PC you are setting up.

2.4.2.1. Set up the Network User for the BMS Access

- Create AD User with non-expiring password under Service Accounts for the local site. If you are not an AD administrator then provide the following instruction to the AD along with your request for a new service account.

In Active Directory Create a Generic User with a Non-Expiring password in Service Accounts for your location with Access to All Computers.

NOTE: You will create a single ID, not one for every PC. Also, do not setup auto login with this generic account at this point as PCs will automatically lock at this level.

- Right click the “Service Accounts” folder (VXX.med.va.gov/VISNxx/Facility(XXX)/Service Accounts) and select New...User.

NOTE: Do not use the “Service Accounts” folder directly under vXX.med.va.gov. Under First Name, enter vhaXXX_____ (such as vhaSTLBMSUser)

- Enter the same under “User Login Name”
- Enter a password when prompted and select
- Uncheck “User must change password at next logon”
- Check “Password never expires”
- Click “OK” at the warning that the user will not be prompted to change the password.
- Click “Next”
- At the top of the screen the path should read, “vXX.med.va.gov/VISNxx/Facility(XXX)/Service Accounts”
- Uncheck “Create an Exchange Mailbox”
- Click “Next”
- Review confirmation screen for accuracy and click “Finish”.
- Your new account should be available in your “Service Accounts” list. You may have to refresh your list to see it.
- Double-click your new account, in the description field, add
- SERVICE ACCOUNT: VHAxxxxxxxx(YourUserName): BMS DISPLAY
- In the Account tab, ensure “This user can log on to “All computers”. Do not identify any specific computers.
- When you are finished, your new account in the Service Accounts list should only show a Name, Type, and Description. All other fields should be blank.

2.4.2.2. Configure the Whiteboard Kiosk Default Login User in BMS

For the current facility that will display the associated Whiteboard page, a default user needs to be configured in BMS application for the Ward Whiteboard Kiosk.

To configure the Whiteboard Kiosk Default User:

- Go to the *BMS Site Home Page*
- Click on the **Site Options** link
- Click on the **Facility Setting** link
- Fill the fields “**Whiteboard Kiosk Default User Name:**”, “**Whiteboard Kiosk Password:**” and “**Whiteboard Kiosk Password Confirm:**” with the BMS Service Account ID

Figure 3-BMS Infrastructure Diagram

PARAMETER	OPTIONS
BMS Server Time Zone	CENTRAL STANDARD TIME
Facility Site Time Zone	CST
Auto-Removal Patients Pending Bed Placement List?	Yes
Auto-Remove Edis Patients from Pending Bed Placement List?	No
Auto Placement of Transfers onto PPSP List?	Yes
Integrated Facility?	No
Facility Name:	VA NORTH TEXAS HEALTH CARE SYSTEM (DALLAS W)
Facility Address 1:	4500 S. LANCASTER RD
Facility Address 2:	DALLAS, TEXAS 75210
Facility Point-of-Contact:	JEFF ALLEN
Facility POC Email:	JEFFREYD.ALLEN@VA.GOV
Facility POC Telephone:	214 857-4807
Local Time Adjust:	0
EMS Default User Name:	whantbednrgnt
EMS Password:	
EMS Password Confirm:	
Whiteboard Kiosk Default User Name:	whantkioskbnsw
Whiteboard Kiosk Password:	
Whiteboard Kiosk Password Confirm:	

- Click **Submit**

2.4.2.3. Assign a Role to the Whiteboard Kiosk Default User in BMS

Each facility must assign the BMS “EMS USER” Role to the Service Account ID created to run the Whiteboard Kiosk URL. This assignment can be done from the **BMS Admin Section** → **Add/Edit BMS User** hyperlink or Facility **Site Options** → **BMS User Add/Edit** hyperlink.

- Click the **Select Existing NT User Name** button
- Select the correct *VISN Domain* from the left Drop Down Box.
- **In the User Name box Enter the BMS Service Account ID created for the BMS EMS/Whiteboard Kiosk. Then click the Find button**
- Click the **Selected Radio** button for the user. Then click the **Select** button.
- In the *EMS User* box, select “Yes”. All other roles should be “No”.
- In the *Default Region* box, select the correct *Region*.
- In the *Default VISN* box, select the correct *VISN*.
- In the *Default Site* box, select your *Site*.

- In the *READ Access* box, select “Yes”.

Figure 4- Whiteboard Kiosk User Role Assignment

The screenshot shows a web application interface for user management. At the top, it says 'ADMINISTRATION SECTION - USERADD/EDIT'. Below this, there are two main sections: 'PARAMETER' and 'OPTIONS'. The 'PARAMETER' section includes fields for 'NT User Name' (v17.med.va.gov/vhantbbedgmt), 'Support User?', 'National User?', 'Regional User?', 'VISN User?', 'Admin User?', 'Audit Log User?', 'Site User?', 'EMIS User?' (highlighted with a red box), 'EMS Supervisor User?', 'Guest User?', 'Default Region:' (2), 'Default VISN:' (17), and 'Default Site:' (NTX - VA NORTH TEXAS HEALTH CARE SYSTEM: [dropdown]). The 'OPTIONS' section includes 'READ Access?' (highlighted with a red box and set to 'Yes') and 'WRITE Access?' (highlighted with a red box and set to 'Yes'). Below these options, there is a checkbox for 'Display only the facilities with permissions' which is checked. At the bottom, there is a table with columns for 'READ Access', 'WRITE Access', 'Region', 'VISN', and 'Facility'. The table contains one row with values: READ Access [checked], WRITE Access [checked], Region 2, VISN 17, and Facility DALLAS (549, NTX). At the very bottom, there are 'Submit' and 'Cancel' buttons. A red arrow points to the 'Submit' button.

- Click **Submit**

2.4.3. Set up the Workstation / Kiosk Machine

After setting up the workstation / Kiosk machine, it will automatically log in to Windows, and automatically login to BMS.

2.4.3.1. Disable Screen Saver

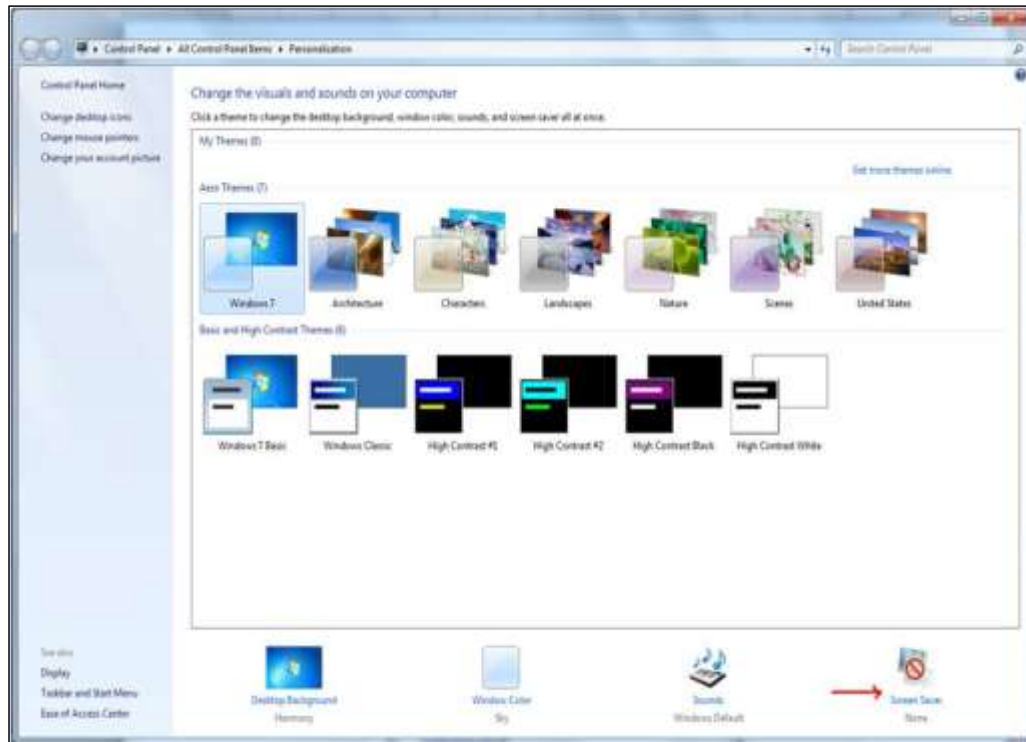
In order to display the Whiteboard page continuously the screen saver needs to be disabled.

NOTE: The Windows menu that allows the disable of the screen saver might be different from one version of Windows to another. For example, for Windows 7 the needed operations are:

- Right click on the desktop
- Click **Personalize**

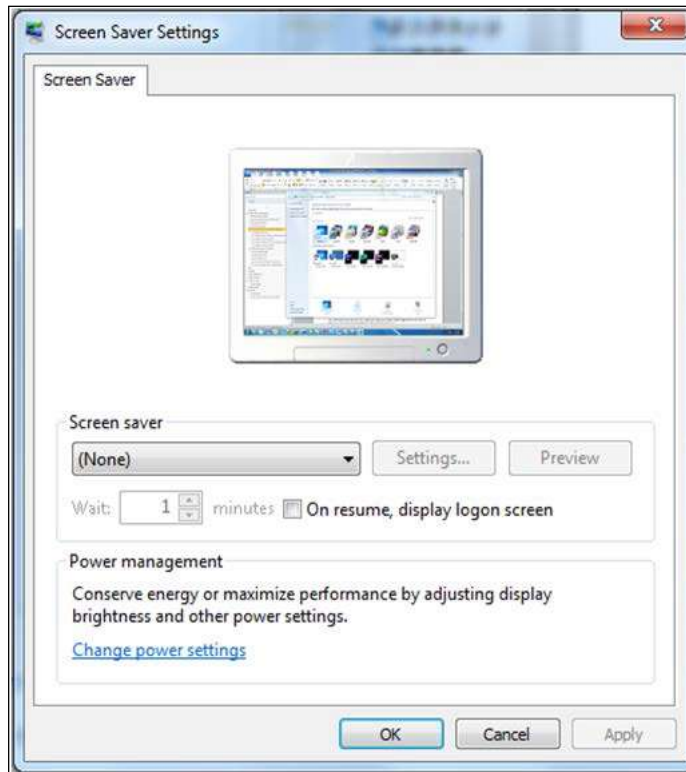
- *Click on the screensaver button on the lower-right part of the page*

Figure 5- Screen Saver Option



- *Select **None** from the screensaver drop down on the displayed form*

Figure 6- Screen Saver Settings Window



- *Click **OK**.*

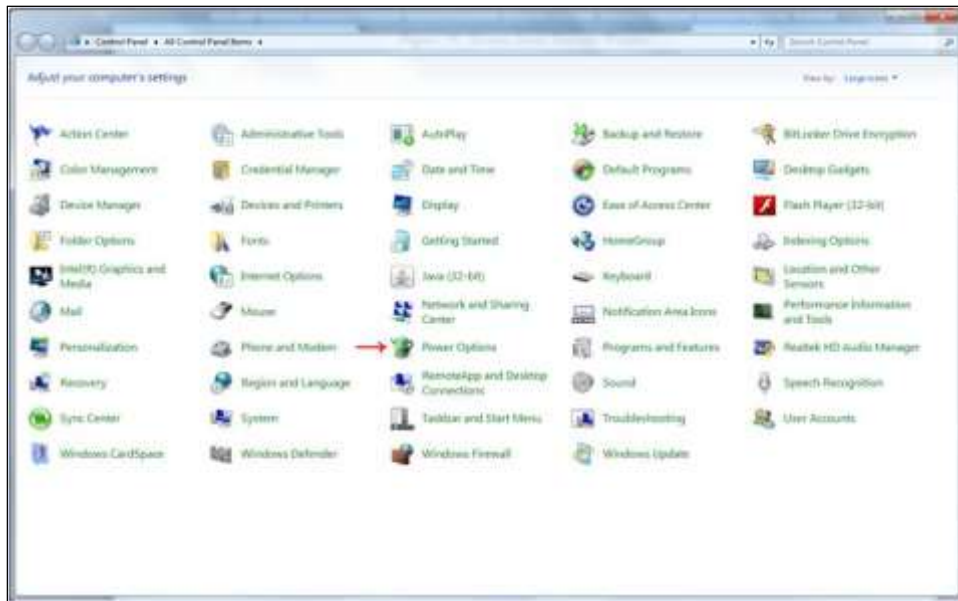
2.4.3.2. Configure Power Settings: Disable Sleep and Stand-by Mode

In order to display the Whiteboard page continuously the power settings need to be adjusted so that the computer will never enter into hibernate or stand-by and also the screen will never turn off.

NOTE: The Windows menu that allows the configuration of the power settings might be different from one version of Windows to another. For example, for Windows 7 the needed operations are:

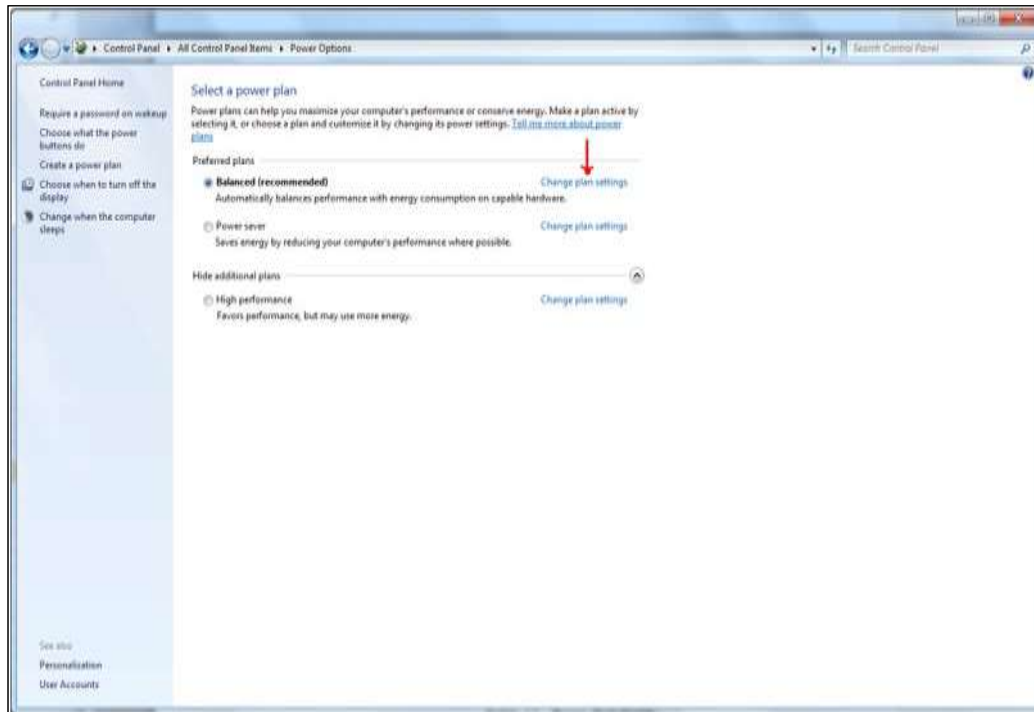
- *Go To Control Panel*
- *Select Power Options*

Figure 7- Power Options



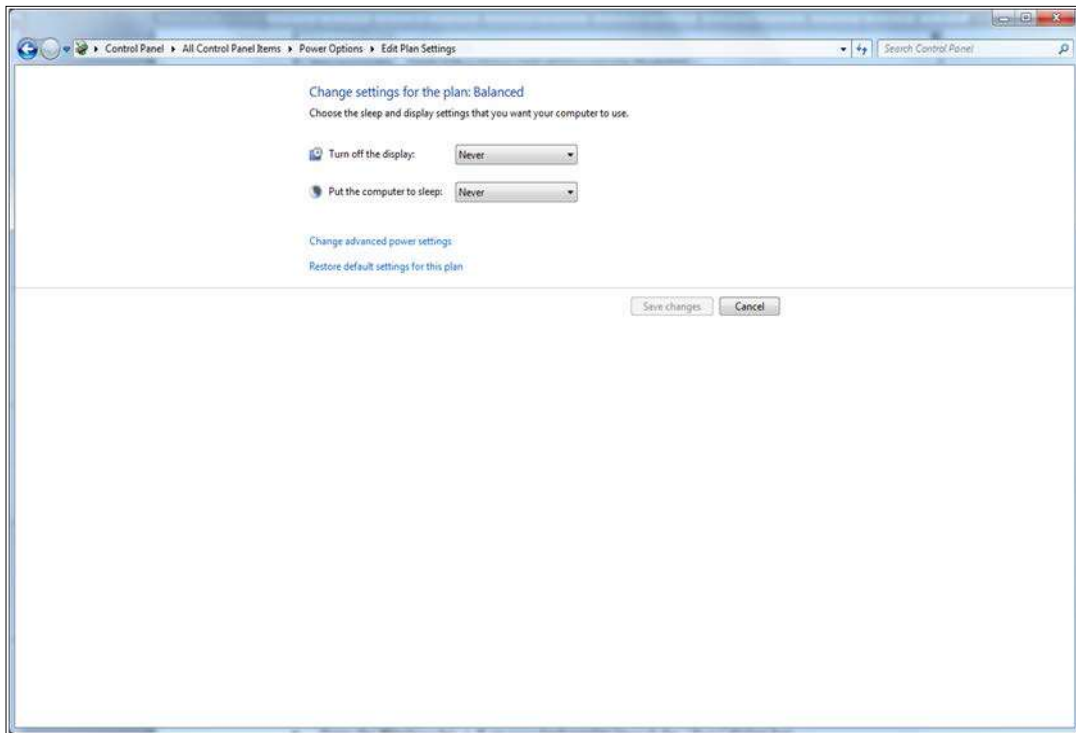
- Click on "Change Plan settings" for the active plan

Figure 8- Change Plan Settings Options



- Select "Never" from the drop downs associated with "Turn off the display" and "Put the computer to sleep"

Figure 9- Power Options Settings



- *Click "Save changes"*

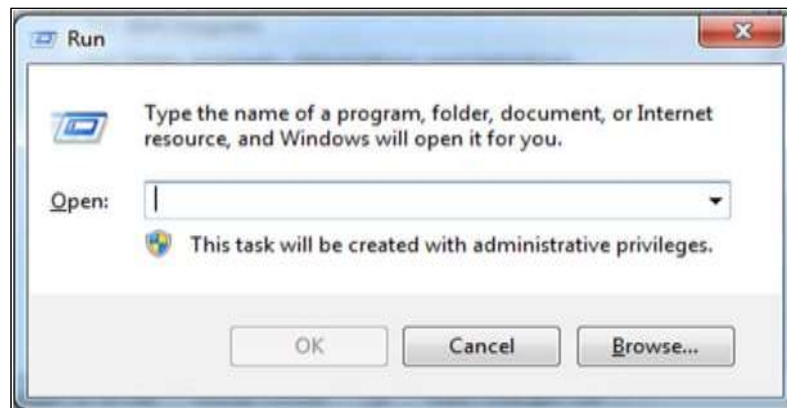
2.4.3.3. Configure Auto-login Option and stop Microsoft Lync from Opening upon Start Up

Configure Auto-Login: The computer that will display the Whiteboard page needs to have the auto-login configuration set to "true".

NOTE: The Windows menu that allows the configuration of the auto-login settings might be different from one version of Windows to another. For example, for Windows 7 the needed operations are:

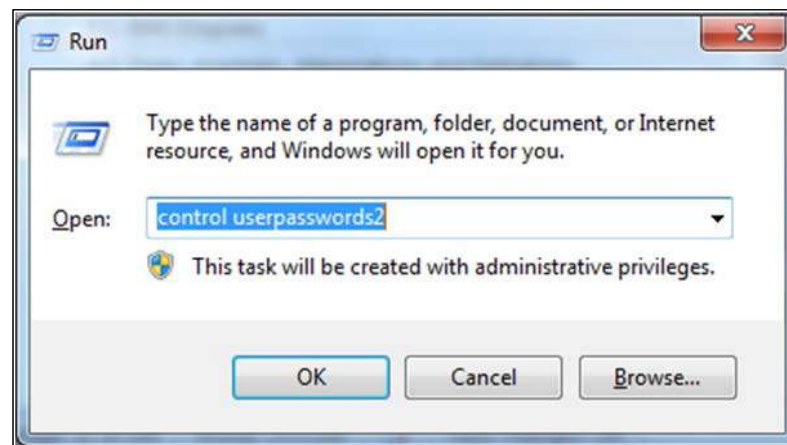
- *Press the Windows key + R on your keyboard to launch the "Run" dialog box.*

Figure 10- Run Window



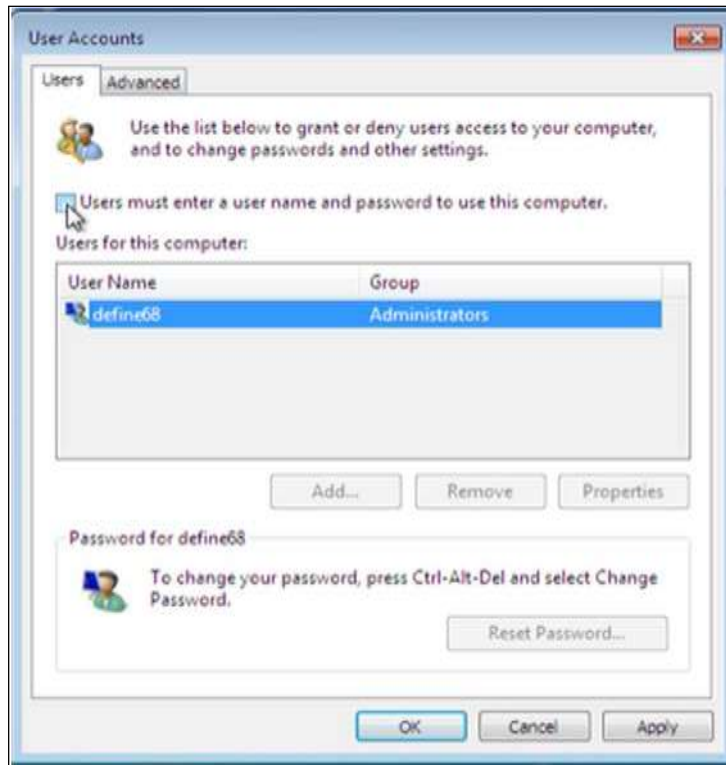
- *Type in "control userpasswords2"*

Figure 11- Run Window with Command Entered



- *Press Enter. The User Accounts window will display.*

Figure 12- User Accounts Window



- *Uncheck the option “Users must enter a user name and password to use this computer” for the BMS Default Kiosk User Account*

Figure 13- User Accounts



- *Click “OK”*

Stop Microsoft Lync from opening at startup: **To stop Microsoft Lync from opening at startup follow the steps below**

- *From the Start Menu,*
- *Go to All Programs >Microsoft Lync*
- *Open Microsoft Lync*
- *Go to Tools>Options>Personal*
- *Uncheck “automatically start Lync when I log on to Windows” & “Show Lync in foreground when it starts”.*

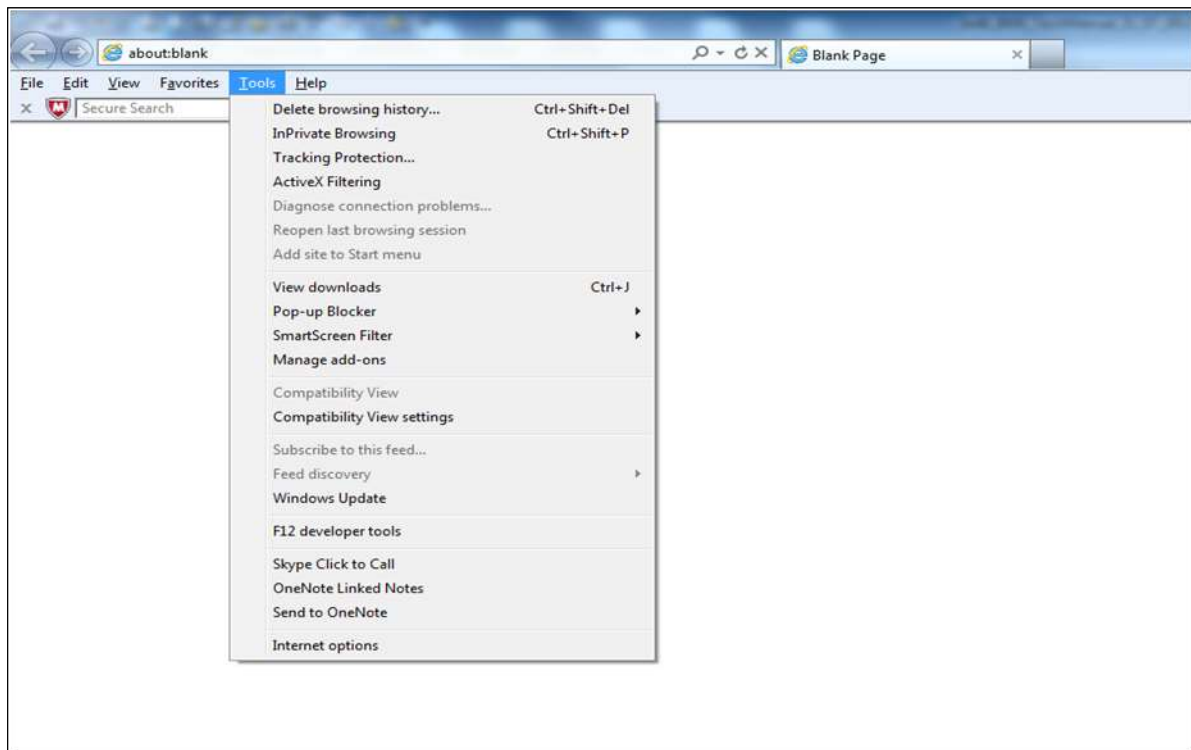
2.4.3.4. Set the URL (from Step 2.4.1) as the Home Page in Internet Explorer

The specific Ward Whiteboard Kiosk URL needs to be configured as the Home-Page for the intended browser. The menu to set the default home-page might differ from one browser to another.

For example, for Internet Explorer (IE) 9.0 the user needs to:

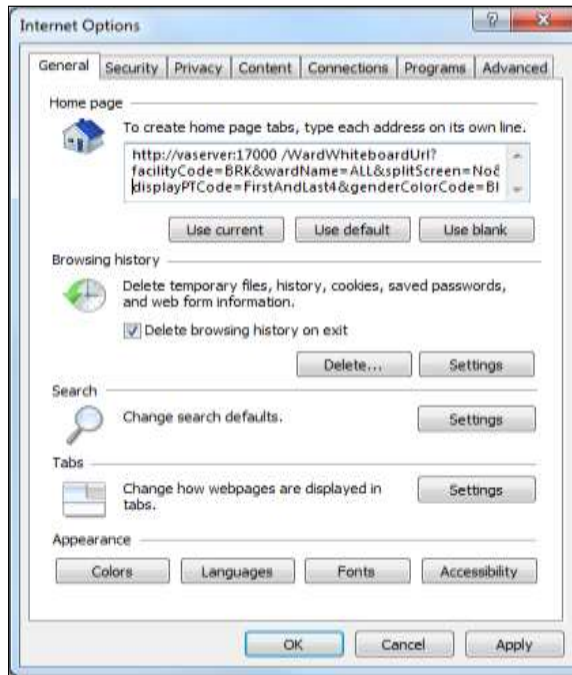
- **Select *Tools* menu**

Figure 14- Tools Menu of Internet Explorer



- **Select *Internet Options***
- *On the General tab, under the homepage text field enter the URL*
- **Click *OK***

Figure 15- General Tab of Internet Options



2.4.3.5. Add BMS to the “Trusted Sites”

To add BMS to “Trusted Sites” in Internet Explorer

- *Go to **Tools>Internet Options>Security>Trusted sites>Sites***
*In the “Add this website to the zone:” field, enter **https://<servername>.gov***
- *Click **Add**, Click **OK***

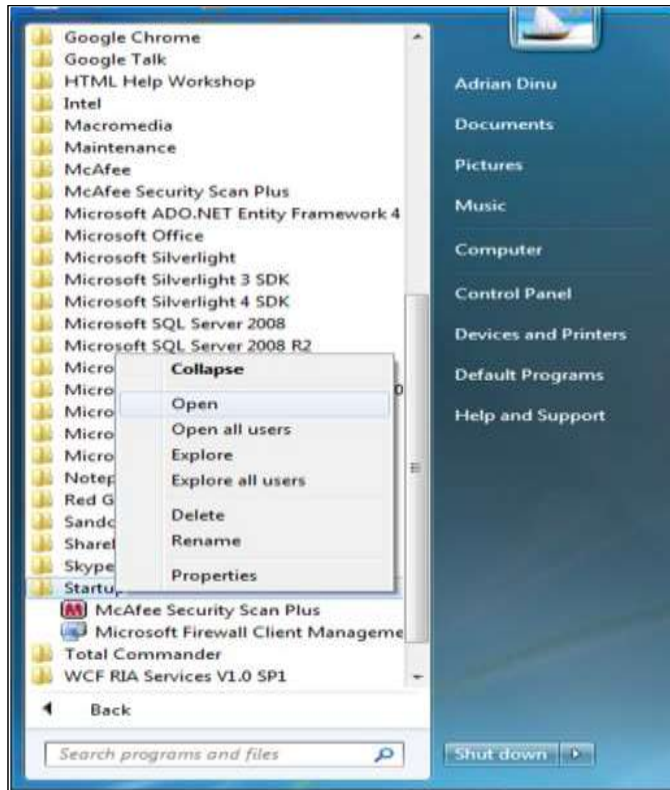
2.4.3.6. Add the Launch of the Browser to the Windows Start Up Commands

The next step is to add to the startup commands the launch of the chosen browser.

NOTE: This operation might differ from one version of Windows to another. For example, for Windows 7 the steps needed are:

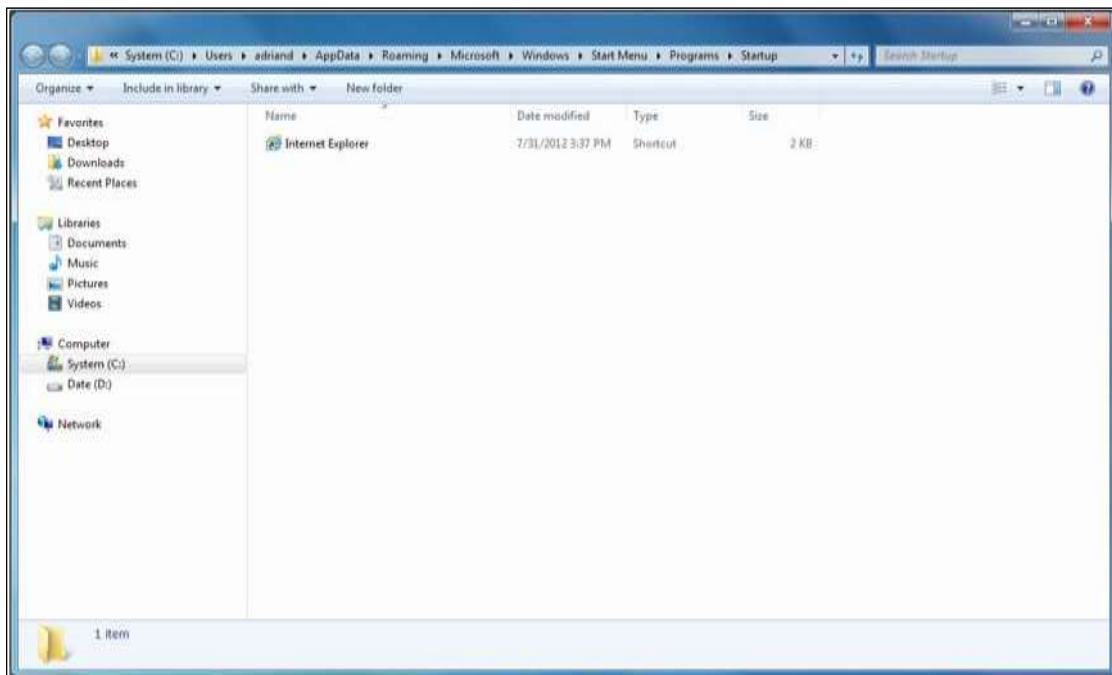
- *Click **Start***
- *Select **All Programs***
- *Right click on the **Startup** folder*
- *Select **Open***

Figure 16- Open Option



- Create a shortcut of the Internet Explorer and copy it to Startup folder

Figure 17- Internet Explorer Shortcut



2.4.3.7. Test the Kiosk

Close Internet Explorer. Restart Internet Explorer. The BMS Ward Whiteboard for the Kiosk should come up.

2.4.3.8. Set the Registry Keys to Configure the Kiosk for Local Site Use

The purpose of the following steps is to configure Kiosk workstation to serve one function only: BMS Ward Whiteboard display. The following instruction leads you through a series of steps that effectively lock down the workstation for this purpose. Access to workstation software and/or desktop will be prevented after the configuration setup is complete. The Whiteboard Kiosk is read only.

*It is recommended that prior to performing the configuration steps outlined in this section a backup of the existing system be created for rollback / recovery purposes, and that a restoration point be created.

- 1) Modify Registry Settings

Figure 18-Windows Registry Editor

```
Restriction.reg

Windows Registry Editor Version 5.00

[HKEY_LOCAL_MACHINE\SOFTWARE\Policies\Microsoft\Internet Explorer\Restrictions]
"NoBrowserContextMenu"=dword:00000001
"NoFileOpen"=dword:00000001
"NoOpenInNewWnd"=dword:00000001
```

- 2) Run Restrictions.reg by double-clicking filename from Windows Explorer. Verify settings have been applied.
- 3) Modify Local Group Policy Settings

For local group policy changes run gpedit.msc and make the following changes:

User Configuration\Administrative Templates\System\Ctrl+Alt+Del Options

- Remove TaskManager..... Disable
- Remove Lock Computer Enable
- Remove Change Password Enable
- Remove Logoff..... Enable

User Configuration\Administrative Templates\Control Panel\Display

- o Password protect the screen saver Disabled

Verify all settings have been applied. The purpose of these settings is to lock down the workstation for one purpose only, BMS Whiteboard Kiosk.

- 4) Reboot Kiosk Machine to test set up.

*Note; if Kiosk continually “freezes”, please contact the Service Desk to have an IE Refresher script installed.

2.5. Whiteboard Snapshot Configuration

In order to configure the Whiteboard snapshot certain steps, need to be completed:

1. *Create Snapshot Folder*
2. *Define Network Share*
3. *Assign Rights to User*
4. *Assign Snapshot Folder Path to Ward Group*
5. *Associate Scheduler with the Whiteboard Report*

Suppose the goal is to configure the settings for two BMS Ward Groups: WARD GROUP 1 and WARD GROUP 2.

Assuming that these two Ward groups are in different physical locations, a designated workstation will be assigned for each one of them.

For the purpose of example, these workstations are called: WARDGROUP1-PC and WARDGROUP2- PC.

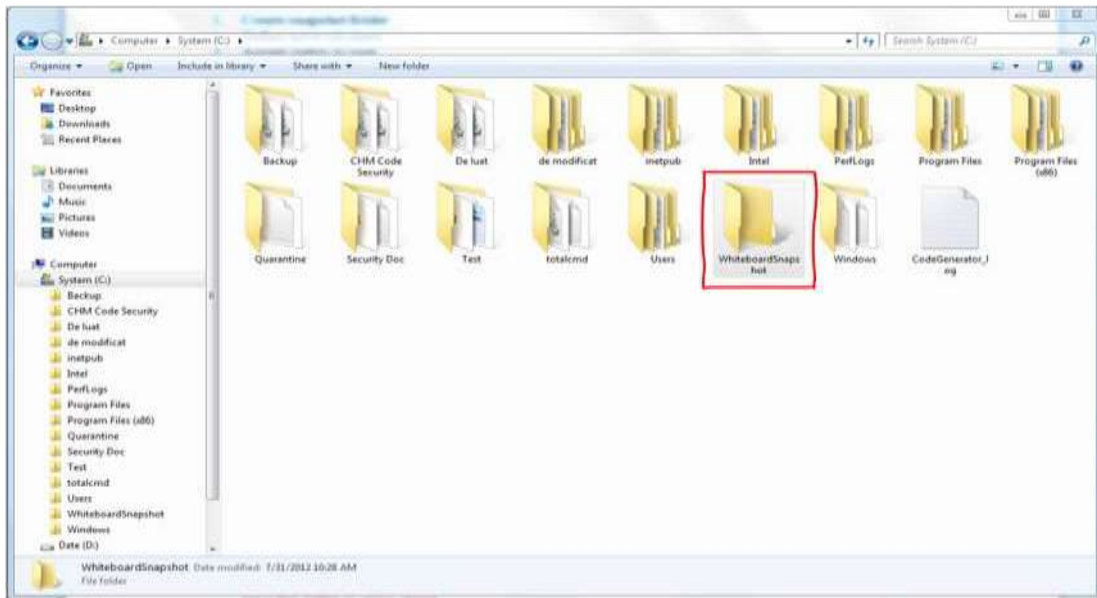
2.5.1. Create Snapshot Folder

On WARDGROUP1-PC and WARDGROUP2-PC, a folder should be created for this purpose. For example, assume that this folder is on the “C:” drive, like this “C:\WhiteboardSnapshot”.

On Windows 7 the needed operations are:

- *Click **Start** button*
- *Select **All Programs***
- *Select **Accessories** folder*
- *Click **Windows Explorer***
- *Go to C drive*
- *Right click on C drive*
- *Select **New folder***
- *Enter the name of the folder, e.g. **WhiteboardSnapshot***

Figure 19- Whiteboard Snapshot Folder



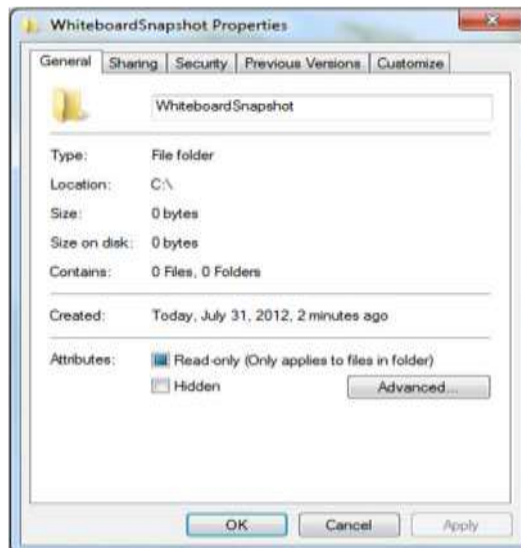
2.5.2. Define Network Share

For these two folders (one on each computer) the Network Admin needs to define network shares. For example, assume that the network share name on each computer is “WhiteboardSnapshot”.

Note: The Windows menu that allows the configuration of folder sharing might be different from one version of Windows to another. For example, for Windows 7 the needed operations are:

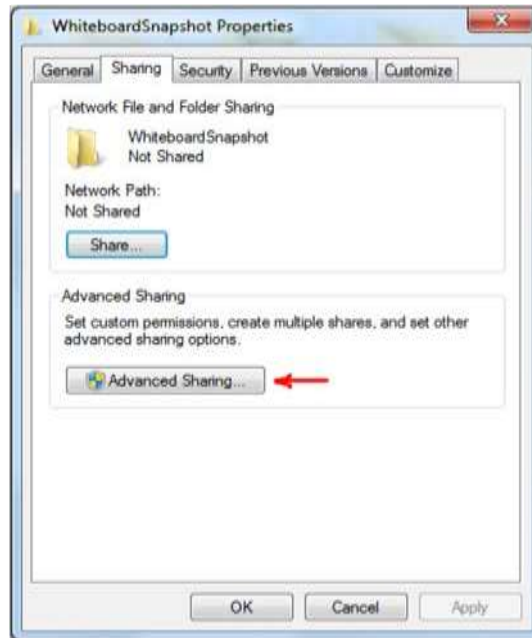
- *Navigate to the “WhiteboardSnapshot” folder, right-click it and choose Properties*

Figure 20- Whiteboard Snapshot Folder Properties



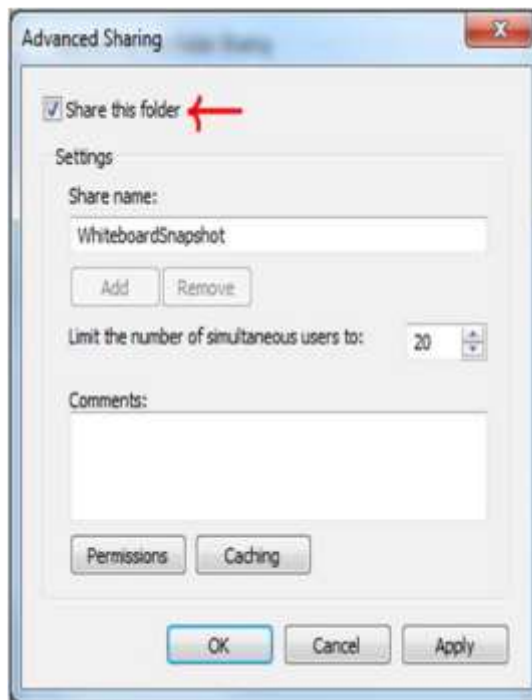
- *Go to Sharing tab and select Advance Sharing option.*

Figure 21- Advanced Sharing Option



- *In Advanced Sharing dialog, enable Share this folder option. It will automatically add folder's name as Share name.*

Figure 22- Share this Folder Option



2.5.3. Assign Rights to Master BMS Service Account User

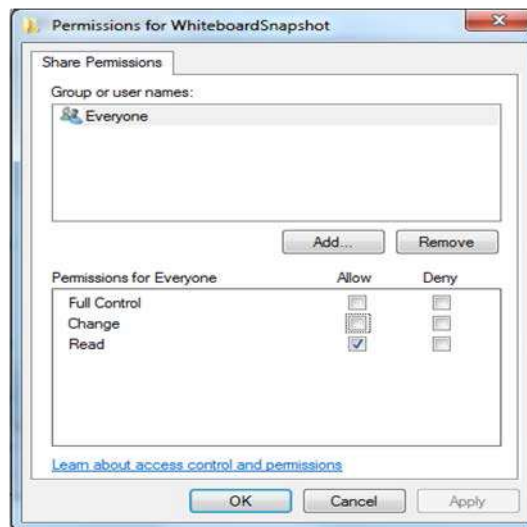
The BMS Application runs under a service account. AITC has created the Windows User (**acc\VAAACBMSPrd**) as the master service account that the BMS Services runs under. The Windows user (**aac\VAAACBMSPrd**) that is configured to be the Login that runs the four BMS Windows Services needs to have full rights to these shares.

This user must have full control on each facilities file folder that is used to store the Whiteboard Contingency Reports.

On Windows 7 the needed operations are:

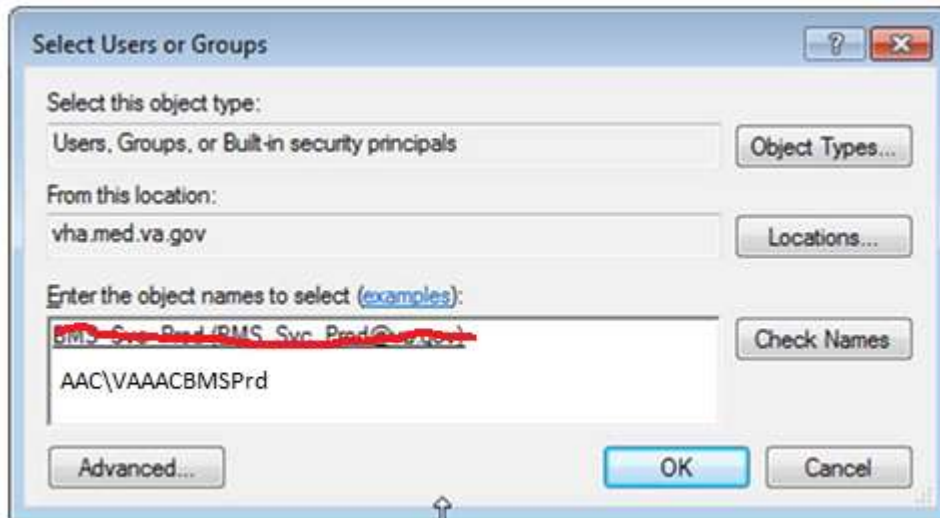
- *Having Advanced Sharing window open, click on **Permissions** button to set the folder's permissions.*

Figure 23- Permissions for Whiteboard Snapshot



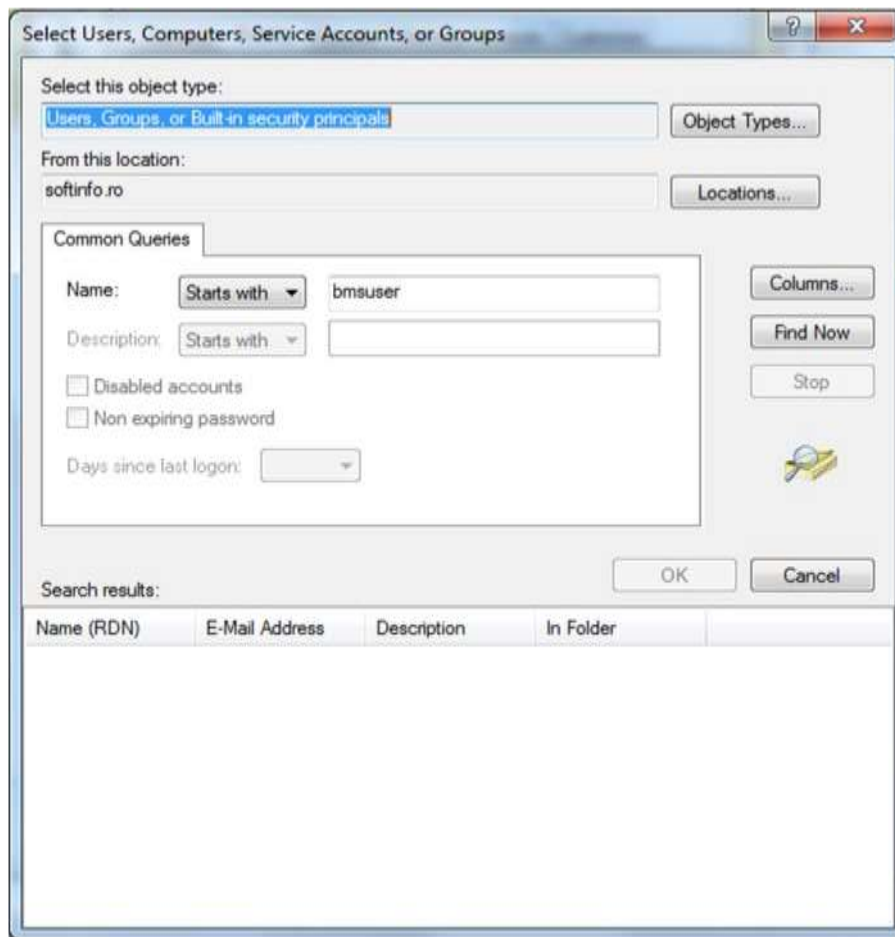
- *In the Permissions window click **Add** button to set the network user rights on the shared folder.*

Figure 24-Select Users or Groups Window



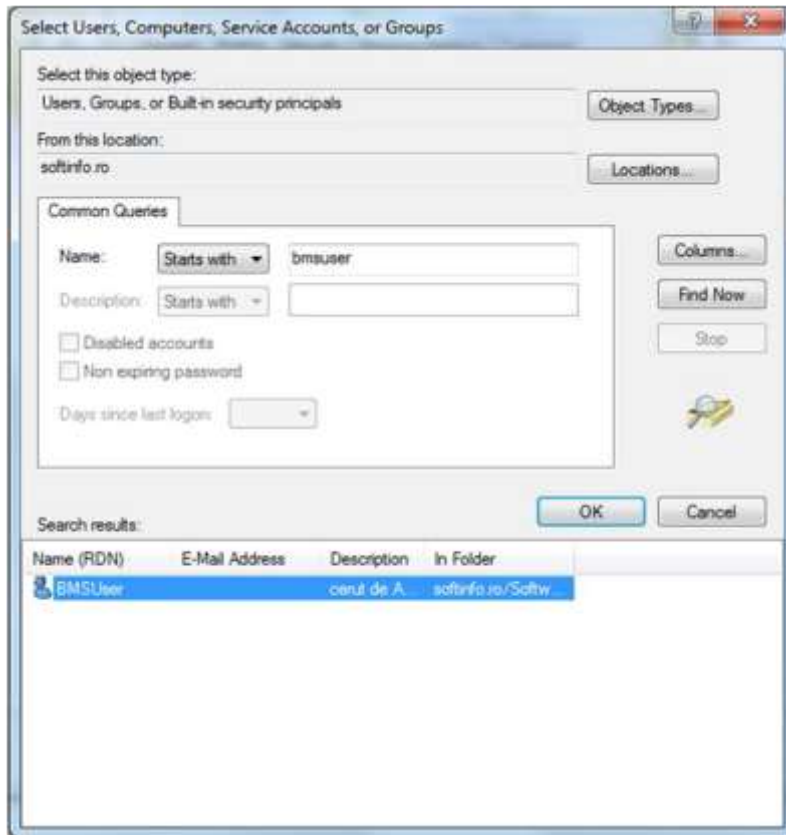
- Click “Advanced” button to select user.

Figure 25- Advanced Section of Select Users or Group Window



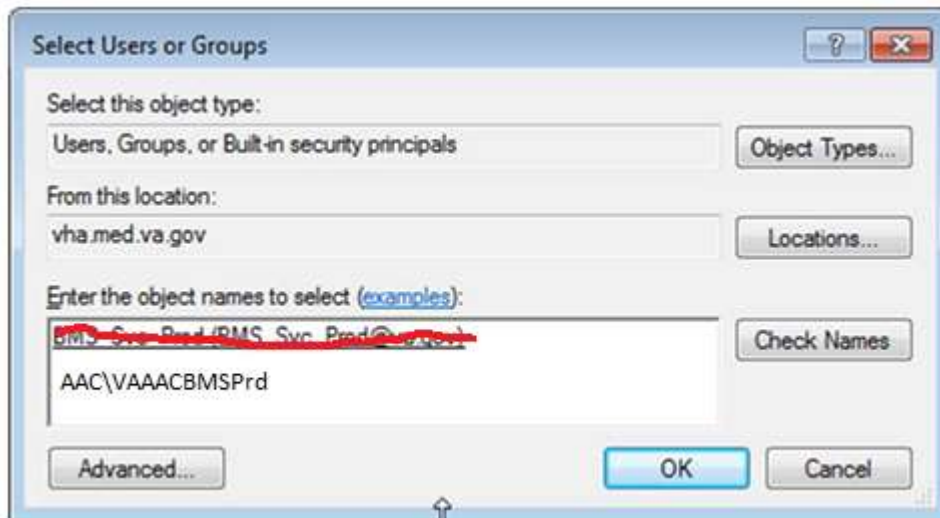
- Enter the name of the user (*aac\VAAACBMSPrd*) that runs the two BMS Windows Services. Click **Find Now** button.

Figure 26- Search Result Section



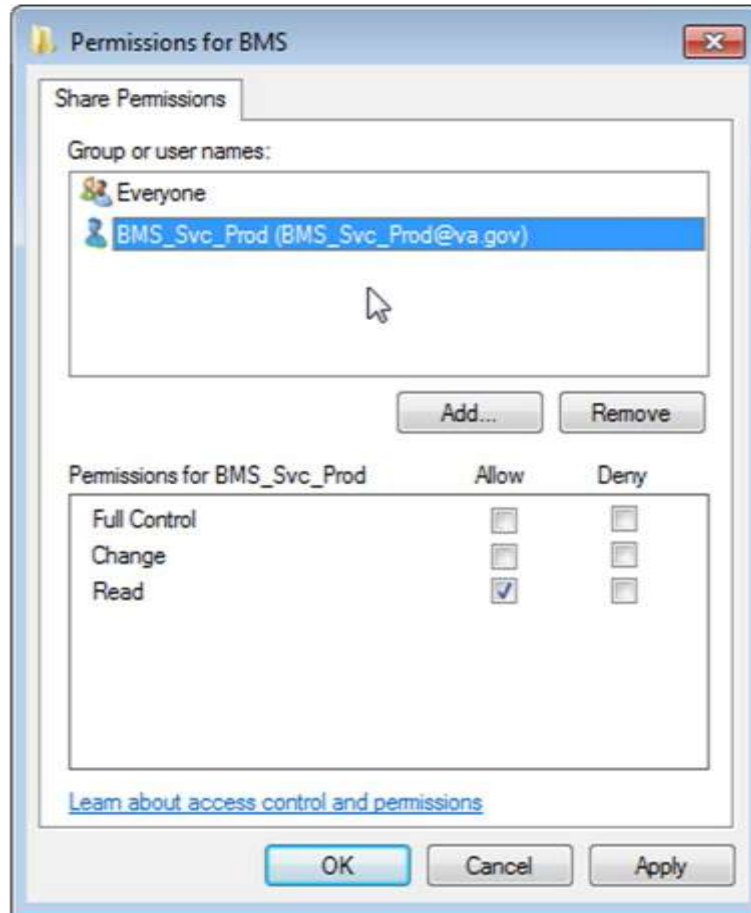
- Scroll down the Search results section to select the user. Once done, click **OK**. It will add the user within the object names section.

Figure 27- Object Names Section



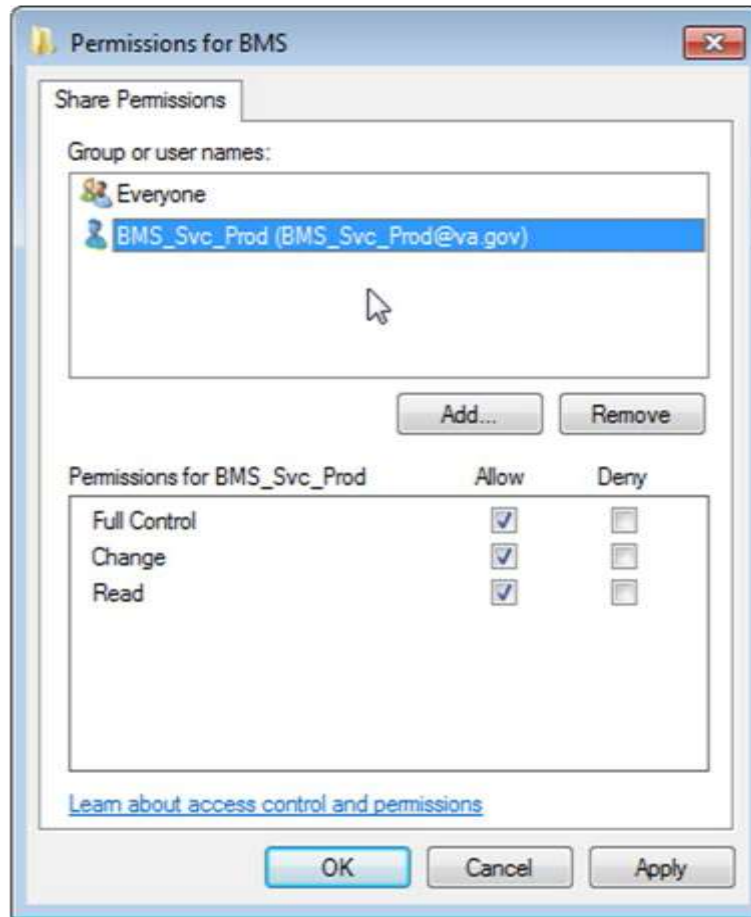
Clicking **OK** will add folder access permission for user and takes you back to Permissions dialog, allowing you to configure the permissions for newly added users.

Figure 28- Permissions Window



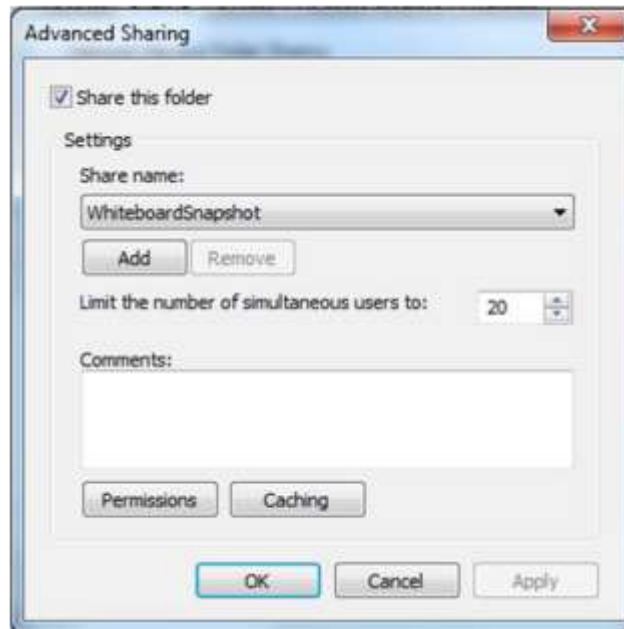
- *Select user, and from Permissions section check Full Control.*

Figure 29- User Permissions



- *Click Ok to close Permissions window. It will take you back to Advanced Sharing window.*

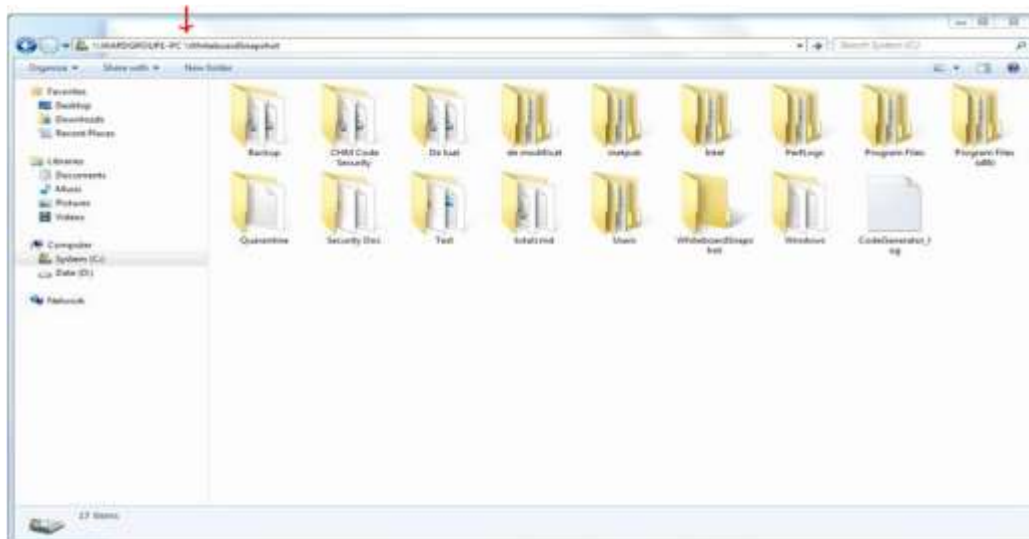
Figure 30- Advanced Sharing Window



- *Now, click **OK** to share the folder.*
- *Close Whiteboard Snapshot properties window.*

Having these two folders shared and having that user given the rights previously mentioned, if someone is logged in the network with that user, he/she could access those folders from Windows Explorer using an URI address. See screenshot below:

Figure 31- WardGroup1-PC Path



2.5.4. Assign Snapshot Folder Path to Ward Group

Within the BMS Application, under Site Settings and then Contingency Settings page, the Admin should enter the values as captured in the screenshot (\\WARDGROUP1-PC\WhiteboardSnapshot for WARD GROUP 1 and respectively \\WARDGROUP2-PC\WhiteboardSnapshot for WARD GROUP 2).

NOTE: The Windows User (**acc\VAACBMSPrd**) must have full read/write access to this folder.

Figure 32-Contingency Settings Page

Ward Group	Whiteboard Report Path
WARD GROUP 1	\\WARDGROUP1-PC\WhiteboardSnapshot
WARD GROUP 2	\\WARDGROUP2-PC\WhiteboardSnapshot
WG LILI	

Save

[BMS Home](#) | [Icon Legend](#) | [Information](#)

2.5.5. Associate Scheduler with Whiteboard Report

Within the BMS Application, Facility Home page, under Site Options and then Background Processors page, a Scheduler should be associated in the Whiteboard Report section.

Under the Whiteboard Report Section:

- In the “Add/Update Scheduler:” field, select the schedule frequency that Whiteboard should be backed up.
- Click **Save Scheduler** button.

Figure 33- Whiteboard Report Scheduler Association

The screenshot shows a web application interface with a header bar that reads "Background Processors - VA BOSTON HEALTHCARE SYSTEM, BROCKTON CAMPUS (BRK)". Below the header, there are two main configuration panels. The first panel, titled "Whiteboard Report", contains a "Current Scheduler:" field set to "NONE", an "Add/Update Scheduler:" dropdown menu currently showing "Every 4 Hours", and a "Save Scheduler" button. The second panel, titled "Patients Pending Bed Placement List", contains a "Current Scheduler:" field set to "NONE", an "Add/Update Method:" dropdown menu showing "Select A Method", an "Add/Update Scheduler:" dropdown menu showing "Select A Scheduler", and a "Save Scheduler" button. At the bottom right of the second panel is a "Cancel" button. At the very bottom of the page, there is a navigation bar with links for "BMS Home", "Kiosk Legend", and "Information".

2.6. EMS Mobile Device Configuration

In order to configure the BMS EMS Mobile Devices, the following steps must be completed:

- The local IS must create a local Service Account with a password that never expires and does not change. This account must not have any kind of policy that restricts its use to specific computers. The EMS Mobile Device will use this account to access the EMS Mobile page. This local Service Account can be the same as the Whiteboard Kiosk Default User Account created in Section 2.5.2.
- Each facility must enter the local Service Account and Password in the EMS Default User and Password fields on the Facilities Settings page.
- Configure the Mobile Device so that when it boots up, it will automatically open IE and go to the specified URL.

2.6.1. Configure EMS Mobile Device Default Login User

For the current facility, a default user must be configured in the BMS application for the EMS Mobile Device.

To accomplish this, the Facility Admin User must do the following:

- Go to the Facility Home Page.
- Click on the Site Options link.
- Click on the Facility Setting link.

Fill the fields “**EMS Default User Name:**”, “**EMS Password:**”, and “**EMS Password Confirm:**” with the BMS Local Service Account.

Figure 34- EMS Fields Filled on the Facility Settings Page

The screenshot shows a web form with two columns: 'PARAMETER' and 'OPTIONS'. The 'PARAMETER' column contains various settings, with three fields highlighted in a red box: 'EMS Default User Name', 'EMS Password', and 'EMS Password Confirm'. The 'OPTIONS' column contains dropdown menus for 'CENTRAL STANDARD TIME' (set to 'CST'), 'Auto-Remove Patients Pending Bed Placement List?' (set to 'Yes'), 'Auto-Remove Edit Patients from Pending Bed Placement List?' (set to 'No'), and 'Auto Placement of Transfers onto PPSP List?' (set to 'Yes'). Below these are text input fields for facility information: 'VA NORTH TEXAS HEALTH CARE SYSTEM DALLAS W', '4500 S. LANCASTER RD', 'DALLAS, TEXAS 75210', 'JEFF ALLEN', 'JEFFREYD.ALLEN@VA.GOV', and '214-857-4907'. At the bottom, there are 'Submit' and 'Cancel' buttons, with a red arrow pointing to the 'Submit' button.

- Click the **Submit** button.

Table 6-Facility Settings Page Parameters

Column	Description
EMS Default User Name:	The BMS Service Account ID needed to load the EMS Mobile Page for Mobile Devices.
EMS Password:	The BMS Service Account ID password needed to load the EMS Mobile Page for Mobile Devices.
EMS Password confirm:	The confirmation of the password.

This setup can also be completed by the system Support User:

- Go to the **BMS Admin Page**
- Click on the **Edit BMS Facility Settings** link
- Click on the **Facility Name Drop Down** and select the name of the Facility to be configured
- Fill the fields “**EMS Default User Name**”, “**EMS Password**” and “**EMS Password Confirm**” with the BMS Local Service Account

Figure 37-EMS Staff Page for Mobile Devices



2.7. VistA Integration

This chapter describes the process of importing vocabularies, entities, patient admission, transfer, discharge (ADT) and patient pending bed placement information from VistA.

In order to integrate with VistA certain steps should be completed:

1. Choose VistA site
2. Define Schedulers
3. Run Scheduler
4. View Audit Results

2.7.1. Choose VistA Site

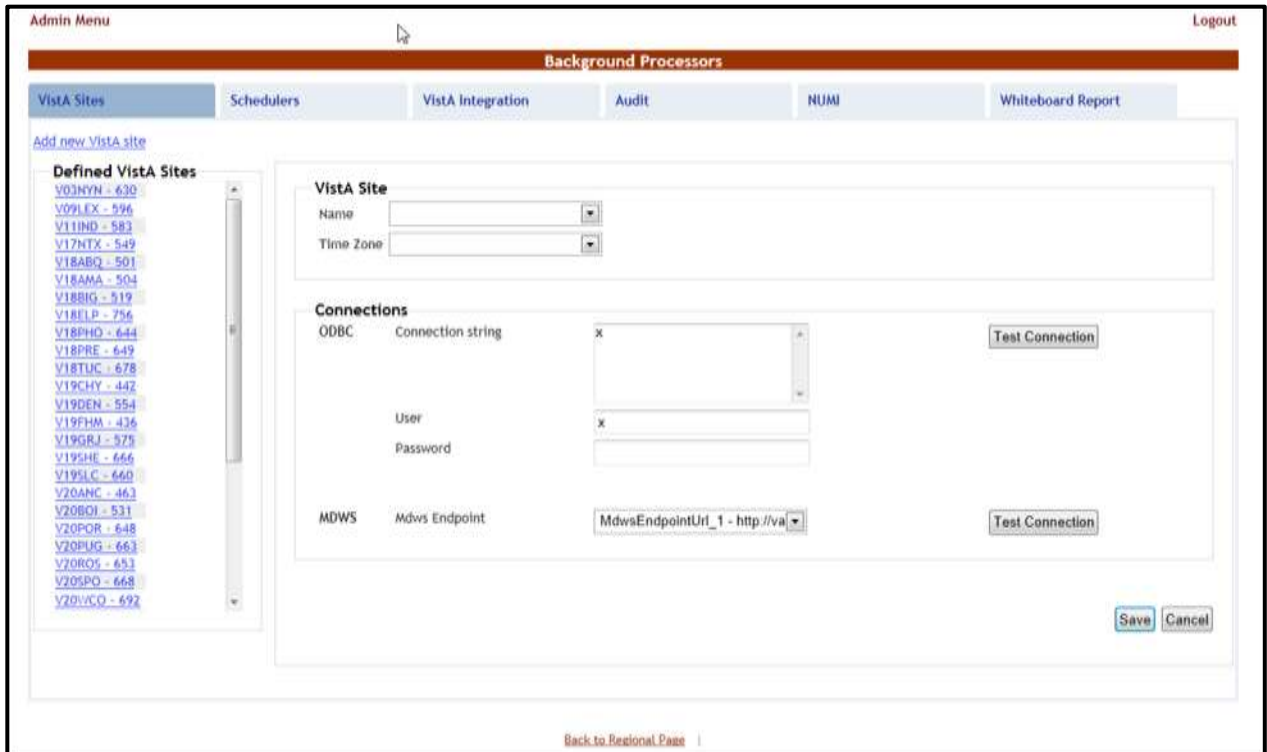
VistA Sites tab from Background Processors page of Admin section allows the user to view the list of VA facility sites sharing the same VistA instance and to add a new VA facility to a VistA instance.

2.7.1.1. Adding a New VistA Site

To add a VA facility site to a VistA instance, follow the steps presented below.

1. From the Background Processors page of Admin section select VistA Sites to display the page in the following image. A list of VA facility sites is displayed in the column to the left of the page.

Figure 38-Adding a VistA Site



2. Click the Add new VistA site link then from the VistA Site area use the Name field to select the code of the site you want to add to the current VistA instance, and then select the Time Zone.

In the Connections area you can choose between two connection methods: ODBC, MDWS and VIA. Fill in the following data for the ODBC method:

Table 9-New VistA Site Parameters

Column	Description
Connection String	The connection string for the ODBC method.
User	The username for the connection.
Password	The password associated to the user account.
MDWS Endpoint	***MDWS available to be selected but no longer supported.
VIA	Select VIA/VDIF connector.

You can use the Test Connection buttons to verify the connection and press the Save button to enter the data into the system.

The newly added site will be added in the sites list to the left of the screen.

2.7.2. Define Schedulers

The Schedulers tab from Background Processors page of Admin section displays a list of schedulers defined by user. It allows the user to add new schedulers, edit or remove old schedulers.

NOTE: To run the schedulers, the VistA Integration tab must be used (see next section VistA Integration for details).

The Schedulers tab is displayed as in the following image:

Figure 39-Schedulers Tab

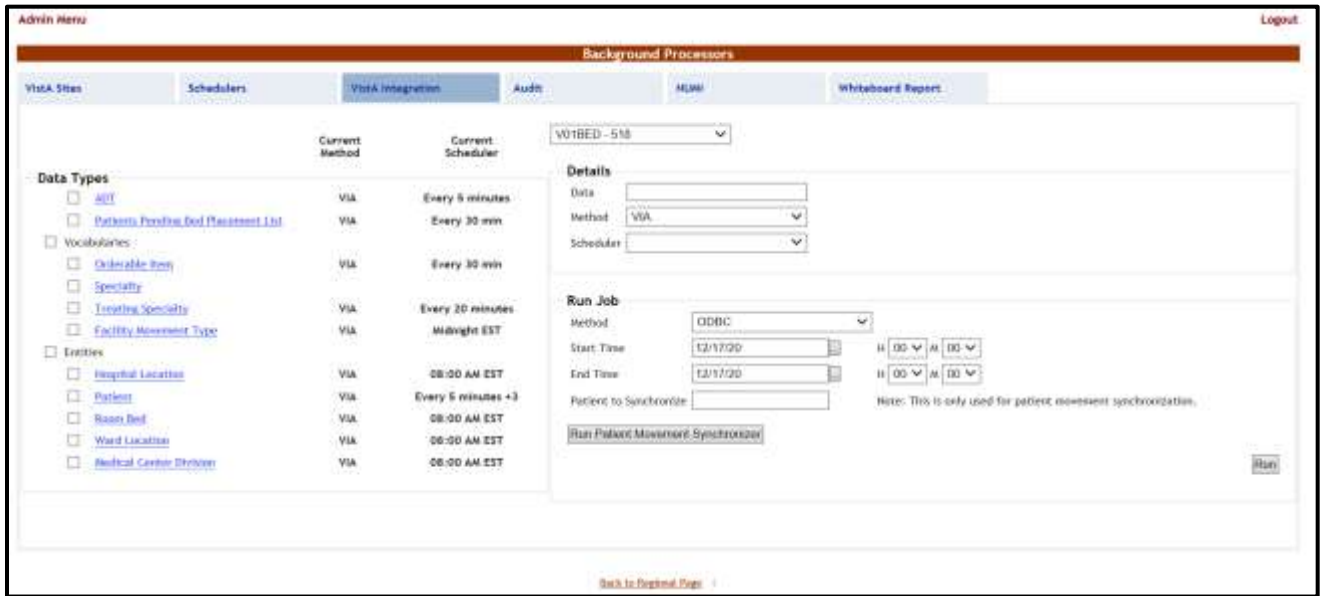
The screenshot shows the 'Background Processors' page with the 'Schedulers' tab selected. The page has a top navigation bar with 'Admin Menu' and 'Logout'. Below the navigation bar are tabs for 'Vista Sites', 'Schedulers', 'Vista Integration', 'Audit', 'Humi', and 'Whiteboard Report'. The 'Schedulers' tab is active, showing a form to 'Add new scheduler'. On the left, there are links for 'every 2 minutes', 'Every 4 hours', and 'Every hour'. The main form fields are: Name: 'Every hour', Recurs every: '1', Time Zone: 'CBT', Occurs every: '1', Start Time: '01 : 00', and End Time: '23 : 00'. There are 'Save', 'Delete', and 'Cancel' buttons at the bottom right. A 'Back to Regional Page' link is at the bottom center.

2.7.3. Run Scheduler

The VistA Integration tab is used to run (automatically or manually) the defined schedulers and to select which data categories will be affected by a scheduler's action.

The VistA Integration tab is displayed as in the following image:

Figure 40-VistA Integration Tab



From the field in the upper part of the page select the VistA site where the scheduler(s) will run. Next step:

- Either click one data category from the column to the left (its name will appear in the Data field) and then select a method and scheduler from the Method and Schedulers fields in the Details area: this will cause the selected scheduler to run at the time set for it in the Schedulers tab and to bring data from the selected category.
- Or select several data categories (using the checkboxes) then select a connection method from the Run Job area, set the Start time/End time and click the Run button: this will cause the scheduler set using the selected method to start running now and bring the data from the selected categories.

2.7.4. View Audit Results

The Audit tab displays the results of the operations performed in the VistA Integration tab. The Audit tab is displayed as shown in the following image.

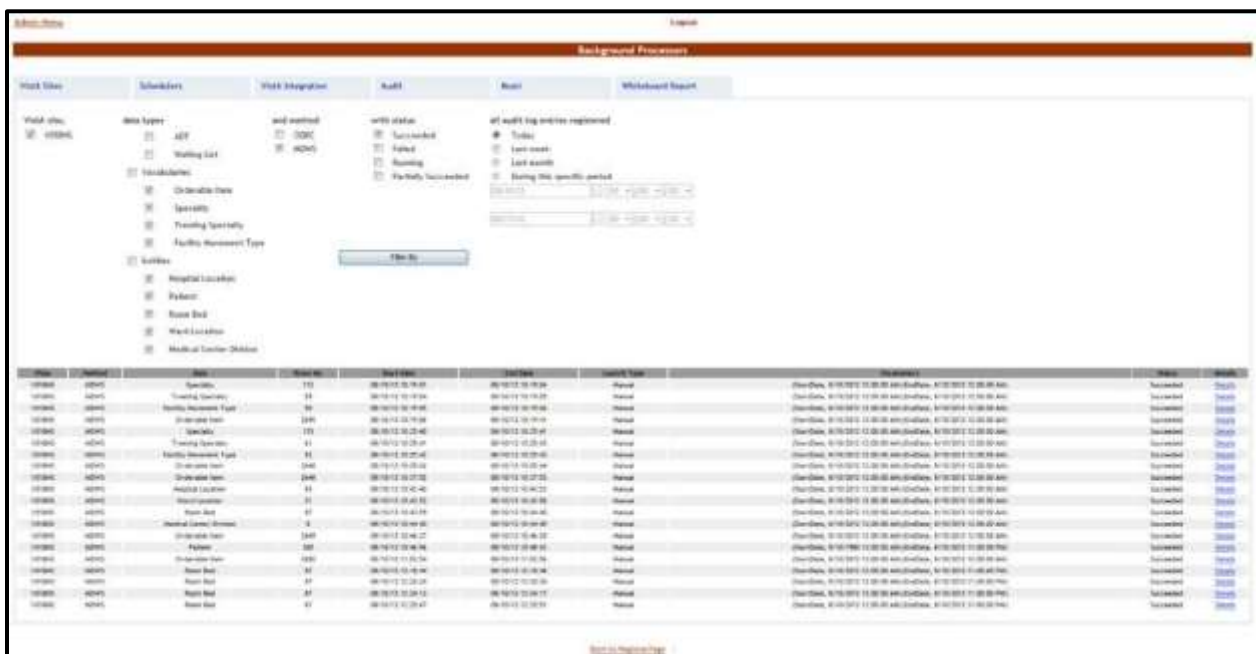
Figure 41- Audit Tab



The options to the left of the page allow the user to determine the filter criteria for the generated audit reports. The options to the right of the screen allow the user to select the type of operation to be captured by the audit report as well as the time interval for the audit.

After selecting the desired criteria, click the Filter by button to display the page as in the following image.

Figure 42- View Audit Results



A list of operations is displayed. For each entry the following data is available:

Table 10-View Audit Results Columns Report

Column	Description
VistA	The VistA site where the audit action has been performed.
Method	The method used for connecting to the VistA site.
Data	The type of data retrieved by the VistA integration operation.
Rows no	The number of operations of the selected type captured by the audit action.
Start Date	The start date of the retrieval operation.
End Date	The end date of the retrieval operation.
Launch Type	The way the audit action has been launched.
Parameters	Audit operation start date and time, and end date and time.
Status	The status of the VistA integration action.
Details	Clicking this link will display the number of entries in the report.

2.8. NUMI Integration

This chapter describes the process of importing patient level of care information from NUMI.

NUMI connects to VistA for synchronization of patient data using the NUMI Web Service that is part of the Commercial Off the Shelf McKesson product. Authentication to the NUMI Web Service is done by a NUMI supplied secret key.

NUMI Patient Level of Care transaction involves the following steps:

- Change patient level of care in NUMI.
- BMS Reader component will detect the patient level of care in NUMI.
- Patient level of care will be retrieved through a web service method call.
- BMS Writer component will update patient level of care in BMS database.

2.8.1. Integration Settings

These configurations are stored in `BMS.Service.Host.exe.config`

The current secret key is: <authorization key>

The number of sites per call parameter how many sites will be bundled together in a transaction to NUMI. If this number is increased one should consider the frequency in which the calls are scheduled. Adding more sites will increase the transaction size and length.

Currently all NUMI servers operate on port 100 at the specified endpoint **`https://<servername>.aac.dva.va.gov/Inpatient.asmx`**.

In order to integrate with NUMI certain steps should be completed:

1. Choose VistA site
2. Define Schedulers
3. Select Scheduler

2.8.2. Choose VistA Site

This step is the same as the one performed on VistA Integration process and can be referenced from [Section 2.7.1](#).

2.8.3. Define Schedulers

The process of defining schedulers can be referenced from Vista Integration process, [Section 2.7.2](#).

2.8.4. Select Scheduler

The NUMI tab is used to select the scheduler that will connect to the NUMI server and will retrieve data for a certain VistA site.

The NUMI tab is displayed as in the following image.

Figure 43- NUMI Tab



From the Schedulers field select the scheduler created to retrieve the NUMI data then click the Add button: following page is displayed.

Figure 44- Selecting the VistA Site for NUMI data



Select the VistA site for which the selected scheduler will retrieve NUMI data then press the Save button. Use the Edit link to select a different site for which the scheduler should retrieve NUMI data.

3. Application Structure

3.1. Inflow Architectural Removal

Beginning in the summer of 2020, the technical development team was tasked with the complete removal of the Inflow third party service component within BMS. This was a proprietary and poorly performing service layer/architecture which was impeding the progression of the BMS application as a whole.

Other aspects of this project were to remove the reliance and re-architect the following:

- DataWarehouse – the database(s) BMS_DW and BMS_DS were utilized to enable reporting to access database(s) separate from the application's database.
- Report Jobs – both nightly and incremental (every 15 minute) jobs responsible for constantly feeding the BMS_DW (data warehouse) database which affected performance and often failures would result in end users not being able to run reports effectively.

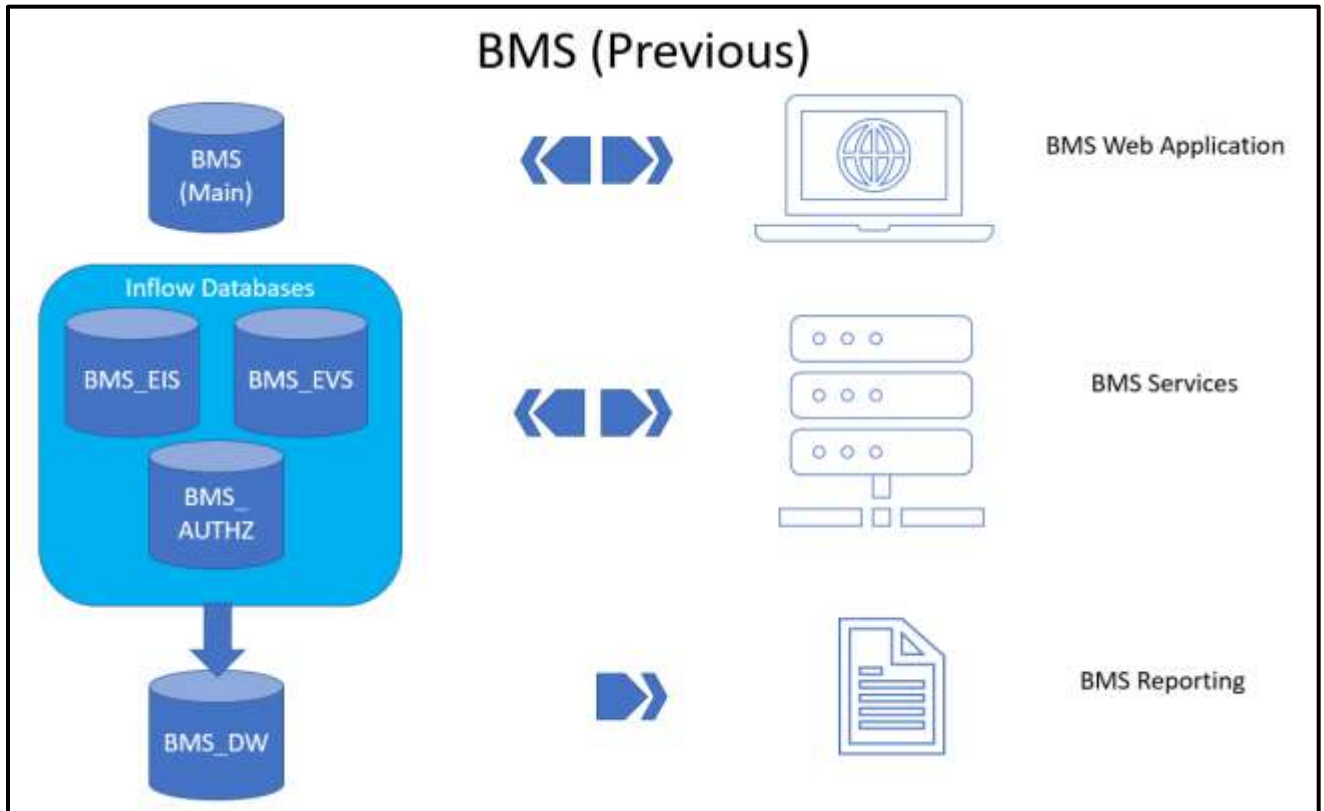
Changes to just about every aspect of BMS were necessary to allow for this removal, except for the User Interface. The goal was to maintain the same user functionality but also to make BMS more efficient and less hardware dependent.

This was accomplished as part of the 2*25 release by utilizing the following high-level strategies:

- For every line of code and stored procedure which touched the following databases, we had to recode to utilize the new source and target database while maintaining the exact same functionality.
- Remove/Rebuild the following databases and relocate them to an appropriate new dataset(s) within other table(s)
 - BMS_AUTHZ.
 - BMS_EVS
 - BMS_EIS database
- Utilize and enhance the database replication that was being used by other reporting teams which was created by a previous BMS development team. This would remove the need for the BMS_DW and BMS_DS databases as well as the ReportJobs (Full and Incremental)
- Remove the need for database triggers to populate the previously existing BMS_History database tables by utilizing Change Data Capture (CDC) as well as create new BMS_HISTORY tables to reflect the new tables added as part of the Inflow removal.

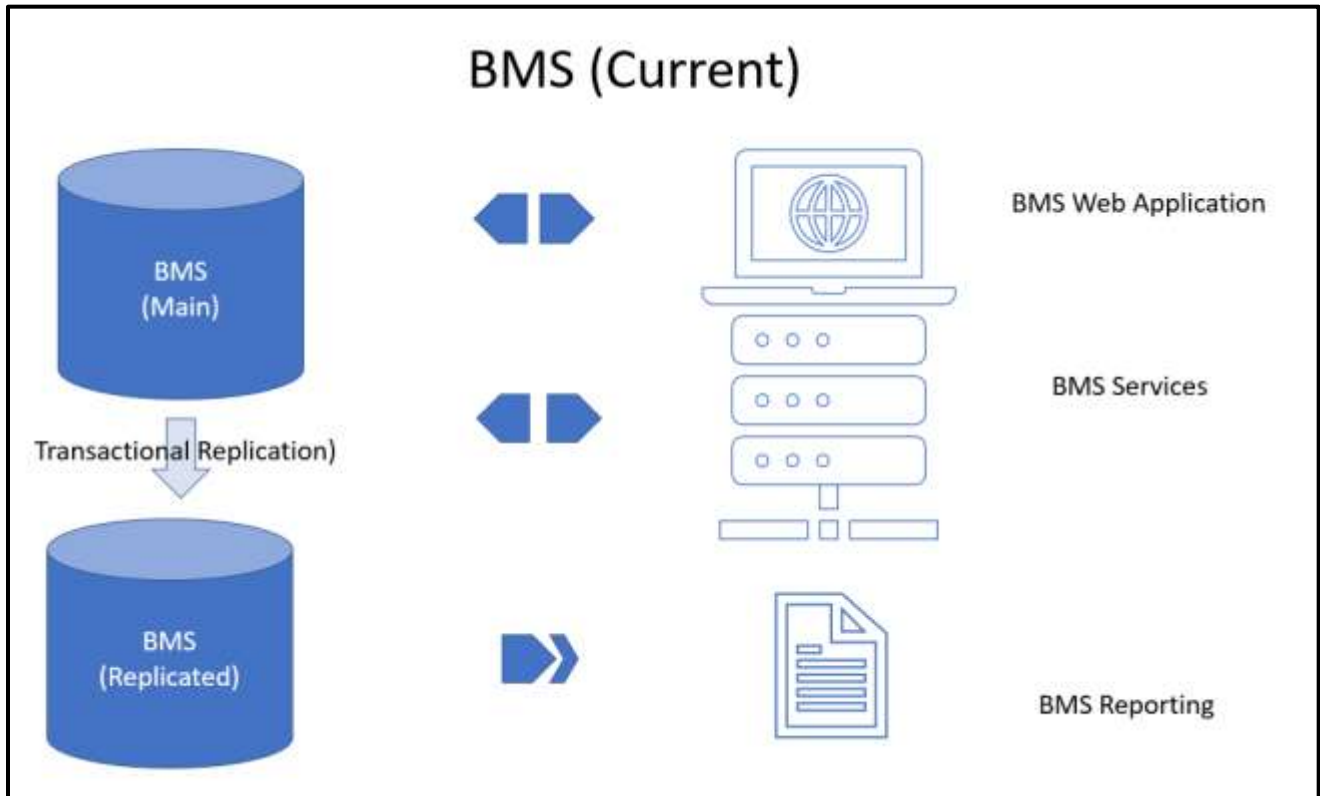
The image below represents a high-level database architecture of BMS with the Inflow service/database architecture:

Figure 45 - Previous version of BMS (with Inflow)



The next diagram represents the newly architected version of BMS without Inflow.

Figure 46 - Current version of BMS (without Inflow)



3.2. Application Components

BMS application consists of the following components:

- BMS Databases (BMS and BMS History Databases)
- BMS Services (BMS Service and Win ServiceHost)
 - BMS Service
 - Win Service Host
- BMS Web Site

3.3. Application Directory Structure

BMS application directory is structured as is presented below:

```

+---Databases
| \---SQLData
| | \---Job Logs
+---Services
| +---BMS
    
```



```

| | \---DBRepository
| | \---LinqToSql
| | \---LocalReportWhiteboard
| | \---Scripts
+---WebSite
| +---bin
| | \--- LocalReportWhiteboard
| | \--- Scripts
| +---Content
| | \---images
| | +---themes
| | | +---base
| | | | \---images
| +---Reporting
| +---ReportsLocal
| +---Scripts
| \---Views

```

3.4. Database Architecture

The BMS Database implementation is comprised of three main parts:

- BMS Database
 - BMS (Bed Management database).
 - BMS_History (BMS Transactional History)
 - BMS_InstanceStore (BMS Instances)

3.5. Component Files

A list with files for each BMS component is presented below:

Table 11-BMS Database Files

Relative Path	File	Description
	BMS_Data.mdf	
	BMS_Data_F.ndf	
	BMS_Log.ldf	
	BMS_HISTORY_Data.mdf	
	BMS_HISTORY_Data_F.ndf	

Relative Path	File	Description
Databases\SQLData	BMS_HISTORY_Log.ldf	Database files (BMS database, BMS_HISTORY database)
Databases\SQLData2	BMS_InstanceStore_Data.mdf	
Databases\SQLLogs	BMS_InstanceStore_Log.ldf	
	MS.Common.dll	

Table 12-BMS Service Files

Relative Path	File	Description
Services\BMS	AdapterRepository.dll	The binaries of the BMS Service.
	AuditTrailSender.dll	
	AuthenticationProxy.dll	
	AuthorizationSubscriber.dll	
	BMS.Contracts.dll	
	BMS.DataAccess.dll	
	BMS.Facade.dll	
	BMS.Facade.Contracts.dll	
	BMS.Host.dll	
	BMS.Numi.dll	
	BMS.PAPContracts.dll	
	BMS.Schedulers.dll	
	BMS.Security.dll	
	BMS.ServiceHost.exe	
	BMS.ServiceHost.exe.config	
	BMS.ServiceImplementation.dll	
	BMS.ServicesWrapper.dll	
	BMS.Utils.dll	
	BMS.VistaIntegration.dll	
BMS.VistaIntegration.Cache.dll		
BMS.VistaIntegration.Data.dll		

BMS.VistaIntegration.HL7.dll
BMS.VistaIntegration.Mdws.dll
BMS.VistaWorker.dll
BMS.VistaWorker2.Writer.dll
BMS.WhiteboardReport.dll
BMS.Workflows.CustomActivities.dll
BMS.Workflows.PropertyPromotionActivity.dll
BMS.Workflows.WF.dll
Common.dll
connectionConfiguration.config
Connections.SingleDatabase.dll
ContextWriter.dll
DataUtil.dll
EISContracts.dll
General.MT.dll
HL7DataTypes.dll
IContracts.dll
ICTSEdit.dll
Infoworld.Configuration.dll
InterSystems.Data.CacheClient.dll
log4net.dll
log4netAsync.dll
Mdws2ORM.dll
MiddleTier.dll
MS.Common.dll
MS.Configuration.dll
MS.Connections.dll

	RS.Contracts.dll	
	Saml20.dll	
	SecurityTokenCache.dll	
	Tracing.dll	
	VistASites.xml	
	Xacml2.dll	
	XacmlCore.dll	
Services\BMS\LocalReportWhiteboard	WardWhiteboard.rdlc	Ward whiteboard report file.

Table 13-WIN Service Host Files

Relative Path	File	Description
	ICSharpCode.SharpZipLib.dll	
	InfoWorld.WSEventing.DTO.CustomSubscriptions.xml	
	InfoWorld.WSEventing.DTO.Endpoints.xml	
	InfoWorld.WSEventing.DTO.FilterDialects.xml	
	InfoWorld.WSEventing.DTO.Message.xml	
	XamlDataContracts.DSXamlReverse.xml	
	XamlDataContracts.RootXAML.xml	
	XXamlDataContracts.XAMLFiltr.xml	
	BindingExtensions.dll	
	CodingSystems.DAL.dll	
	Configuration.dll	
	connectionConfiguration.config	
	Connections.Common.dll	
	CTSEdit.dll	
	CTSEdit.Utils.dll	
	CTSEditBulk.dll	
	CTSEditExport.dll	
	CTSImport.dll	

CTSImportProxy.dll
CTSService.Utils.dll
DTOCodeMappingEdit.dll
DTOMapping.dll
DTOMessageBrowser.dll
DTOMessageEdit.dll
DTOMessageRuntime.dll
DTOVocabularyEdit.dll
DTOVocabularyEdit.dll.config
EVSWrapper.dll
EVSWrapper.dll.config
ExportCS.xls
Factory.dll
HL7DataTypes.XmlSerializers.dll
IContracts.dll
ICSharpCode.SharpZipLib.dll
ICTSEdit.dll
ICTSEditBulk.dll
ICTSEditExport.dll
ICTSImport.dll

Services/PAP	IEventing.dll	Binaries of the PAP Service
	MappingImpl.dll	
	Message.dll	
	MessageImpl.dll	
	MessageImpl.dll.config	
	MS.Caching.dll	
	Notify.dll	
	SecureChannel.dll	
	Security.Null.dll	
	securityConfiguration.config	
	VocabularyBrowser.DTO.dll	
	VocabularyImpl.dll	
	VocabularyRuntime.DTO.dll	
	XamlDataContracts.dll	
	XamlImpl.dll	
	XamlDataContracts.DSXamlReverse.xml	
	XamlDataContracts.RootXaml.xml	
	XamlDataContracts.XAMLFiltr.xml	
	ActionManager.dll	
	AuthorizationProxy.dll	

Configuration.dll
connectionConfiguration.config
Connections.Common.dll
Microsoft.ApplicationBlocks.Data.dll
Microsoft.ApplicationBlocks.ExceptionManagement.dll
Microsoft.ApplicationBlocks.ExceptionManagement.Interfaces.dll
Microsoft.Practices.EnterpriseLibrary.Common.dll
Microsoft.Practices.EnterpriseLibrary.ExceptionHandling.dll
Microsoft.Practices.EnterpriseLibrary.ExceptionHandling.Logging.dll
Microsoft.Practices.EnterpriseLibrary.Logging.dll
Microsoft.Practices.ObjectBuilder.dll
MS.Caching.dll
ObjectPickerHelper2.dll
PAPProxy.dll
PDPServiceAuthorizationManager.dll
PolicyAdministrationPoint.dll
PolicyAdministrationPoint.dll.config
SecureChannel.dll
Security.Null.dll

Services/PDP	PolicyDecisionPoint.dll	Binaries of the PDP Service
	PolicyDecisionPoint.dll.config	
Services/RS	AuthorizationProxy.dll	Binaries of the RS Service
	RS.Contracts.dll	
	RS.Proxy.dll	
	RS.ServiceImplementation.dll	
	RS.ServiceImplementation.dll.config	
Services/Shared	7zip.dll	Shared binaries by BMS Service and Win Service
	AdapterRepository.dll	
	AuditTrailSender.dll	
	AuthorizationSubscriber.dll	
	BindingExtensions.dll	
	Common.dll	
	CommonResources.dll	
	Connections.SingleDatabase.dll	
	ContextWriter.dll	
	DataUtil.dll	
	General.MT.dll	
	HL7CDA.dll	
	HL7CMET.dll	

	HL7DataTypes.dll	
	ICSharpCode.SharpZipLib.dll	
	Infoworld.Configuration.dll	
	log4net.dll	
	MiddleTier.dll	
	MS.Common.dll	
	MS.Configuration.dll	
	MS.Connections.dll	
	MS.Security.dll	
	Saml20.dll	
	SecurityTokenCache.dll	
	Tracing.dll	
	WSEventing.dll	
	WSEventing.DataAccess.dll	
	WSEventing.DTO.dll	
	Xacml2.dll	
	XacmlCore.dll	
Services/STS	SecureTokenService.dll	Binaries of the STS Service
	SecureTokenService.dll.config	
	SecureTokenService.dll.verbose	

Services	WinServiceHost.exe	WinServiceHost files.
	WinServiceHost.exe.config	
	BMS-Services.log	
	connectionConfiguration.config	

Table 14-BMS Website Files

Relative Path	File	Description
WebSite	CacheService.svc	The binaries of the BMS Web Site, web site configuration file.
	Global.asax	
	packages.config	
	Web.config	
	WebTrace.log	
	additional_login_msg.txt	Dynamic text for main login page
WebSite\bin	AntiXSSLibrary.dll	Web site's binaries.
	AuditTrailSender.dll	
	AuthenticationProxy.dll	
	BMS.Contracts.dll	
	BMS.Facade.Contracts.dll	
	BMS.Facade.dll	
	BMS.PAPContracts.dll	
	BMS.Security.dll	
	BMS.ServicesWrapper.dll	
	BMS.Utils.dll	
	BMS.Web.dll	
	DevExpress.Data.v20.1.dll	DevExpress
	DevExpress.Office.v20.1.Core.dll	DevExpress
	DevExpress.Pdf.v20.1.Core.dll	DevExpress

Relative Path	File	Description
	DevExpress.Printing.v20.1.Core.dll	DevExpress
	DevExpress.RichEdit.v20.1.Core.dll	DevExpress
	DevExpress.Utils.v20.1.dll	DevExpress
	DevExpress.Web.Mvc5.v20.1.dll	DevExpress
	DevExpress.Web.v20.1.dll	DevExpress
	EISContracts.dll	
	HL7DataTypes.dll	
	HtmlAgilityPack.dll	
	HtmlSanitizationLibrary.dll	
	ICContracts.dll	
	ICTSEdit.dll	
	Infoworld.Configuration.dll	
	log4net.dll	
	log4netAsync.dll	
	Microsoft.ReportViewer.Common.dll	
	Microsoft.ReportViewer.DataVisualization.dll	
	Microsoft.ReportViewer.ProcessingObjectModel.dll	
	Microsoft.ReportViewer.WebForms.dll	
	Microsoft.Web.Infrastructure.dll	
	Microsoft.Web.Mvc.dll	
	RS.Contracts.dll	
	Saml20.dll	

Relative Path	File	Description
	SecurityTokenCache.dll	
	System.Web.Helpers.dll	
	System.Web.Mvc.dll	
	System.Web.Razor.dll	
	System.Web.WebPages.Deployment.dll	
	System.Web.WebPages.dll	
	System.Web.WebPages.Razor.dll	
	Tracing.dll	
	Xacml2.dll	
	XacmlCore.dll	
WebSite\bin\LocalReportWhiteboard	WardWhitebord.rdlc	Ward Whiteboard report file.
WebSite\bin\Scripts	Conditional-validation.js	File used by the site for conditional validation.
WebSite\Content	bundleCss.chirp.config	Images, themes and styles.
	Controls.css	
	LayoutCss.min.css	
	LayoutVistaIntegrationCss.min.css	
	Reports.css	
	Reports.min.css	
	Site.css	
WebSite\Content\images	add_tab_24.png	Images used by site.
	arrow_down.png	
	arrow_up.png	

Relative Path	File	Description
	BMSLogoV6.jpg	
	check_inv.png	
	edit_staff_cancel.png	
	edit_staff_save.png	
	FavIcon.ico	
	Info.png	
	Ladybug.png	
	login_logo.png	
	logo.png	
	order_down.png	
	order_up.png	
	sort_down.png	
	sort_up.png	
WebSite\Content\images\EVS	30day.png	
	Ambulatory.png	
	AnticipatedDischarge.png	
	BedCleaned.png	
	Bedhold.png	
	BedInIsolation.png	
	BedNeedsCleaning	
	BedOutOfService(BedBoard).png	
	BedOutOfService(Vista).png	
	Blankroom.png	

Relative Path	File	Description
	Blue Arrow.png	
	Blue Arrow_inactive.png	
	Blue Box.png	
	Blue Box_inactive.png	
	Blue Caution.png	
	Blue Caution_inactive.png	
	Blue Circle.png	
	Blue Circle_inactive.png	
	Blue Diamond.png	
	Blue Diamond_inactive.png	
	Blue Heart.png	
	Blue Heart_inactive.png	
	Blue X.png	
	Blue X_inactive.png	
	Bluestar.png	
	Bluestar_inactive.png	
	Browncircle.png	
	Browncircle_inactive.png	
	Buckle.png	
	Choking.png	
	CleaningBed.png	
	Close Observation (Patient).png	
	Convalescent (P).png	

Relative Path	File	Description
	Convalescent (R).png	
	Convalescent Icon (P).png	
	Convalescent Icon (P)_inactive.png	
	Convalescent Icon (R).png	
	Convalescent Icon (R)_inactive.png	
	Dialysis.png	
	DischargeOrdered.png	
	DIVERT.png	
	DMFS.png	
	DMFS_inactive.png	
	Electricwc.png	
	EMSNotified.png	
	Evacuate.png	
	Fall.png	
	Flu Confirmed.png	
	Flu Confirmed_inactive.png	
	Flu Confirmed2.png	
	Flu Confirmed2_inactive.png	
	Flu_Risk2.png	
	Green Circle.png	
	Green Circle_inactive.png	
	Greenstar.png	
	Greenstar_inactive.png	

Relative Path	File	Description
	Hearingimpaired.png	
	InterwardTransfer.png	
	Legal.png	
	Lift Equipment (Patient) (EM).png	
	Lift Equipment (Room).png	
	NegativePressure.png	
	Negpres.png	
	NumiGreen.png	
	NumiRed.png	
	NumiYellow1.png	
	Observation.png	
	Oneto1.png	
	Orange Circle.png	
	Orange Circle_inactive.png	
	Orange Star.png	
	Orange Star_inactive.png	
	Oxygen (Patient) (EM).png	
	PAC Icon 2.png	
	PAC Icon 2_inactive.png	
	PatientSymbol.png	
	PICC.png	
	Placementproblem.png	
	Privateroompt.png	

Relative Path	File	Description
	PTOptOut.png	
	Purplestar.png	
	Purplestar_inactive.png	
	Red Stop.png	
	Red Stop_inactive.png	
	Redflag.png	
	Redflag_inactive.png	
	Redstar.png	
	Redstar_inactive.png	
	Region.png	
	Respiratory Therapy (Patient).png	
	RoomBedSymbol.png	
	Samename.png	
	Scripts.png	
	Seizure.png	
	Serviceanimal.png	
	Shared Bathroom (Room).png	
	Specmattress.png	
	Stretcher (Patient) (EM).png	
	Suicide Risk.png	
	Telemetry (Patient).png	
	Telemetry (Room).png	
	Ventilator (Patient) (EM).png	

Relative Path	File	Description
	VirusBlack.png	
	VirusRed.png	
	VirusRed_inactive.png	
	Visuallyimpaired.png	
	WBCaution.png	
	Wheelchair Bound (Patient) (EM).png	
	WomenProgram2.png.png	
	Yellowcircle.png	
	Yellowcircle_inactive.png	
WebSite\Content\themes\base	Jquery.dynameter.css	jQuery controls style-sheets files.
	jquery.ui.structure-1.11.4.css	
	jquery.ui.structure-1.11.4.min.css	
	jquery.ui.theme-1.11.4.css	
	jquery.ui.theme-1.11.4.min.css	
	jquery-ui-1.11.4.css	
	jquery-ui-1.11.4.min.css	
WebSite\Content\themes\base images	ui-bg_diagonals-thick_18_b81900_40x40.png	Images
	ui-bg_flat_10_000000_40x100.png	
	ui-bg_diagonals-thick_20_666666_40x40.png	
	ui-bg_flat_0_aaaaaa_40x100.png	
	ui-bg_flat_75_ffffff_40x100.png	
	ui-bg_glass_55_fbf9ee_1x400.png	

Relative Path	File	Description
	ui-bg_glass_65_ffffff_1x400.png	
	ui-bg_glass_75_dadada_1x400.png	
	ui-bg_glass_75_e6e6e6_1x400.png	
	ui-bg_glass_95_fef1ec_1x400.png	
	ui-bg_highlight-soft_75_cccccc_1x100.png	
	ui-icons_222222_256x240.png	
	ui-icons_2e83ff_256x240.png	
	ui-icons_454545_256x240.png	
	ui-icons_888888_256x240.png	
	ui-icons_cd0a0a_256x240.png	
WebSite\Reporting	EvacuationPatientReportViewer.aspx	Report Viewer pages.
	EvacuationPatientVISNReportViewer.aspx	
	LocalReportViewer.aspx	
	PPBReportViewer.aspx	
	ReportError.aspx	
	ReportViewer.aspx	
	WhiteboardReportViewer.aspx	
WebSite\ ReportsLocal	BedStatusReport.rdlc	Bed Status Report file.
	FacilityDiversion.rdlc	
	WardOccupancy.rdlc	
WebSite\Scripts	Ace.js	JavaScript files.
	antiForgeryToken.js	
	conditional-validation.js	
	element-change.js	

Relative Path	File	Description
	Ext-language_tools.js	
	Globalize.cultures.js	
	Globalize.js	
	hoverIntent.js	
	jquery.autosize.js	
	jquery.base64.js	
	jquery.base64.min.js	
	Jquery.dynameter.js	
	jquery.jscrollpane.min.js	
	Jquery.limit-textrea.js	
	jquery.maskedinput-1.3.min.js	
	jquery.mousewheel.js	
	jquery.tablescroll.js	
	jquery.tablescroll.min.js	
	jquery.tablesorter.js	
	jquery.tablesorter.min.js	
	jquery.unobtrusive-ajax.js	
	jquery.unobtrusive-ajax.min.js	
	jquery.validate.js	
	jquery.validate.min.js	
	jquery.validate.unobtrusive.js	
	jquery.validate.unobtrusive.min.js	
	jquery.validate-vsdoc.js	

Relative Path	File	Description
	jquery-1.11.0.js	
	jquery-1.11.0.min.js	
	Jquery-1.11.0.min.map	
	Jquery-ui-1.11.4.js	
	Jquery-ui-1.11.4.min.js	
	json2.js	
	Knockout-3.3.0.js	
	LayoutAdminAutoCompleteAndDatePic ker.js	
	LayoutAdminScripts.min.js	
	LayoutAutoCompleteAndDatePicker.js	
	LayoutScripts.min.js	
	LayoutVistaIntegrationDatePicker.js	
	LayoutVistaIntegrationScripts.min.js	
	MicrosoftAjax.debug.js	
	MicrosoftAjax.js	
	MicrosoftMvcAjax.debug.js	
	MicrosoftMvcAjax.js	
	MicrosoftMvcValidation.debug.js	
	MicrosoftMvcValidation.js	
	modernizr-1.7.js	
	modernizr-1.7.min.js	
	Reports.min.js	
	superfish.js	

Relative Path	File	Description
	supersubs.js	
	whiteboardReport-script.js	
	whiteboard-script.js	
	whiteboard-script.min.js	
WebSite\Views	_ViewStart.cshtml	User Interface views.
	Web.config	
WebSite\Views\Account	LogOff.cshtml	Login/Logout user interface views.
	LogOn.cshtml	
WebSite\Views\Admin	AddEditUser.cshtml	Admin section user interface views.
	AddUserOperations.cshtml	
	CacheConfirmation.cshtml	
	ConfirmBulkRevoke.cshtml	
	FacilityEdit.cshtml	
	FacilityEditSaved.cshtml	
	Index.cshtml	
	RefreshUsersConfirmation.cshtml	
	RemoveUserOperations.cshtml	
	SelectUser.cshtml	
	SisterSiteAddEdit.cshtml	
	SisterSiteEditSaved.cshtml	
	UserEditHasSaved.cshtml	
	UserOperationsView.cshtml	
WebSite\Views\AdminComments	Index.cshtml	

Relative Path	File	Description
	NotifyChange.cshtml	
WebSite\Views\AdminIcon	Delete.cshtml	
	DeleteConfirmation.cshtml	
	Edit.cshtml	
	Index.cshtml	
	SaveConfirmation.cshtml	
	Search.cshtml	
	SearchResult.cshtml	
WebSite\Views\AdminSpecialtyAssociation	Delete.cshtml	Admin specialty association user interface views.
	Index.cshtml	
WebSite\Views\AdminUnavailableReason	AddConfirmation.cshtml	Admin unavailable reason user interface
	Delete.cshtml	
	DeleteConfirmation.cshtml	
	Edit.cshtml	
	EditConfirmation.cshtml	
	Index.cshtml	
	MissingUnavailableReasonText.cshtml	
	UnavailableReasonAlreadyExists.cshtml	
	UnavailableReasonList.cshtml	
WebSite\Views\AdminWaitingArea	AddAction.cshtml	Admin waiting area user interface views.
	Delete.cshtml	
	DeleteAction.cshtml	

Relative Path	File	Description
	Edit.cshtml	
	EditAction.cshtml	
	Index.cshtml	
WebSite\Views\AdminWhiteboardReport	Delete.cshtml	Admin whiteboard report user interface
	Edit.cshtml	
	Index.cshtml	
WebSite\Views\AdtOrderableItems	Confirmation.cshtml	ADT Orderable Items user interface views.
	Index.cshtml	
	OrderableItemsList.cshtml	
WebSite\Views\ApplicationParameters	Index.cshtml	
	Saved.cshtml	
WebSite\Views\BackgroundProcessors	AddEditConfirmation.cshtml	Background Processors user interface views.
	DeleteConfirmation.cshtml	
	Index.cshtml	
WebSite\Views\BedBoard	BedBoardGrid.cshtml	VISN user interface views.
	Index.cshtml	
WebSite\Views\BedBoardModule	Index.cshtml	Bed Board Module user interface view.
WebSite\Views\BedBulkManagement	_BulkBedGridPartialView.cshtml	
	Index.cshtml	
WebSite\Views\BedInformation	ClearAll.cshtml	Bed Information user interface views.

Relative Path	File	Description
	Index.cshtml	
	NotifyChange.cshtml	
WebSite\Views\BedStatusReport	Index.cshtml	Patients Pending Placement Status report user interface view.
WebSite\Views\ContingencySettings	Confirmation.cshtml	Contingency settings user interface views.
	Index.cshtml	
WebSite\Views\DischargeClinic	Index.cshtml	Discharge clinic user interface views.
	MessageConfirmation.cshtml	
WebSite\Views\EmsBedStatusAdmin	Edit.cshtml	EMS bed status user interface views
	EMSBatchAssign.cshtml	
	Index.cshtml	
	SaveConfirmation.cshtml	
WebSite\Views\EMSMobile	EMSList.cshtml	EMS Mobile user interface views.
	Users.cshtml	
WebSite\Views\EMSMobileLogon	Index.cshtml	EMS Mobile Logon user interface view.
WebSite\Views\EmsNotification	AddEdit.cshtml	EMS Notification user interface views.
	AddEditAction.cshtml	
	Delete.cshtml	
	DeleteAction.cshtml	
	Index.cshtml	
WebSite\Views\EmsStaff	Delete.cshtml	EMS Staff user interface views.
	Edit.cshtml	

Relative Path	File	Description
	Index.cshtml	
WebSite\Views\EventNotification	AddConfirmation.cshtml	Event Notification user interface views
	AddEdit.cshtml	
	Delete.cshtml	
	DeleteConfirmation.cshtml	
	EditConfirmation.cshtml	
	Index.cshtml	
WebSite\Views\Exception	Index.cshtml	Exception user interface views.
	WfException.cshtml	
WebSite\Views\FacilityDiversion	Add.cshtml	Facility Diversion user interface views.
	Confirmation.cshtml	
	Edit.cshtml	
	Index.cshtml	
WebSite\Views\FacilitySettings	Index.cshtml	Facility Settings user interface views.
	SaveConfirmation.cshtml	
WebSite\Views\Home	AdmissionList.cshtml	Home user interface views.
	AdmissionSuccessRemove.cshtml	
	AdmissionSuccessUndoRemove.cshtml	
	ChangeIntegratedSiteError.cshtml	
	Edit.cshtml	
	EmergencyManagementAdmissionGrid.cshtml	

Relative Path	File	Description
	FeeUtilizationAdmissionList.cshtml	
	Index.cshtml	
	MentalHealthAdmissionGrid.cshtml	
	PatientFlowAdmissionList.cshtml	
	PatientInHouseAdmissionList.cshtml	
	PatientInquiry.cshtml	
	RemoveAdmission.cshtml	
	StandardAdmissionList.cshtml	
	UndoRemoveAdmission.cshtml	
WebSite\Views\IconLegend	Index.cshtml	Icon Legend user interface view.
WebSite\Views\IconLibrary	Edit.cshtml	Icon Library user interface views.
	Index.cshtml	
	ResetConfirmation.cshtml	
	SaveConfirmation.cshtml	
WebSite\Views\Information	Index.cshtml	Information user interface view.
WebSite\Views\LogOff	Index.cshtml	LogOff user interface view.
WebSite\Views\MaintainMarquee	Index.cshtml	Maintain Marquee user interface view.
	Saved.cshtml	
WebSite\Views\NationalAndRegional	Index.cshtml	National user interface views.
	NationalAndRegionalGrid.cshtml	
	PatientListView.cshtml	

Relative Path	File	Description
WebSite\Views\NewEvents	Index.cshtml	New events user interface view.
WebSite\Views\Numi	Delete.cshtml	NUMI user interface views.
	Edit.cshtml	
	Index.cshtml	
WebSite\Views\Patient	Admission.cshtml	Patient user interface views.
	Confirmation.cshtml	
	EvacuationData.cshtml	
	GenericWfFault.cshtml	
	MentalHealthData.cshtml	
	PatientWaitingAdd.cshtml	
	PatientWaitingEdit.cshtml	
	Select.cshtml	
WebSite\Views\Reports	Index.cshtml	Patient user interface views.
WebSite\Views\Shared	_Layout.cshtml	Shared user interface views.
	_LayoutAdminPages.cshtml	
	_LayoutDevExpress.cshtml	
	_VistaIntegrationLayout.cshtml	
	Error.cshtml	
	Header.cshtml	
WebSite\Views\SiteList	Index.cshtml	Site list user interface view.

Relative Path	File	Description
WebSite\Views\SiteOptions	EvacuationConfirmation.cshtml	Site options user interface views.
	Index.cshtml	
WebSite\Views\Transfer	AddEditResult.cshtml	
	AddTransfer.cshtml	
	EditTransfer.cshtml	
	FinalizeResult.cshtml	
	FinalizeTransfer.cshtml	
	Index.cshtml	
WebSite\Views\Unauthorized	PermissionAuth.cshtml	Unauthorized user interface view.
WebSite\Views\UserConfiguration	ConfirmBulkRevoke.cshtml	User configuration views.
	Index.cshtml	
	SelectUser.cshtml	
	UserEditHasSaved.cshtml	
WebSite\Views\UnavailableReason	AddConfirmation.cshtml	Unavailable reason user interface views.
	Delete.cshtml	
	DeleteConfirmation.cshtml	
	Edit.cshtml	
	EditConfirmation.cshtml	
	Index.cshtml	
	MissingUnavailableReasonText.cshtml	
	UnavailableReasonAlreadyExists.cshtml	
	UnavailableReasonList.cshtml	

Relative Path	File	Description
WebSite\Views\VistaIntegration	Audit.cshtml	VistA integration user interface views.
	AuditLogEntries.cshtml	
	Categories.cshtml	
	DeleteScheduler.cshtml	
	EditScheduler.cshtml	
	EditVistASite.cshtml	
	ErrorDetail.cshtml	
	Index.cshtml	
	Schedulers.cshtml	
	VistASites.cshtml	
WebSite\Views\WaitingArea	AddAction.cshtml	
	Delete.cshtml	
	DeleteAction.cshtml	
	Edit.cshtml	
	EditAction.cshtml	
	Index.cshtml	
WebSite\Views\WardConfiguration	AddEditWardConfirmation.cshtml	Ward configuration user interface views.
	Delete.cshtml	
	DeleteConfirmation.cshtml	
	Index.cshtml	
	Wards.cshtml	
WebSite\Views\WardOccupancy	Index.cshtml	Ward occupancy user interface view.

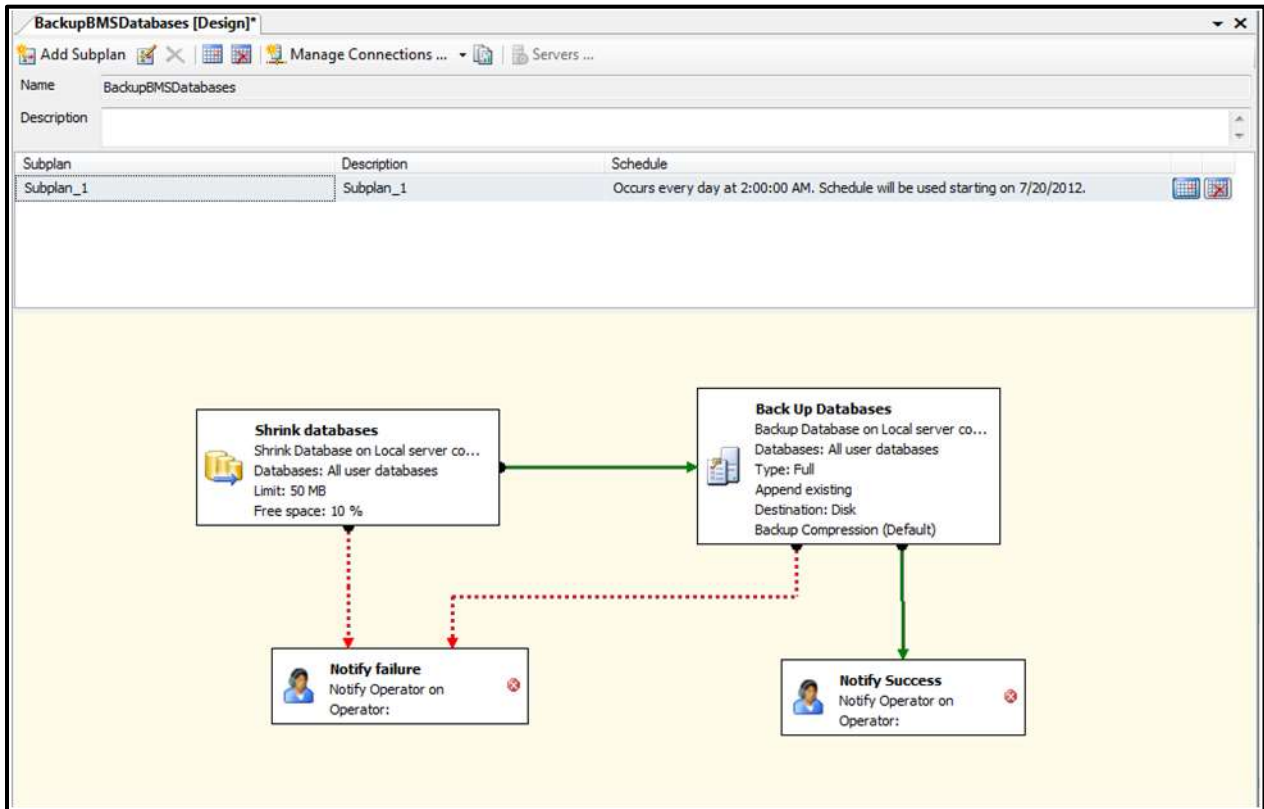
Relative Path	File	Description
WebSite\Views\WardWhiteboard	ClearAll.cshtml	Ward whiteboard user interface views.
	Edit.cshtml	
	Index.cshtml	
	NotifyChange.cshtml	
	WardWhiteBoard.cshtml	
	WhiteboardDataOne.cshtml	
	WhiteboardDataTwo.cshtml	
WebSite\Views\WardWhiteboardUrl	Index.cshtml	Ward whiteboard url user interface view.
WebSite\Views\WhiteboardStaff	Index.cshtml	Whiteboard staff user interface view.

4. Archiving

All the sensitive data in the BMS solution is persisted in a collection of SQL Server Databases. Therefore the archiving process is implying the definition of maintenance plans that will regularly make backups of these databases, backups that can be restored if needed.

The maintenance plan can be defined as detailed in the following pictures:

Figure 47-Backup Maintenance Plan



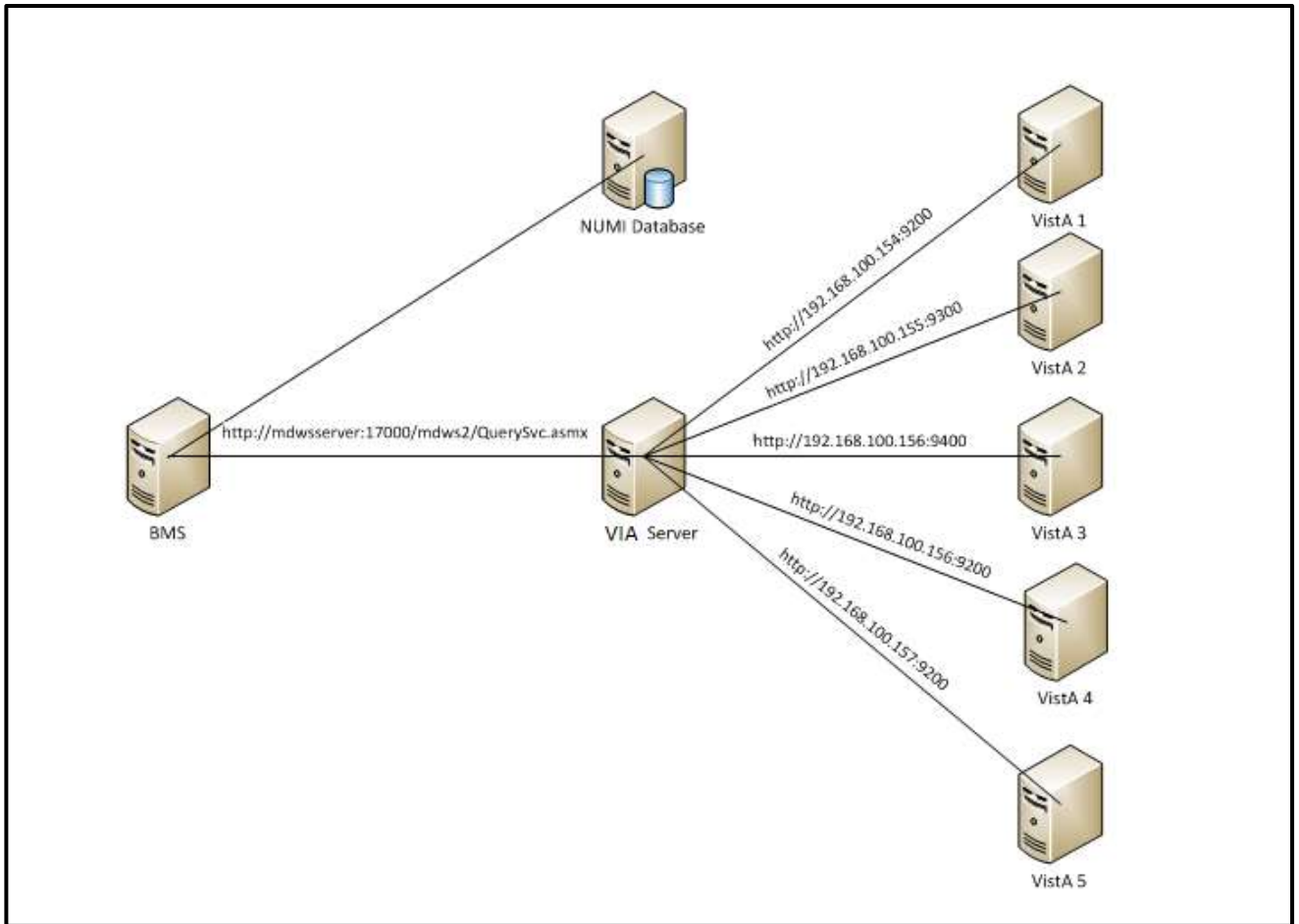
5. External Relationships

External relationships can be referenced from External Interfaces in the next section.

6. External Interfaces

VistA and NUMI are the external interfaces that are connected with the BMS system (see screenshot below):

Figure 48-BMS External Interfaces



- All the VISTA deployments will be connected through VIA which has replaced MDWS. In order to connect to VIA, BMS service configuration file (BMS.ServiceHost.exe.config) should be changed as follows, see **Table 4 – BMS ServiceHost Configuration Parameter** section:

Table 15-BMS Website Files

ViaEndpointUrl	value="https://vaww.bms.via.va.gov/via-webservices/services/BackgroundProcessService"	value="https://vaww.bms.via.va.gov/via-webservices/services/BackgroundProcessService"
ViaRequestingApp	value="BMSBatch"	value="BMSBatch"
ViaAppToken	value="BMSB_ID577"	value="BMSB_ID577"
ViaAppPassword	value="*****"	Value="*****"
MinimumFilemanDate	Value="01/01/1992"	Value="01/01/1992"

- NUMI - A connection string to NUMI database needs to be set in service configuration

file (BMS.ServiceHost.exe.config), see **Table 4 - BMS ServiceHost Configuration Parameters** section:

```
<ConnectionString>Data Source=numiserver;Initial Catalog=NUMI;Integrated Security=True;</ConnectionString>
```

NOTE: All the configurations described above are using dummy servers and ports. Real deployment should use appropriate server, port and database connection strings.

7. Software Security

BMS Security is implemented at two levels:

- The first level of security consists in deciding which users have access to what pages (National/Regional, VISN, facility, EMS page).
- The second level of security refers to the read/write permissions (which are the pages a user can edit/update).

Both levels of security are implemented by means of the Policy Manager application described in the next section.

An additional level of security is provided by the domain restrictions: users can access only the BMS pages within the domain where they have been granted access rights.

The security services are based on well-established standards and practices such as:

- LDAP protocol;
- WS-Security specification;
- X509 certificates.

These services are in charge of providing for the following ‘functionalities’:

- CIA:
 - Confidentiality – encrypted message.
 - Integrity – message hasn’t been tampered.
 - Authentication – prove identity.
 - Authorization – role based access.
 - Accountability – audit trail.
 - Policies – mutually agreed by involved parties.

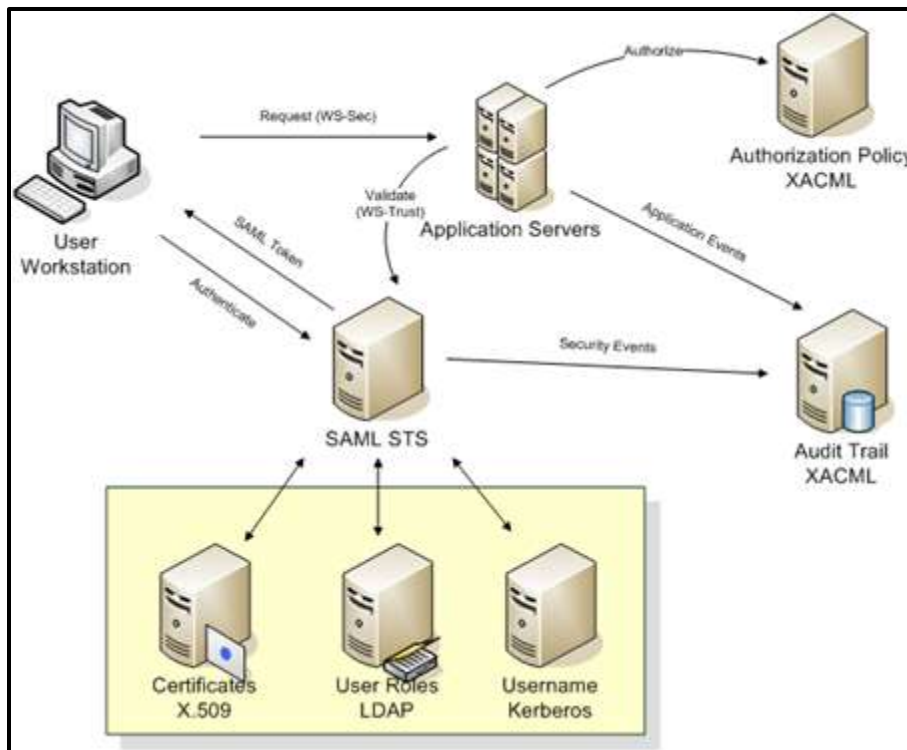
From the client application perspective, the security services are in charge of:

- Authentication:
 - SAML assertions verified by the called service.

- Role based authorization:
 - Roles stored in LDAP.
 - Policies defined using XACML language.
- Record level authorization.
- Audit trail.

The audit services provide the means to address the issues of liability management, asset protection and quality of service. To facilitate a timely response to policy violations, security incidents or infrastructure and application failures, InFlow will support monitoring, logging, analysing, and reporting on every level of its architecture.

Figure 49-Security Services Architecture



The security services consist of the authentication part: STS – security token service and authorization part: PAP – policy administration point and PDP – policy decision point.

7.1. Authorization and Authentication

To perform modifications to Actions, Permissions, Roles, or Users, the BMS database tables below will be used:

- AuthAction
- AuthPermissions

- AuthRole
- AuthRoleActions
- AuthUser
- AuthUserRoles

7.2. BMS AuthAction Table

The previously known “Operation Definitions” from using the policy manager have now been mapped to the new AuthAction table. Figure 77 displays the table example. The previous AuthActionUid has now been augmented with an integer primary key, AuthActionID. The AuthActionUid has been retained for backward compatibility but will likely be phased out by the end of the Inflow project. The original “operation definitions” names have been maintained in the AuthActionName and AuthActionDescription fields, as well as the IsGroup and _ssis_timestamp.

Figure 50-AuthAction table

	AuthActionId	AuthActionUid	AuthActionName	AuthActionDescription	IsGroup	_ssis_timestamp
1	1	9C5F89A1-7F4F-41D8-8433-011A662B66EB	AdminComments, Delete Read	AdminCommentsController, Delete (GET)	0	2013-03-11 15:59:00.097
2	2	41C9C7AD-8439-42C5-B9ED-02F62D11905F	Role, SiteUsers		0	2013-03-11 15:58:00.070
3	3	54CF8622-E14F-470D-8A0A-0443467CE7BA	AdminSpecialtyAssociation, Index Read	AdminSpecialtyAssociationController, Index (GET)	0	2013-03-11 15:58:00.083
4	4	A6BCCEAC-3FDD-4CFD-996A-05123F9792B9	AdminUnavailableReason, Update		1	2013-03-11 15:59:00.093
5	5	AB8FFB61-422B-464C-8412-058012119652	BedInformation, ClearAll Read	BedInformationController, ClearAll (GET)	0	2013-03-11 15:59:00.017
6	6	B25CB8A4-A6B4-4C73-A997-06709737B745	EmaNotification, Index Read	EmaNotificationController, Index (GET)	0	2013-03-11 15:58:00.017
7	7	5B2AC262-0F97-48B0-A546-0812C4090F4D	AdminWhiteboardReport, Edit Read	AdminWhiteboardReport, Edit (GET)	0	2013-03-11 15:59:00.080
8	8	050E1999-6489-4054-8A88-0829791E09B5	http://hempuni.org/AdministrativeFunctions/GetR..		0	2013-03-11 15:59:00.067
9	9	3F8AFA34-595B-413E-85FA-083FA7DC6544	rsp, UserAccess		0	2016-10-01 10:44:53.867
10	10	BDBDA25B-40BF-483D-8CAA-089B4881DC25	Transfer, EditTransfer Read	TransferController, EditTransfer (GET)	0	2013-03-11 15:59:00.017
11	11	1FF676D0-B781-46EC-8E75-09C313EB432B	Admin, StateSiteAddEdit Update	AdminController, StateSiteAddEdit (POST)	0	2013-03-11 15:59:00.017
12	12	1911A116-7066-457F-9CE2-0A7B07F53542	WaitingArea, DeleteAction Update	WaitingAreaController, DeleteAction (POST)	0	2013-03-11 15:59:00.017
13	13	559A5214-F14D-4272-ACE4-0AC4649E03C1	EmaBedStatusAdmin, Edit Read	EmaBedStatusAdminController, Edit (GET)	0	2013-03-11 15:59:00.017

7.3. BMS AuthPermissions Table

The AuthPermission table handles the permission mappings between the facility, user, and Permission type. (read or write) utilizing the unique key AuthPermissionsId, AuthUserId, PermissionName, and FacilityId. LastModifiedDate and LastModifiedBy is kept for auditing purposes.

Figure 51-AuthPermissions Table

	AuthPermissionsId	AuthUserId	PermissionName	FacilityId	LastModifiedDate	LastModifiedBy
1	1	77988	BMS, Read	102	2021-03-24 16:13:19.447	<hidden>
2	2	89619	BMS, Read	102	2021-03-24 16:13:19.447	<hidden>
3	3	13987	BMS, Read	102	2021-03-24 16:13:19.447	<hidden>
4	4	31184	BMS, Read	102	2021-03-24 16:13:19.447	<hidden>
5	5	78697	BMS, Read	102	2021-03-24 16:13:19.447	<hidden>
6	6	18031	BMS, Read	14	2021-03-24 16:13:19.447	<hidden>
7	7	31437	BMS, Read	14	2021-03-24 16:13:19.447	<hidden>
8	8	18031	BMS, Write	14	2021-03-24 16:13:19.447	<hidden>
9	9	31437	BMS, Write	14	2021-03-24 16:13:19.447	<hidden>
10	10	17739	BMS, Read	14	2021-03-24 16:13:19.447	<hidden>
11	11	34409	BMS, Write	14	2021-03-24 16:13:19.447	<hidden>
12	12	34409	BMS, Read	14	2021-03-24 16:13:19.447	<hidden>
13	13	78697	BMS, Read	14	2021-03-24 16:13:19.447	<hidden>
14	14	27597	BMS, Read	14	2021-03-24 16:13:19.447	<hidden>
15	15	62243	BMS, Read	51	2021-03-24 16:13:19.447	<hidden>

7.4. BMS AuthRoles Table

The AuthRoles table handles the Role definitions to be associated to Actions and Users. As noted in AuthAction, we’ve maintained the AuthRoleUid for backward compatibility, but added an integer primary key to quickly associate/join tables. The AuthRoleName, AuthRoleDescription column, AuthRoleAssigned, and _ssis_timestamp were maintained from the previous BMS_AUTHZ database.

Figure 52-AuthRoles Table

	AuthRoleId	AuthRoleUid	AuthRoleName	AuthRoleDescription	AuthRoleAssigned	_ssis_timestamp
1	10	75741CAB-4E26-499F-ABDA-04B068E3D223	SiteUsers	This role is the primary role for local site users. 4/25/13 - Add...	1	2013-04-26 13:54:00.060
2	20	4BD4C907-0738-4EF1-833A-098CF5473F95	Administrators	Removed the ADMIN INDEX READ OPERATION 10/24/201...	1	2013-10-24 15:09:32.277
3	30	95FF0FC0-EBB3-44E2-8513-16ADEFB29B2A	AuditLogUsers		1	2013-03-11 15:59:00.013
4	40	564610E5-F44C-448B-9D7C-309C0EFD1988	SupportUsers		1	2013-03-11 15:59:00.013
5	50	14F3AE64-AC4D-4AE2-994D-57535B0F9487	EmsStaff	This is the role assigned to the EMS Default User ID and the...	1	2013-07-16 15:49:32.033
6	60	43FB60BA-5D0A-4340-93EB-5C63754310B2	VisnUsers		1	2013-03-11 15:59:00.013
7	70	94F870F1-6D91-436C-B046-6B06E2A93CB3	Guests		1	2013-03-11 15:59:00.013
8	80	AE4A7568-D240-4E74-8A9A-71FA52F96F46	EMSSupervisorUsers		1	2013-03-11 15:59:00.013
9	90	7CECD071-0AC1-49A4-B364-7A4DE8988D55	EmsDispatch		1	2019-12-20 15:29:38.443
10	100	9A3F005A-486E-432B-95A6-A2041FE3FDE8	NationalUsers		1	2013-03-11 15:59:00.013
11	110	3A7D7517-3ECA-4EC8-A28E-B9EB077315E4	RegionalUsers		1	2013-03-11 15:59:00.013

7.5. BMS AuthRoleActions

The AuthRoleActions table associates the AuthActionId from the AuthActions table and the AuthRoleId from the AuthRoles table for purposes of tying the Roles and Actions together.

Figure 53-AuthRoleActions Table

	AuthRoleActionsId	AuthRoleId	AuthActionId	LastModifiedDate	LastModifiedBy
1	1	10	2	2021-03-24 16:12:26.960	<hidden>
2	2	10	14	2021-03-24 16:12:26.960	<hidden>
3	3	10	20	2021-03-24 16:12:26.960	<hidden>
4	4	10	25	2021-03-24 16:12:26.960	<hidden>
5	5	10	34	2021-03-24 16:12:26.960	<hidden>
6	6	10	37	2021-03-24 16:12:26.960	<hidden>
7	7	10	79	2021-03-24 16:12:26.960	<hidden>
8	8	10	110	2021-03-24 16:12:26.960	<hidden>
9	9	10	156	2021-03-24 16:12:26.960	<hidden>
10	10	10	169	2021-03-24 16:12:26.960	<hidden>
11	11	10	187	2021-03-24 16:12:26.960	<hidden>
12	12	10	201	2021-03-24 16:12:26.960	<hidden>
13	13	10	213	2021-03-24 16:12:26.960	<hidden>

7.6. BMS AuthUser Table

The AuthUser table maintains BMS user information, with a new integer primary key, AuthUsername (hidden for security purposes), the previously tracked AuthUserSID and LegacyUserPK (kept for backwards compatibility), IsSuperUser, and __sis_timestamp.

Figure 54-AuthUser Table

	AuthUserId	AuthUserName	AuthUserSID	LegacyUserPK	IsSuperUser	__sis_timestamp
1	1	<hidden>	S-1-5-21-682003330-839522115-725345543-50421	1	0	2013-03-12 14:20:13.140
2	2	<hidden>	S-1-5-21-682003330-839522115-725345543-500	2	0	2013-03-12 14:20:13.343
3	3	<hidden>	S-1-5-21-682003330-839522115-725345543-70969	3	0	2013-03-12 14:20:13.423
4	4	<hidden>	S-1-5-21-1814438218-152777602-930774774-308614	4	0	2013-03-12 14:20:13.513
5	5	<hidden>	S-1-5-21-1814438218-152777602-930774774-246201	5	0	2013-03-12 14:20:13.593
6	6	<hidden>	S-1-5-21-1814438218-152777602-930774774-320914	6	0	2013-03-12 14:20:13.650
7	7	<hidden>	S-1-5-21-682003330-839522115-725345543-71328	7	0	2013-04-02 06:35:53.670
8	8	<hidden>	S-1-5-21-1814438218-152777602-930774774-282579	8	0	2013-04-02 10:50:23.490
9	9	<hidden>	S-1-5-21-618345698-627661479-316617838-3708	9	0	2013-04-13 12:20:59.763
10	10	<hidden>	S-1-5-21-618345698-627661479-316617838-170777	10	0	2013-04-13 12:20:59.817

7.7. BMS AuthUserRoles Table

The AuthUserRoles table associates the User and the Role they are mapped to, using The AuthUserID and the AuthRoleID. The AuthUserRoles use the integer primary key column named AuthUserRolesId and also maintains the __sis_timestamp.

Figure 55-AuthUserRoles Table

	AuthUserRolesId	AuthUserId	AuthRoleId	_ssis_timestamp
1	1	2	100	2018-03-07 12:24:21.093
2	2	5	10	2013-04-15 07:20:57.333
3	3	5	20	2013-04-22 10:44:49.397
4	4	5	30	2013-04-22 10:44:51.477
5	5	5	40	2020-12-17 10:45:37.050
6	6	5	50	2013-04-15 07:20:57.120
7	7	5	60	2020-12-17 10:24:07.720
8	8	5	80	2013-04-22 10:44:51.607
9	9	5	100	2020-12-17 10:45:36.957
10	10	5	110	2020-12-17 10:45:36.987
11	11	6	10	2020-05-19 14:41:43.650

7.8. BMS AuthActions Listing

The entire listing of AuthActions (previously known as Task Definitions) is presented below:

Table 16-BMS Operations

Operation Name	Operation Description
Admin, AddEditUser Read	'Add/Edit BMS User' hyperlink from the Administration section's menu.
Admin, FacilityEdit Read	'Edit BMS Site' hyperlink from the Administration section's menu.
Admin, Index Read	'BMS Admin' hyperlink from the National And Regional Page.

Operation Name	Operation Description
Admin, SelectUser Read	'Select Existing NT User Name' button from the ADMINISTRATION SECTION - USERADD/EDIT page.
Admin, SisterSiteAddEdit Read	'Edit Sister Sites' hyperlink from the Administration section's menu.
Admin, AddUserOperations Read	'Add User' button from the ADMINISTRATION SECTION
Admin, RemoveUsers Read	'Remove Selected' button from the ADMINISTRATION SECTION - FACILITY EDIT page (Edit BMS Site
Admin, SearchUser Read	'Find' button from the 'Select user' page ('Select Existing NT User Name' button from the Administration Section
Admin, SearchUsers Read	'Find' button from the ADMINISTRATION SECTION - FACILITY EDIT page (Edit BMS Site submenu).
Admin, ClearCache Read	'Clear Cache' link from the Administration section's menu.
Admin, AddEditUser Update	'Submit' button from the ADMINISTRATION SECTION - USERADD/EDIT page.
Admin, FacilityEdit Update	'Submit' button from Administration section's menu 'Edit BMS Site' hyperlink (page ADMINISTRATION SECTION - FACILITY EDIT).

Operation Name	Operation Description
Admin, SisterSiteAddEdit Update	'Edit Sister Sites' hyperlink from the Administration section's menu, 'Submit' button.
Admin, AddUserOperations Update	'Add' button from Add users page (Add User button from the Facility page).
Admin, RemoveUserOperations Update	'Remove Selected' button from the ADMINISTRATION SECTION - FACILITY EDIT page (Edit BMS Site submenu).
AdminComments, Delete Read	'Delete' hyperlink from the Common Medical Terms page.
AdminComments, Edit Read	'Edit' hyperlink from the Common Medical Terms page.
AdminComments, Index Read	'Common Medical Terms' hyperlink from the Administration section's menu.
AdminComments, Index Update	'Save' button from the Common Medical Terms page.
AdminIcon, Delete Read	'Delete Icon' button on ADMINISTRATION SECTION - EDIT ICON page (Add/Edit Icon Submenu)
AdminIcon, Edit Read	'Edit' Link on ADMINISTRATION SECTION - ICON
AdminIcon, Index Read	'Add/Edit Icon' link on ADMINISTRATION SECTION
AdminIcon, Search Read	'Search' Link on ADMINISTRATION SECTION - ICON
AdminIcon, ViewIconReport Read	'Report' Link on ADMINISTRATION SECTION - ICON
AdminIcon, Delete Update	'Remove' button on ADMINISTRATION SECTION - DELETE ICON page (Add/Edit Icon Submenu)
AdminIcon, Edit Update	'Save' button on ADMINISTRATION SECTION - EDIT
AdminIcon, Index Update	'Up/Down arrow' buttons on ADMINISTRATION SECTION - ICON ADD/EDIT page (Add/Edit Icon
AdminSpecialtyAssociation, Delete Read	'Delete' Link on ADMINISTRATION SECTION - Treating Specialty/NUMA/HAVBED Edit page (Treating
AdminSpecialtyAssociation, Index Read	'Treating Specialty/NUMA/HAVBED' Link on ADMINISTRATION SECTION

Operation Name	Operation Description
AdminSpecialtyAssociation, Delete Update	'Delete' Button on ADMINISTRATION SECTION - Treating Specialty/NUMA/HAVBED Delete page
AdminSpecialtyAssociation, Index Update	'Save' Button on ADMINISTRATION SECTION - Treating Specialty/NUMA/HAVBED Edit page (Treating Specialty/NUMA/HAVBED Submenu)
AdminUnavailableReason, Delete Read	'Delete' link on ADMINISTRATION SECTION - National Unavailable Reason page (National Unavailable Reason Submenu)
AdminUnavailableReason, Edit Read	'Edit' link on ADMINISTRATION SECTION - National Unavailable Reason page (National Unavailable Reason Submenu)

Operation Name	Operation Description
AdminUnavailableReason, Index Read	'National Unavailable Reason' Link on ADMINISTRATION SECTION
AdminUnavailableReason, Delete Update	'Delete Record' button on ADMINISTRATION SECTION - National Unavailable Reason Delete page (National Unavailable Reason Submenu)
AdminUnavailableReason, Edit Update	'Submit' button on ADMINISTRATION SECTION - National Unavailable Reason Edit page (National Unavailable Reason Submenu)
AdminUnavailableReason, Index Update	'Add' button on ADMINISTRATION SECTION - National Unavailable Reason page (National Unavailable Reason Submenu)
AdminWaitingArea, Delete Read	'Delete' link on ADMINISTRATION SECTION - National Waiting Areas Parameter page (National Waiting Area Submenu)
AdminWaitingArea, Edit Read	'Edit' link on ADMINISTRATION SECTION - National Waiting Areas Parameter page (National Waiting Area Submenu)
AdminWaitingArea, Index Read	'National Waiting Area' Link on ADMINISTRATION SECTION
AdminWaitingArea, DeleteAction Update	'Delete Record' button on ADMINISTRATION SECTION - National Waiting Area Parameter Delete page (National Waiting Area Submenu)
AdminWaitingArea, Edit Update	'Submit' button on ADMINISTRATION SECTION - National Waiting Area Parameter Edit page (National Waiting Area Submenu)
AdminWaitingArea, Index Update	'Add' button on ADMINISTRATION SECTION - National Waiting Area Parameter page (National Waiting Area Submenu)
AdminWhiteboardReport, Delete Read	'Delete' link on ADMINISTRATION SECTION - Whiteboard Report page (Background Processor Submenu)
AdminWhiteboardReport, Edit Read	'Edit' link on ADMINISTRATION SECTION - Whiteboard Report page (Background Processor Submenu)
AdminWhiteboardReport, Index Read	'Whiteboard Report' tab on ADMINISTRATION SECTION - Background Processor page
AdminWhiteboardReport, Delete Update	'Delete Record' button on ADMINISTRATION SECTION - Whiteboard Report Delete page (Background Processor Submenu)
AdminWhiteboardReport, Edit Update	'Save' button on ADMINISTRATION SECTION - Whiteboard Report Edit page (Background Processor Submenu)
AdtOrderableItems, Index Read	Site Options, ADT Orderable Items Add/Delete hyperlink
AdtOrderableItems, Delete Update	'Delete' hyperlink from the list of orderable items.
AdtOrderableItems, Index Update	'Add' button from the Bed Board ADT Orderable Items Configuration.

Operation Name	Operation Description
BackgroundProcessors, Index Read	'Background Processors' hyperlink from Site Options page.
BackgroundProcessors, Index Update	'Save Scheduler' button from Background Processors page within Site Options.
AuditLogReport, Index Read	'View audit log' link on ADMINISTRATION SECTION
rep, Audit Log Report	Access the Audit Log Report.
BedBoard, ChangeFacility Read	Click on a facility link from the VISN Network Bed Boards list.
BedBoard, Index Read	'Return to VISN Network' hyperlink from the home page.
BedBoard, ShowFacilityBedSummaryReport Read	Click on a Facility Summary Report on VISN Network Bed Boards list
BedBoard, ShowVISNBedSummaryReport Read	Click on a VISN Summary Report on VISN Network Bed Boards list
BedBoardModule, Index Read	Site Options, Bed Board Module Enable/Disable link.
BedBoardModule, Index Update	'Submit' button from the Bed Board Module Activation and Configuration page.
BedInformation, Index Read	Ward Occupancy, click on a hyperlink from the BED column.
BedInformation, ClearAll Read	Click on button 'Clear ALL Comments For ALL Wards Associate To This Bed...'
BedInformation, NotifyChange Read	'Submit' button from the Add/Edit Bed Unavailable Reason page.
BedInformation, Index Update	Click on buttons 'Submit' and/or 'Update Reason and Comments'.
ContingencySettings, Index Read	'Contingency Settings" link on Site Settings pages.
ContingencySettings, Index Update	'Save' button on Contingency Settings page on Site Settings pages.
DischargeClinic, Index Read	Site Options, 'Discharge Appt Clinics Add/Delete' hyperlink.
DischargeClinic, Delete Update	Site Options, 'Discharge Appt Clinics Add/Delete' hyperlink, 'Delete' button.
DischargeClinic, Index Update	Site Options, 'Discharge Appt Clinics Add/Delete' hyperlink, 'Add' button.
EmsBedStatusAdmin, EMS Supervisor Read/Update	'Assigned To' drop down on EMS Bed Edit page
EmsBedStatusAdmin, EMSBatchAssign Read	'Batch Assign' button on Ems Bed Status Admin page
EmsBedStatusAdmin, EMSBatchAssign Update	'Submit' button on EMS Bed Edit page on EMS Bed Status Admin page
EmsBedStatusAdmin, Edit Read	RoomBed column link click.
EmsBedStatusAdmin, Index Read	'Return to VISN Network' link from the home page, 'Return to Regional Page' link, 'Go To Facility Bed
EmsBedStatusAdmin, SaveConfirmation Read	'Submit' button click in the Environmental Management Service Bed Status page.
EmsBedStatusAdmin, Edit Update	'Submit' button click in the Environmental Management Service Bed Status page.
EMSMobile, EMSList Read	Load Bed Clean Requests on EMS Mobile Pages
EMSMobile, Users Read	Click on a User button on EMS Mobile Pages

Operation Name	Operation Description
EMSMobile, EMSList Update	Click on a Bed Clean Request button on EMS Mobile Pages
EMSMobile, Users Update	Click on Submit button after entering a PIN on EMS Mobile Pages

Operation Name	Operation Description
EmsNotification, AddEdit Read	'Edit' link from the Current Locations table (EMS Bed Notification).
EmsNotification, AddEditAction Read	'Submit' button from the EMS Bed Notification Edit page.
EmsNotification, Delete Read	'Delete' link from the Current Locations table (EMS Bed Notification).
EmsNotification, Index Read	Site Options, 'EMS Notification Add/Edit' link
EmsNotification, DeleteAction Update	'Delete Record' button from the EMS Bed Status Notification Delete page.
EmsNotification, Index Update	'Submit' button from the EMS Bed Notification Edit page or Notifications Add page.
EmsStaff, Delete Read	'Delete' link on EMS Staff page on Site Options pages
EmsStaff, Edit Read	'Edit' link on EMS Staff page on Site Options pages
EmsStaff, Index Read	EMS Staff link on Site Options page
EmsStaff, Delete Update	'Delete Record' button on Ems Staff Delete page on Site Options pages
EmsStaff, Edit Update	'Submit' button on Ems Staff Edit page on Site Options pages
EventNotification, AddConfirmation Read	'Submit' button from the Event Notification Add page.
EventNotification, AddEdit Read	'Add' button or 'Edit' link from the Event Notifications page.
EventNotification, EditConfirmation Read	'Submit' button from the Event Notifications Edit page.
EventNotification, Index Read	Site Options, 'Event Notification Add/Edit' hyperlink.
EventNotification, Index Update	'Submit' button from the Event Notification Add page.
Exception, Index Read	Appears when an exception occurs.
FacilityDiversion, Add Read	'Add' button from the Facility Diversion page.
FacilityDiversion, AddConfirmation Read	'Add' button from the Add New Diversion Status page.
FacilityDiversion, Edit Read	'Edit' link from the Facility Diversion page.
FacilityDiversion, EditConfirmation Read	'Save' button from the Diversion Status edit page.
FacilityDiversion, FilterDiversions Read	'Current Diversions' or 'All Diversions' button from the main Facility Diversions page.
FacilityDiversion, Index Read	'Facility Diversion' hyperlink from the home page.
FacilityDiversion, Index Update	'Add' button or 'Edit' link from the Facility Diversion page.
FacilitySettings, Index Read	Site Options, Facility Settings link

Operation Name	Operation Description
FacilitySettings, Index Update	Site Options, Facility Settings link, Submit button
Home, Index Read	Home page.
Home, Index2 Read	Current, Past 30-Days, Past 60-Days, Past 90-Days home page's buttons.
Home, PatientInquiry Read	Click on the patient link from the Patients Pending Placement list (Home page).
Home, RemoveAdmission Read	Remove link from the Patients Pending Placement list (Home page).
Home, UndoRemoveAdmission Read	Undo link from the Patients Pending Placement list (Home page).

Operation Name	Operation Description
Home, RemoveAdmissionPost Update	Remove link from the Patients Pending Placement list (Home page), Remove button from the confirmation
Home, UndoRemoveAdmissionPost Update	'Undo' button on Undo Remove Admission Page on Facility HomePage
IconLegend, Index Read	'Icon Legend' link from the bottom of the Home page or Site Options, BMS Icon Legend link.
IconLibrary, Edit Read	'Edit' Link on Site Options - Site Configurable Icons page.
IconLibrary, Index Read	Site Options, Site Configurable Icons link.
IconLibrary, ResetConfirmation Read	'Reset' button on Edit Site Configurable Icon page.
IconLibrary, Edit Update	'Save' button on Site Options - Site Configurable Icons page.
IconLibrary, Index Update	'Up/Down arrow' buttons on Site Options - Site Configurable Icons page.
IconLibrary, ResetConfirmation Update	'Reset' button on Reset Site Configurable Icon page.
Information, Index Read	'Information' link from the bottom of the Home page.
MaintainMarquee, Index Read	'Maintain Marquee Text' link from the Administration Section's menu.
MaintainMarquee, ChangeMarquee Update	'Submit' button from the ADMINISTRATION SECTION - MAINTAIN MARQUEE TEXT page.
NationalAndRegional, Index Read	Home page, Return to VISN Network link, Return to Regional Page link.
NewEvents, Index Read	Home page, New Events link.
Numi, Add Read	'Add' button on ADMINISTRATION SECTION - Background Processors page (Background Processors Submenu).
Numi, Delete Read	'Delete' Link on ADMINISTRATION SECTION - Background Processors page (Background Processors Submenu).
Numi, Edit Read	'Edit' Link on ADMINISTRATION SECTION - Background Processors page (Background Processors Submenu).

Operation Name	Operation Description
Numi, Index Read	'Numi' tab on ADMINISTRATION SECTION - Background Processors page (Background Processors Submenu).
Numi, Delete Update	'Delete Record' button on ADMINISTRATION SECTION - Background Processors Delete page (Background Processors Submenu).
Numi, Edit Update	'Save' button on ADMINISTRATION SECTION - Background Processors Add/Edit page (Background Processors Submenu).
http://tempuri.org/IAdministrativeFunctions/GetDomains	Functions used in the Administration Section, Add/Edit BMS User and Edit BMS Site submenus.
http://tempuri.org/IAdministrativeFunctions/GetCurrentDomain	
http://tempuri.org/IAdministrativeFunctions/GetRoles	
http://tempuri.org/IAdministrativeFunctions/GetBulkPolicies	
http://tempuri.org/IAdministrativeFunctions/GrantPermission	
http://tempuri.org/IAdministrativeFunctions/RevokePermission	

Operation Name	Operation Description
http://tempuri.org/IAdministrativeFunctions/GetRoleByName	
http://tempuri.org/IAdministrativeFunctions/GetPermissionsByResourceType	
http://tempuri.org/IAdministrativeFunctions/GetAllUsersAndDomain	
http://tempuri.org/IAdministrativeFunctions/GetAllUserRoles	
http://tempuri.org/IAdministrativeFunctions/AssignUser	
http://tempuri.org/IAdministrativeFunctions/DeassignUser	
http://tempuri.org/IAdministrativeFunctions/GetPolicy	
http://tempuri.org/IAdministrativeFunctions/ClearPermissionsForResource	
http://tempuri.org/IAdministrativeFunctions/AddActionEntityType	
http://tempuri.org/IAdministrativeFunctions/AddOperation	
http://tempuri.org/IAdministrativeFunctions/AddRole	
http://tempuri.org/IAdministrativeFunctions/AddTask	
http://tempuri.org/IAdministrativeFunctions/AssignOperations	
http://tempuri.org/IAdministrativeFunctions/AssignRole	

Operation Name	Operation Description
http://tempuri.org/IAdministrativeFunctions/ChangeUserPassword	
http://tempuri.org/IAdministrativeFunctions/DeassignOperations	
http://tempuri.org/IAdministrativeFunctions/DeassignRole	
http://tempuri.org/IAdministrativeFunctions/DeleteActionEntityType	
http://tempuri.org/IAdministrativeFunctions/DeleteOperation	
http://tempuri.org/IAdministrativeFunctions/DeletePermissionForResourceAndOperation	
http://tempuri.org/IAdministrativeFunctions/DeletePermissionsForResourcesAndOperations	
http://tempuri.org/IAdministrativeFunctions/DeleteRole	
http://tempuri.org/IAdministrativeFunctions/DeleteTask	
http://tempuri.org/IAdministrativeFunctions/GetActionEntityType	
http://tempuri.org/IAdministrativeFunctions/GetAvailableDomains	
http://tempuri.org/IAdministrativeFunctions/GetCallerIsSuperUser	
http://tempuri.org/IAdministrativeFunctions/GetConnectedRolesAndOperations	
http://tempuri.org/IAdministrativeFunctions/GetEntityTypes	
http://tempuri.org/IAdministrativeFunctions/GetOperationByName	
http://tempuri.org/IAdministrativeFunctions/GetOperationByNameExcludingId	

Operation Name	Operation Description
http://tempuri.org/IAdministrativeFunctions/GetOperation	
http://tempuri.org/IAdministrativeFunctions/GetRoleByNameExcludingId	
http://tempuri.org/IAdministrativeFunctions/GetRoleDefinition	
http://tempuri.org/IAdministrativeFunctions/GetRolesDefinitionIntersect	
http://tempuri.org/IAdministrativeFunctions/GetRoleUsers	
http://tempuri.org/IAdministrativeFunctions/GetSubscriptions	
http://tempuri.org/IAdministrativeFunctions/GetTaskByName	
http://tempuri.org/IAdministrativeFunctions/GetTaskByNameExcludingId	
http://tempuri.org/IAdministrativeFunctions/GetTaskDefinition	

Operation Name	Operation Description
http://tempuri.org/IAdministrativeFunctions/GetTasks	
http://tempuri.org/IAdministrativeFunctions/GetUserBySid	
http://tempuri.org/IAdministrativeFunctions/GetUserByUserName	
http://tempuri.org/IAdministrativeFunctions/GetUserDefinedRoles	
http://tempuri.org/IAdministrativeFunctions/GetUserGroup	
http://tempuri.org/IAdministrativeFunctions/GetUserRoles	
http://tempuri.org/IAdministrativeFunctions/InsertPermissionForResourceAndOperation	
http://tempuri.org/IAdministrativeFunctions/InsertPermissionsForResourcesAndOperations	
http://tempuri.org/IAdministrativeFunctions/InsertResource	
http://tempuri.org/IAdministrativeFunctions/IsChild	
http://tempuri.org/IAdministrativeFunctions/RefreshCache	
http://tempuri.org/IAdministrativeFunctions/SearchUsers	
http://tempuri.org/IAdministrativeFunctions/SetCurrentDomain	
http://tempuri.org/IAdministrativeFunctions/SynchronizeAllSubscribers	
http://tempuri.org/IAdministrativeFunctions/UpdateOperation	
http://tempuri.org/IAdministrativeFunctions/UpdateRole	
http://tempuri.org/IAdministrativeFunctions/UpdateTask	
Patient, Admission Read	'Edit' link from the Home page, Patients Pending Placement list.
Patient, Select Read	'Add New Patient' link from the Home page, Patients Pending Placement section.
Patient, Admission Update	'Submit' button from ADD/EDIT Patients Pending Placement page.

Operation Name	Operation Description
rep, Active Admission Orders Report	Access the Active Admission Orders Report.
rep, Active Discharge Orders Report	Access the Active Discharge Orders Report.
rep, Active Transfer Orders Report	Access the Active Transfer Orders Report.
rep, Antic Discharge Orders Report	Access the Antic Discharge Orders Report.
rep, Audit Log Report	Access the Audit Log Report
rep, BED AVAILABILITY STATUS REPORTQu	Access the BED AVAILABILITY STATUS REPORT.
rep, Bed Specialty Report	Access the Bed Specialty Report.

Operation Name	Operation Description
rep, Bed Specialty Roster	Access the Bed Specialty Roster.
rep, Bed Summary Report	Access the Bed Summary Report.
rep, Bed Turnaround Time Report	Access the Bed Turnaround Time Report.
rep, Beds Out of Service Report (All)	Access the Beds Out of Service Report (All).
rep, Beds Out of Service Report (By Date)	Access the Beds Out of Service Report (By Date).
rep, Discharge Order Difference Report	Access the Discharge Order Difference Report
rep, Discharges In Progress	Access the Discharges In Progress.
rep, Emergency Management Report	Access Emergency Management Report
rep, EMS Bed Status Report (Admin)	Access the EMS Bed Status Report
rep, Facility Diversion Report	Access the Facility Diversion Report
rep, Icon Usage Report	Access the Icon Usage Report
rep, Patient Inquiry	Access the Patient Inquiry report.
rep, Patient Movement Report	Access the Patient Movement Report.
rep, Patient Movements by Date	Access the Patient Movements by Date.
rep, Patients w Discharge Appointments	Access the Patients w Discharge Appointments.
Rep, PPBP by Date Range Report	Access the PPBP By Date Range Report
rep, Scheduled Admissions by Date	Access the Scheduled Admissions by Date.
rep, Scheduled Admissions Report	Access the Scheduled Admissions Report.
rep, UserAccess	Access the UserAccess Report
rep, VISN Bed Summary Report	Access VISN Bed Summary Report
rep, VISN Emergency Management Report	Access the VISN Emergency Management Report
rep, VISN Diversion Report	Access the VISN Diversion Report
rep, VISN Network Active Report	Access the VISN Network Active Report.
rep, VISN Network Audit Report	Access the VISN Network Audit Report.
rep, VISN Network Contract Report	Access the VISN Network Contract Report.
rep, VISN Network Disposition Report	Access the VISN Network Disposition Report.
rep, Wait List Status Report	Access the Patients Pending Placement Status Report.
Reports, Index Read	'Submit' buttons from the Home page corresponding to the reports.
SiteOptions, Index Read	Home page, Site Options link.
SiteOptions, EvacuationConfirmation Read	Access to Evacuation Confirmation page.
SiteOptions, Index Update	'Submit' button from Site Options page.
SiteOptions, EvacuationConfirmation Update	'Save' button from Evacuation Confirmation page.
Transfer, AddTransfer Read	VISN page, Add New Patient button, Submit button from the Select Patient page.

Operation Name	Operation Description
Transfer, EditTransfer Read	'Edit' link from the VISN page, Patients in Community

Operation Name	Operation Description
	Hospitals list.
Transfer, FinalizeTransfer Read	'Finalize' link from the VISN page, Patients in Community Hospitals list.
Transfer, Index Read	VISN page, Add New Patient button.
Transfer, AddTransfer Update	VISN page, Add New Patient button, Submit button from the Select Patient page, and Submit button from the Enter Patient Data page.
Transfer, EditTransfer Update	'Edit' link from the VISN page's Patients in Community Hospitals list and then Submit button.
Transfer, FinalizeTransfer Update	'Finalize' link from the VISN page's Patients in Community Hospitals list and then Submit button from the Finalize Patient Data page.
UnavailableReason, Delete Read	'Delete' link from the Bed Board Site Unavailable Reason page's list.
UnavailableReason, Edit Read	'Edit' link from the Bed Board Site Unavailable Reason page's list.
UnavailableReason, Index Read	Site Options, Unavailable Reason Add/Edit link.
UnavailableReason, Delete Update	'Delete' link from the Bed Board Site Unavailable Reason page's list and then 'Delete Record' button.
UnavailableReason, Edit Update	'Edit' link from the Bed Board Site Unavailable Reason page's list and then Submit button.
UnavailableReason, Index Update	'Add' button from the Bed Board Site Unavailable Reason page.
UserConfiguration, Index Read	Site Options, Add/Edit BMS User link.
UserConfiguration, SearchUser Read	'Find and Save' buttons from the 'Select user' page ('Select Existing NT User Name' button from the Site
UserConfiguration, SelectUser Read	'Select Existing NT User Name' button from the Site Options - Add/Edit BMS User page.
UserConfiguration, Index Update	'Submit' button from the Site Options - Add/Edit BMS User page.
VistaIntegration, Audit Read	'Audit' tab on ADMINISTRATION SECTION - Background Processors page (Background Processors Submenu) and 'Filter By' button from the 'Audit' tab.
VistaIntegration, Categories Read	'VistA Integration' tab on ADMINISTRATION SECTION - Background Processors page (Background Processors Submenu).
VistaIntegration, DeleteScheduler Read	'Add new scheduler' link and select a scheduled name from the 'Scheduled' tab.
VistaIntegration, Index Read	'Background Processors' link on ADMINISTRATION SECTION.

Operation Name	Operation Description
VistaIntegration, Schedulers Read	'Schedulers' tab on ADMINISTRATION SECTION - Background Processors page (Background Processors Submenu).
VistaIntegration, TestMDWSConnection Read	'TestMDWSConnection' button from the 'VistA Sites' tab.
VistaIntegration, TestODBCConnection Read	'TestODBCConnection' button from the 'VistA Sites' tab.
VistaIntegration, VistASites Read	'VistA Sites' tab on ADMINISTRATION SECTION - Background Processors page (Background Processors Submenu).
VistaIntegration, Categories Update	'Save and Run' buttons from the 'VistA Integration' tab.
VistaIntegration, DeleteScheduler Update	'Delete' link from the 'Scheduled' tab and then 'Delete Record' button.

Operation Name	Operation Description
VistaIntegration, Schedulers Update	'Save' button from the 'Scheduled' tab.
VistaIntegration, VistASites Update	'Save' button from the 'VistA Sites' tab.
WaitingArea, Delete Read	'Delete' link from the Patient Waiting Areas page's list of Current Waiting Areas.
WaitingArea, Edit Read	'Edit' link from the Patient Waiting Areas page's list of Current Waiting Areas.
WaitingArea, Index Read	Site Options, Waiting Area Add/Delete link.
WaitingArea, DeleteAction Update	'Delete' link from the Patient Waiting Areas page's list of Current Waiting Areas and then 'Delete Record' button.
WaitingArea, Edit Update	'Edit' link from the Patient Waiting Areas page's list of Current Waiting Areas and then Submit button.
WaitingArea, Index Update	'Add' button from the Patient Waiting Areas page.
WardConfiguration, Delete Read	'Delete' link from the Bed Board Ward Configuration, Current Vista Wards list.
WardConfiguration, Index Read	Site Options, Vista Ward Add/Edit link.
WardConfiguration, Index Update	Site Options, Vista Ward Add/Edit link, Save button.
WardConfiguration, DeleteWard Update	Site Options, Vista Ward Add/Edit link, Delete operation.
WardOccupancy, Index Read	'Submit' button from the Home page corresponding to the Ward Occupancy.
WardWhiteboard, Edit Read	Click on a link from the BED column from WARD Whiteboard Report.
WardWhiteboard, EditPT Read	Click on a link from the PT column from the WARD Whiteboard Report.
WardWhiteboard, Index Read	Home page, 'Ward Whiteboard' link.
WardWhiteboard, NotifyChange Read	Click on a link from the BED column from WARD Whiteboard Report and then on the Submit button.
WhiteboardStaff, Index Read	Click on the checkbox from the STAFF column from the WARD Whiteboard Home.
WardWhiteboard, ShowReport Read	'Export Report' link from the right of the WARD Whiteboard Home page or WARD Whiteboard Report page, Export Report.

Section	Description
	<ol style="list-style-type: none"> 2. SSOi verifies the login information and BMS verifies the user has a role. 3. The system returns the result of the verification to the client application.

Authorization

Figure 57-Authorization Use Cases

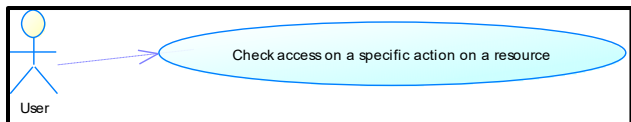


Table 18-Authorization Use Cases

Section	Description
Use Case Name	User authorization
Summary	In the above diagram it is represented the methods that a client application can use to check if an authenticated user has access to a specified action on a resource.
Preconditions	The users, actions and resources must be defined in an Active Directory structure that the Security Service is using.
Triggers	External
Basic course of events	<ol style="list-style-type: none"> 1. The client application will invoke a check access method for a specified action on a specific resource 2. The system will find the actions that the requesting users has access 3. The system returns true/false if the action requested is among the users defined actions

Figure 58- Authorization Administration Use Cases

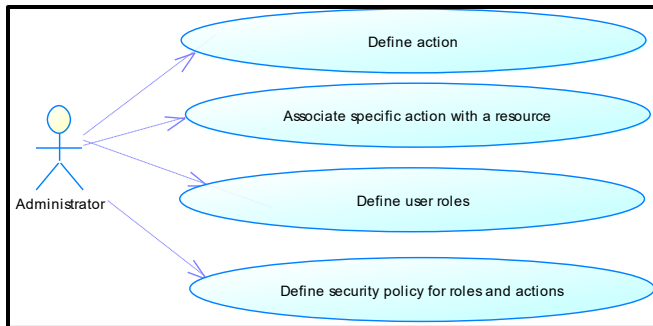


Table 19-Authorization Administration Use Cases

Section	Description
Use Case Name	Action and resource management
Summary	Administrative console can define actions and resources and associate an action with a resource type.
Preconditions	The association method mandates that the action and the resource type should already be defined
Triggers	External
Basic course of events	<ol style="list-style-type: none"> 1. The client application will invoke a create action 2. The system will try to create requested action. 3. The system will fail if the specified action name already exists, or specified id already exists.

Section	Description
Use Case Name	Role management
Summary	Administrative console can define user roles and associate users/user groups with roles.
Preconditions	The association method mandates that the role should already be defined
Triggers	External

Section	Description
Basic course of events	<ol style="list-style-type: none"> 1. The client application will invoke a create role 2. The system will try to create requested role. 3. The system will fail if the specified role name already exists, or specified id already exists.

Section	Description
Use Case Name	Security policy management
Summary	Administrative console can associate users (groups of users) with roles. These roles are then associated with an action (operation).
Preconditions	The association method mandates that the action and the resource type should already be defined.
Triggers	External

8. Detailed Functional Model on Each Interface

8.1. BMS Authentication and Authorization

Authentication

BMS connects with single sign-on (SSOi) and the user inputs their PIV pin. The SSOi headers are supplied by the SSOi service validating their user credentials to the BMS Application. Their user credentials are parsed from the SSOi headers in order to verify that the user is authenticated and has a role in the BMS application. If the user does NOT have a role in BMS, the login is rejected.

Authorization

Authorization occurs within the BMS Service layer. The application utilizes the Security Wrapper to Check Action and Check Permission for the user's account. The Security Wrapper queries the BMS database and the new Auth tables defined beginning in section 7.1.

- Check Action

Check Action queries the BMS database via the Security Wrapper for User Roles (BMS.AuthRole and BMS.AuthUserRoles) against the defined Actions (BMS.AuthAction and BMS.AuthRoleActions).

- Check Permission

The BMS Application validates the user's permission via the Security Wrapper by calling the CheckPermission to determine Read or Write access to a specific facility. This functionality is primarily reading the BMS.AuthUser and BMS.AuthPermissions tables.

8.2. BMS Roles

BMS users fall under the following categories:

Administrators: This type of user will customize the BMS settings according to the needs of a facility. They will have access to the Site Options pages. This role refers to a group of users whose members are the person(s) responsible for setting up BMS options for the current facility.

AuditLogUsers: This type of user will have access to Audit Log Report. This role cannot be used alone, only together with another role.

EmsStaff: The EMS group of users will be allowed to edit and update the bed cleaning process but not the other parts of the bed board. Any member of your EMS staff that will be interacting with BMS must be in this group.

EMSSupervisorUsers: The EMS supervisor group of users will be allowed to view the requests for bed clean operations, to filter existing requests by different criteria and to select requests in order to assign them to EMS staff. This role cannot be used alone, only together with EmsStaff role.

Guests: The guest user will be allowed to generate the National Bed Availability report from National/Regional page.

National Users/Regional Users: This type of user will have access to the National/Regional page only.

Site Users: This type of user only has access to the BMS facility page.

Support Users: This type of user will have access to the Administrative page of the BMS solution. They configure the sites for the BMS facilities and grant access and read/write rights to the users.

VISN Users: This type of user will have access to the pages of different facilities within the VISN where they have been granted access.

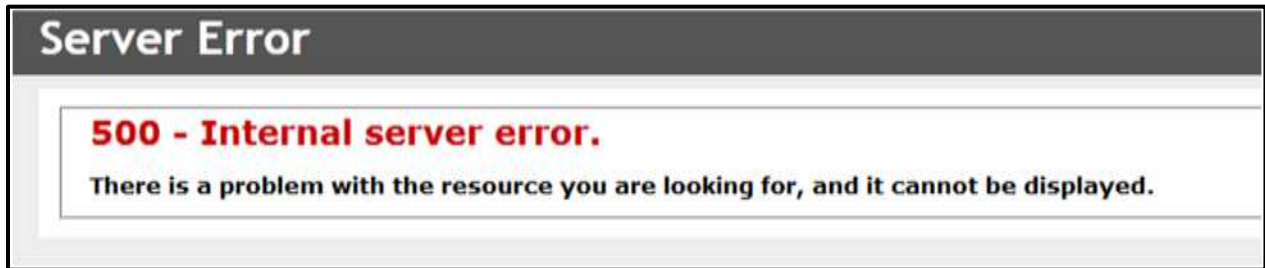
9. Troubleshooting

This section contains information on common issues with using BMS solution and how those may be resolved.

9.1. Symptom 1

When you try to load the BMS application, one of the following error messages appear:

Figure 59-500 Server Error



Problem

IIS is not started/running.

Diagnoses and Solutions

Start the IIS Manager and check if the Application Pool Identity is set to the correct service account. (). Verify the BMS pool is started, If stopped right click on the BMS, Select 'Start'.

Verify the Site 'BMS' is started. If not select 'BMS' under the Site folder in IIS Manager, select 'Start' from the 'Manage Web Site' panel on the right side of the IIS Manager.

9.2. Symptom 2

When trying to load the BMS application, one of the following error messages appears:

Figure 60-No Facilities Error



Diagnoses and Solutions

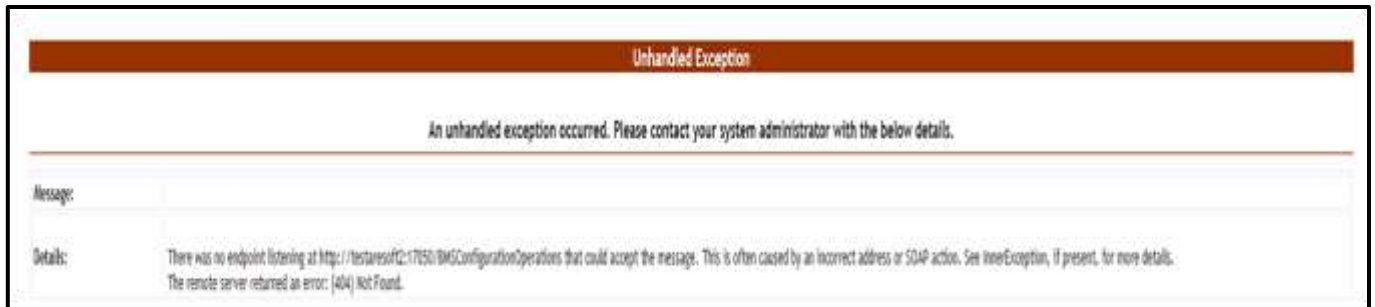
Go to the MULx5 machine and check if the BMS.ServiceHost service is stopped. Start the services.msc console and start the service.

Verify the service started.

9.3. Symptom 3

When trying to load the BMS application, one of the following error messages appears:

Figure 61-Unhandled Exception



Diagnoses and Solutions

- Check if BMS.BMService service is stopped or SQL Server might also have stopped.
- Go to the SQL Server machine and start the SQL Server from the SQL Server Configuration Manager. Verify if the connection string to the database server is set properly.
- Then go to the services' machine, start the services.msc console and start the BMS.BMService service.

9.4. Symptom 4

When trying to log-in to the BMS application, the following error is displayed:

Figure 62-Login Unsuccessful



Diagnoses and Solutions

Check if BMS.BMService service is stopped. Go to the services' machine, start the services.msc console and start the service.

9.5. Symptom 5

Data does not appear in the reports. Data does not get refreshed in the reports.

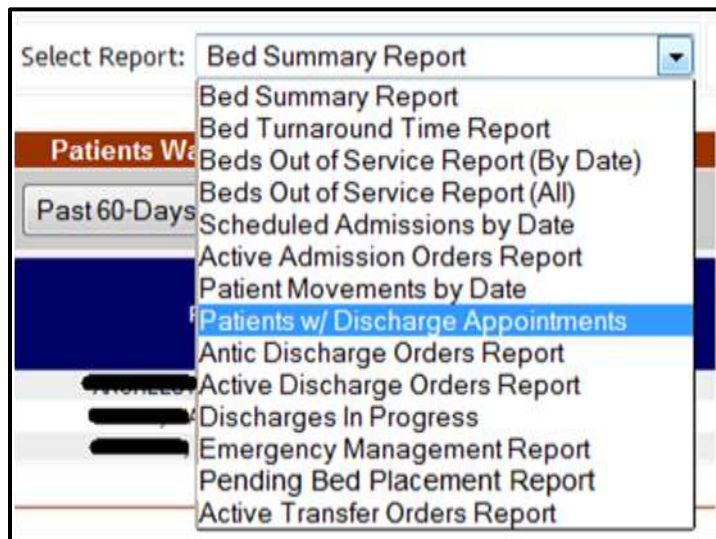
Diagnoses and Solutions

In SQL Configuration Manager, check if the SQL Server Agent is started, and if it isn't start it; then, in the SQL Server Management Studio, check if the *BMS - Reports Full* and *BMS - Reports Incremental* are deployed and run without errors. If the jobs are not deployed, install them.

9.6. Symptom 6

A report is missing from Other Reports section on the Facility Home Page (e.g. *EMS Bed Status Report (Admin)*).

Figure 63- EMS Bed Status Report is Missing



Diagnoses and Solutions

Check if the report is missing from the SQL Server Reporting Services. Go to the management web page and add the missing report (Upload File).

9.7. Symptom 7

When trying to view one of the reports (other than the *Other Reports*) the following error appears:

Figure 64- Report Cannot be Found



Diagnoses and Solutions

Check if the mentioned report is missing from the Reporting Services. Go to the management web page and add the specified report.

9.8. BMS Log Files

There are five log files available to anyone supporting the BMS system, the **WinServiceHost**, the **SecurityHost**, the **BMS.ServiceHost**, the

BMS.VI.ServiceHost and the **WebTrace log**.

- The WinServiceHost log file is named BMS-Services.log and its location is on the application server (vaausbmsmulx5) D:\BMS\Bin.
- The SecurityHost log file is named BMS-Security.log and its location is on the application server (vaausbmsmulx5) D:\BMS\Bin.
- The BMS.ServiceHost logfile is named BMS.trace.log and its location is on the application server (vaausbmsmulx5) at D:\BMS\Bin\BMS.
- The BMS.VI.ServiceHost logfile is named BMS.VI.trace.log and its location is on the application server (vaausbmsmulx6) at D:\BMS\Bin\BMS.
- The Web trace log is named WebTrace.log and its location is on the web server (vaausbmswebx5) at D:\BMS\BMS.Web.

These logs contain various types of information (informational, warnings, and errors) with the exception of the web trace log, which only contains error messages.

There is no log file for MDWS, those errors are captured through our integration calls and posted in the BMS.ServiceHost log file (Trace.log). These are bit trickier to debug as in any attempt requires the exact parameters to be passed to MDWS.

10. Appendix A – BMS Diagrams

10.1. Business Process Diagrams

Figure 65-Admit Patient to PPBP Business Process

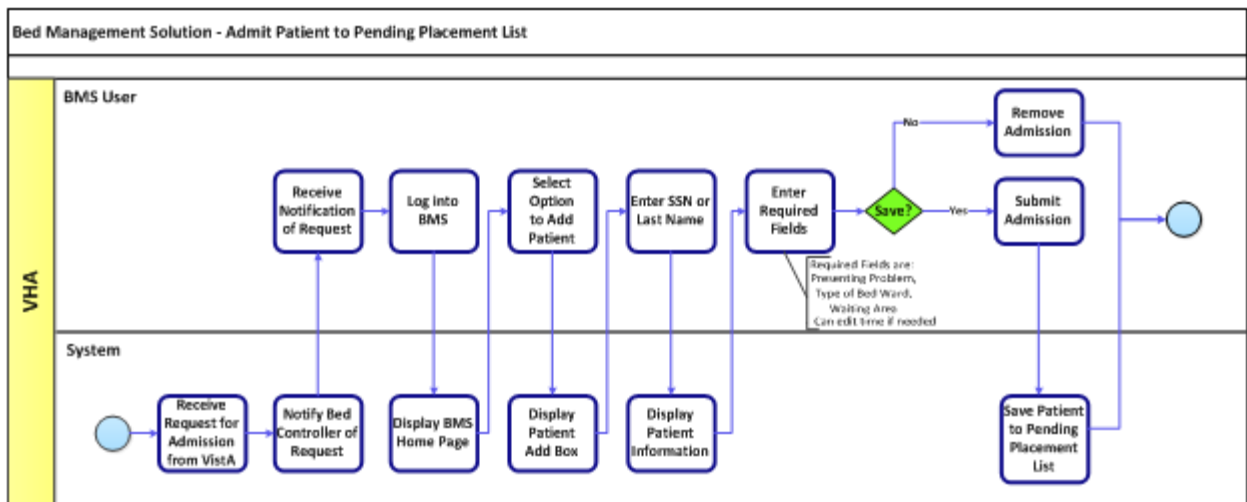


Figure 66-Transfer Patients to PPBP Business Process

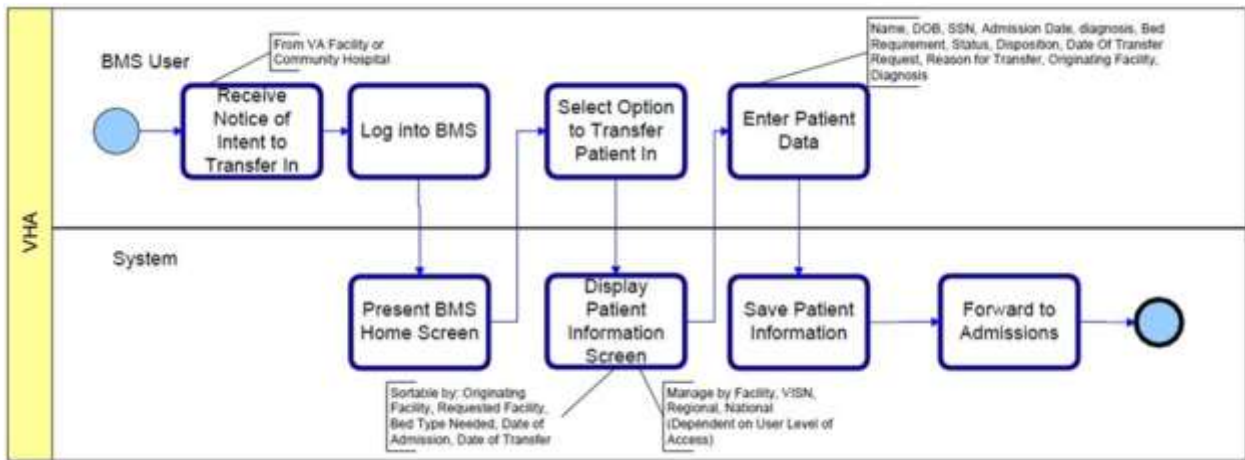


Figure 67-Display and Update PPBP Business Process

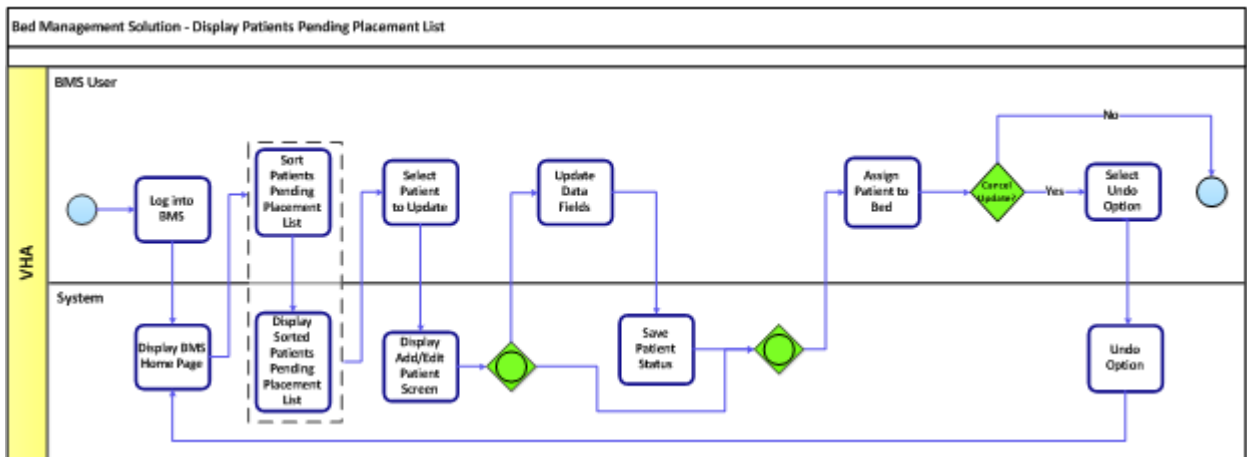


Figure 68-Display and Update Bed Status Business Process

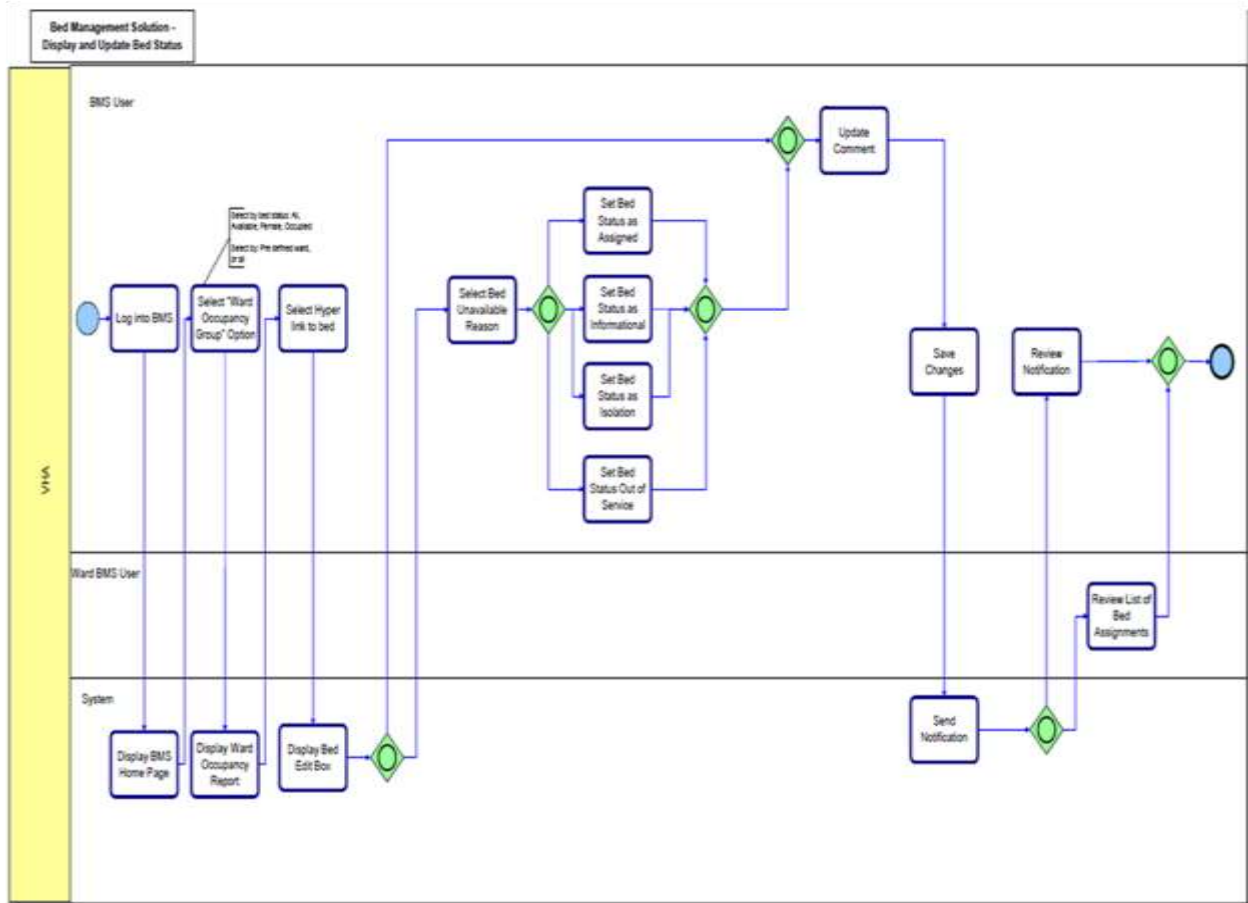


Figure 69-Manage Bed Cleaning Business Process

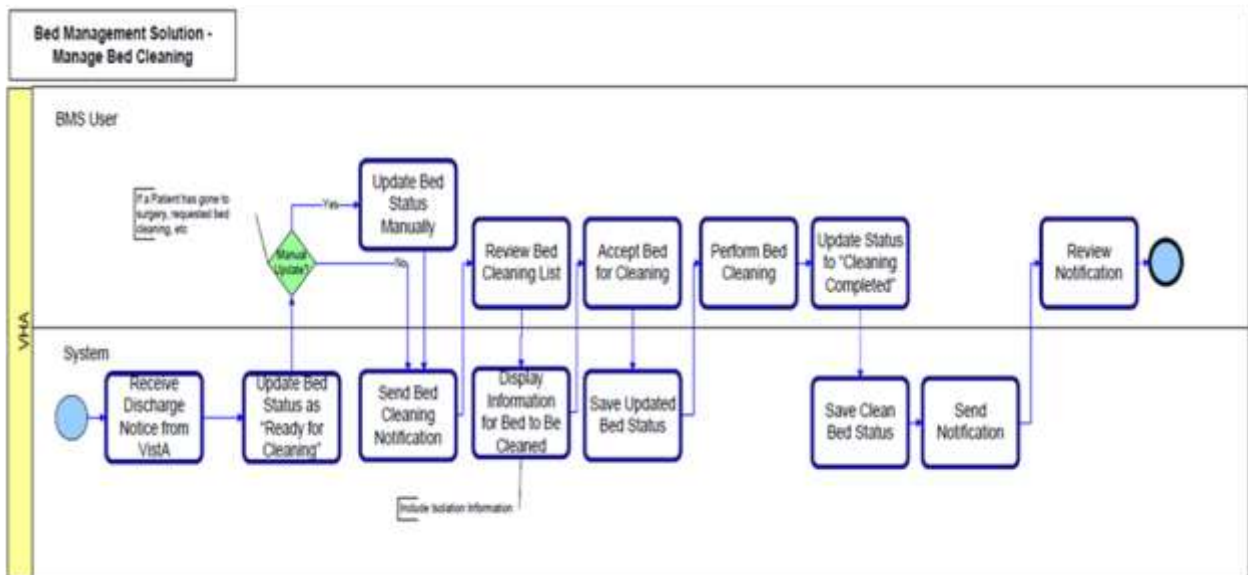


Figure 70-Create Notification Business Process

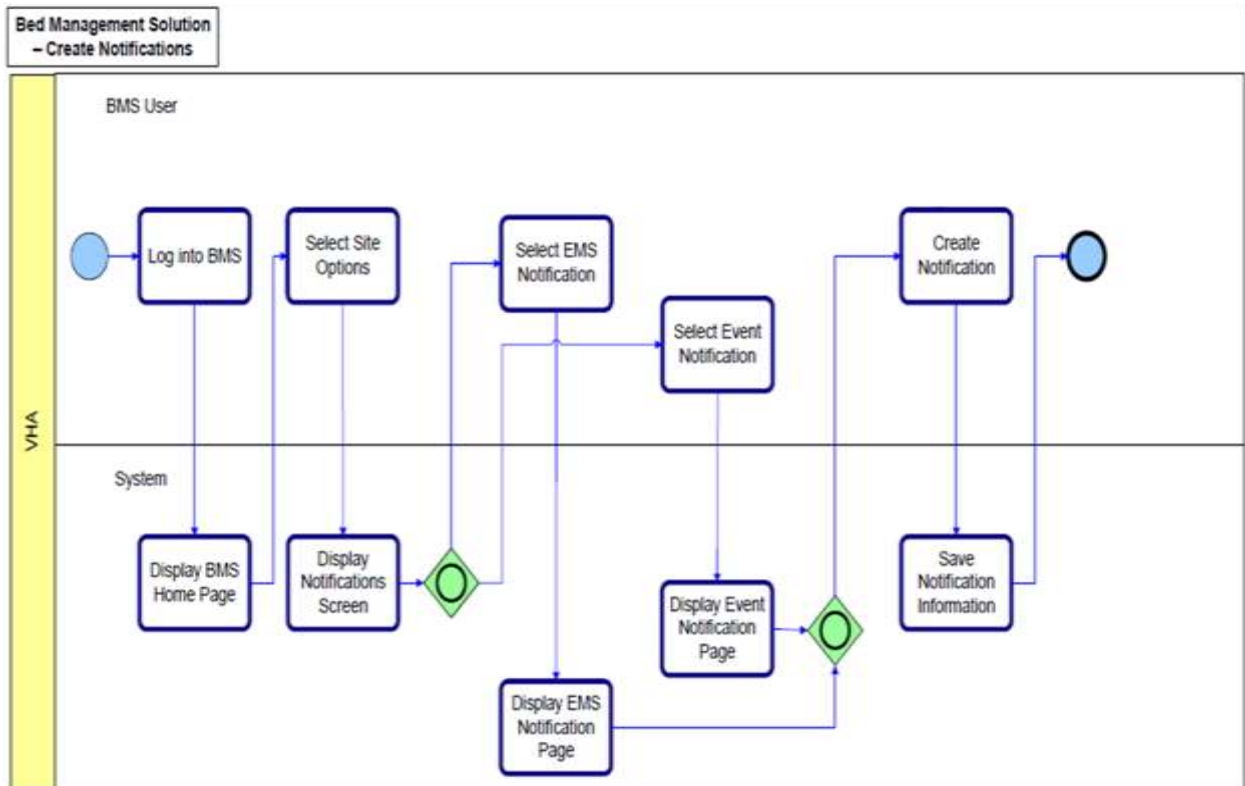


Figure 71-Create Facility Diversion Business Process

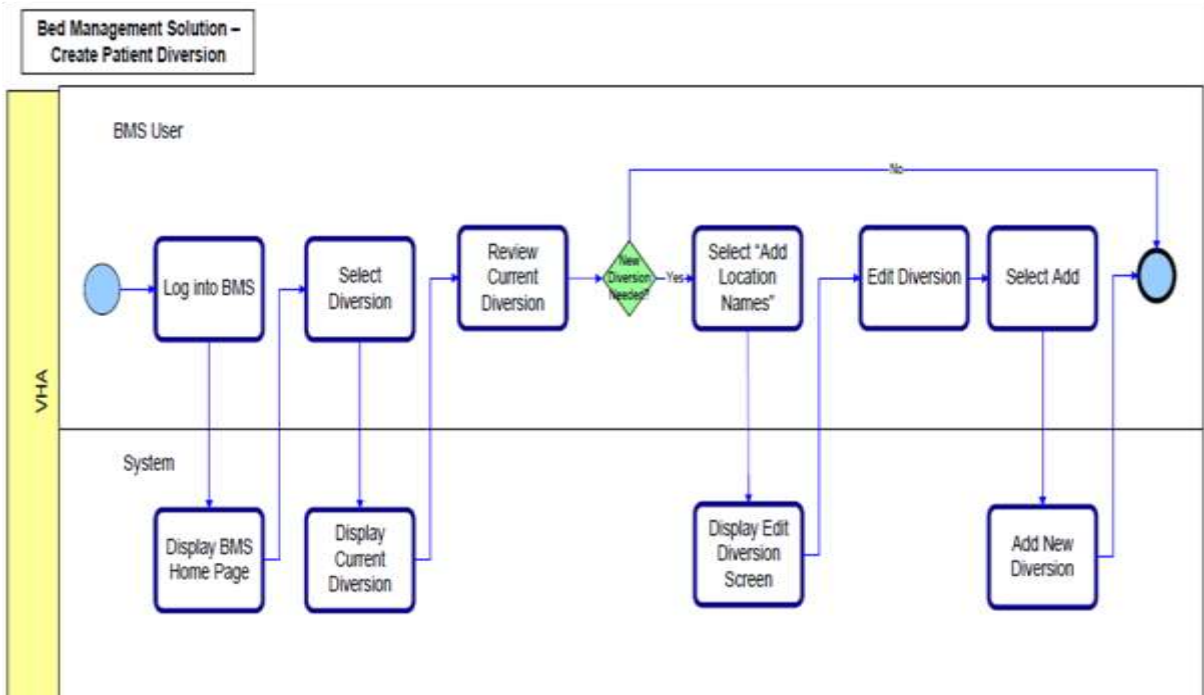


Figure 72-Manage Whiteboard Business Process

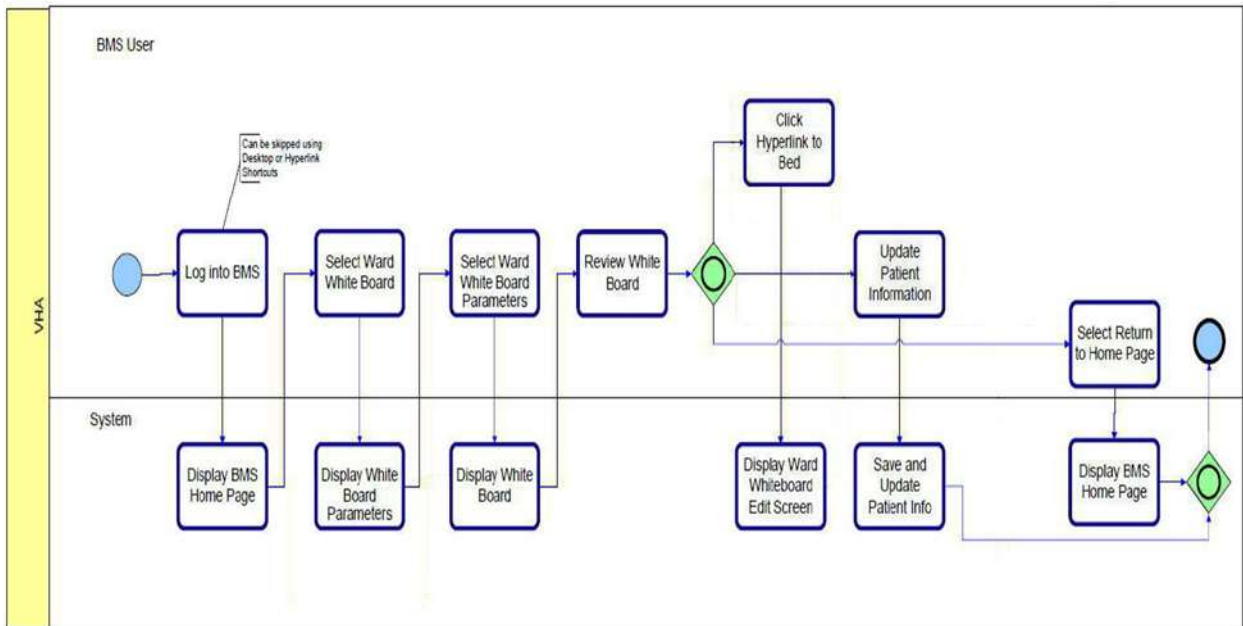
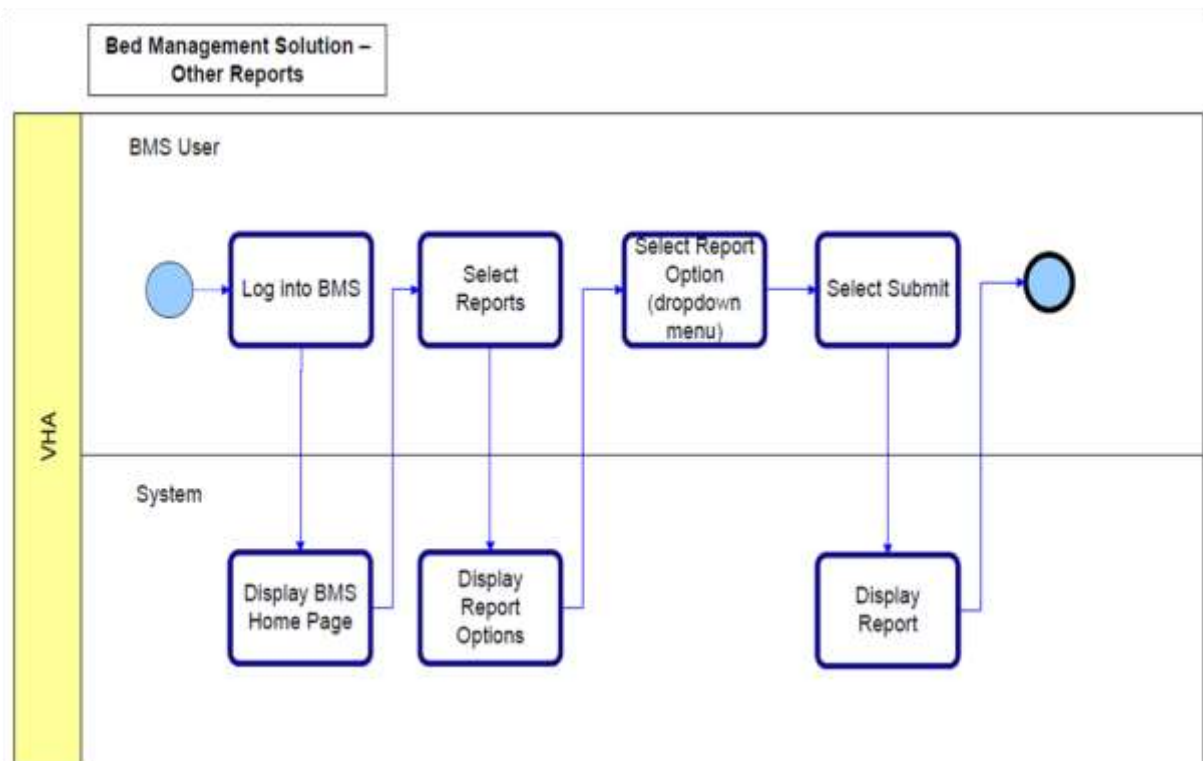


Figure 73-Reports Business Process



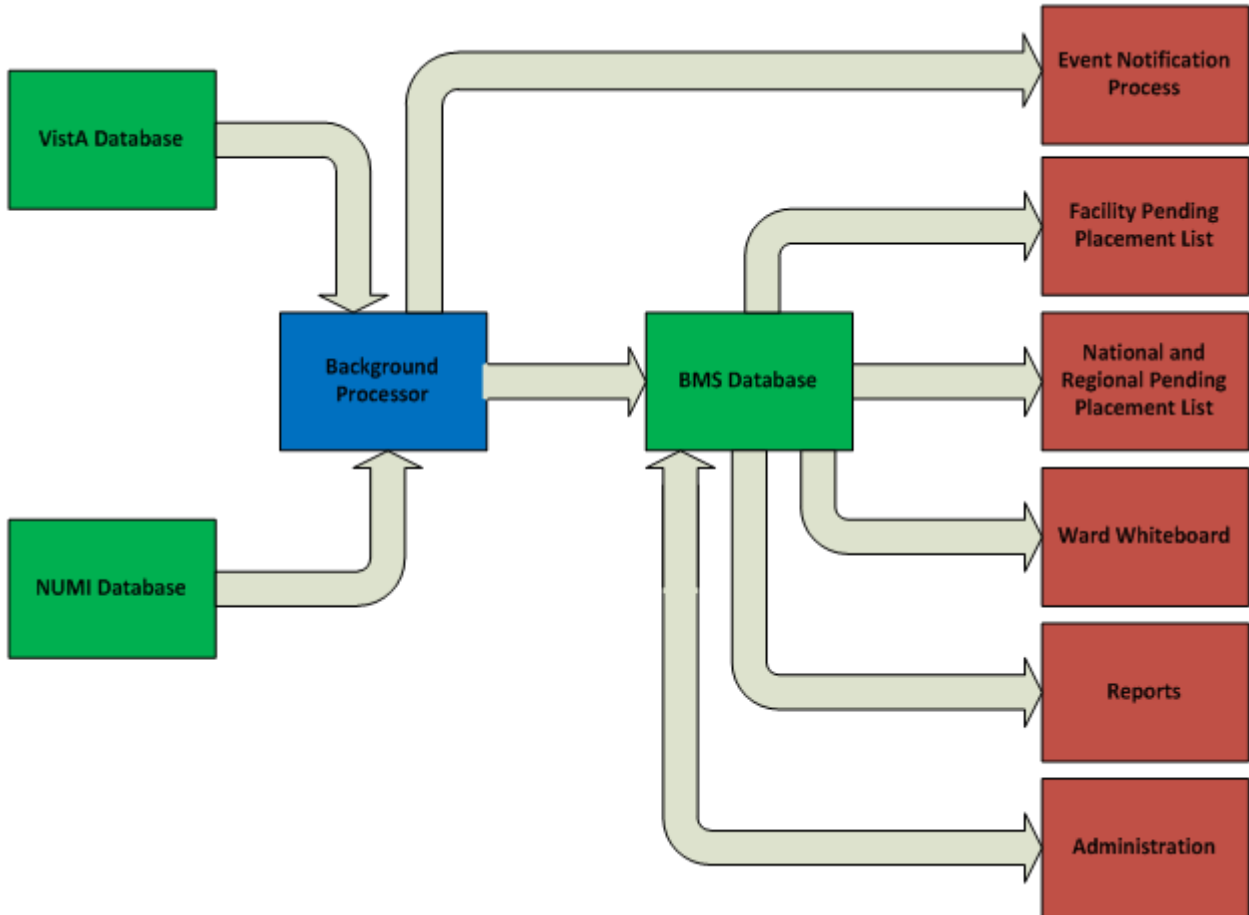
10.2. Activity Diagram

Figure 74-BMS Overview Activity Diagram



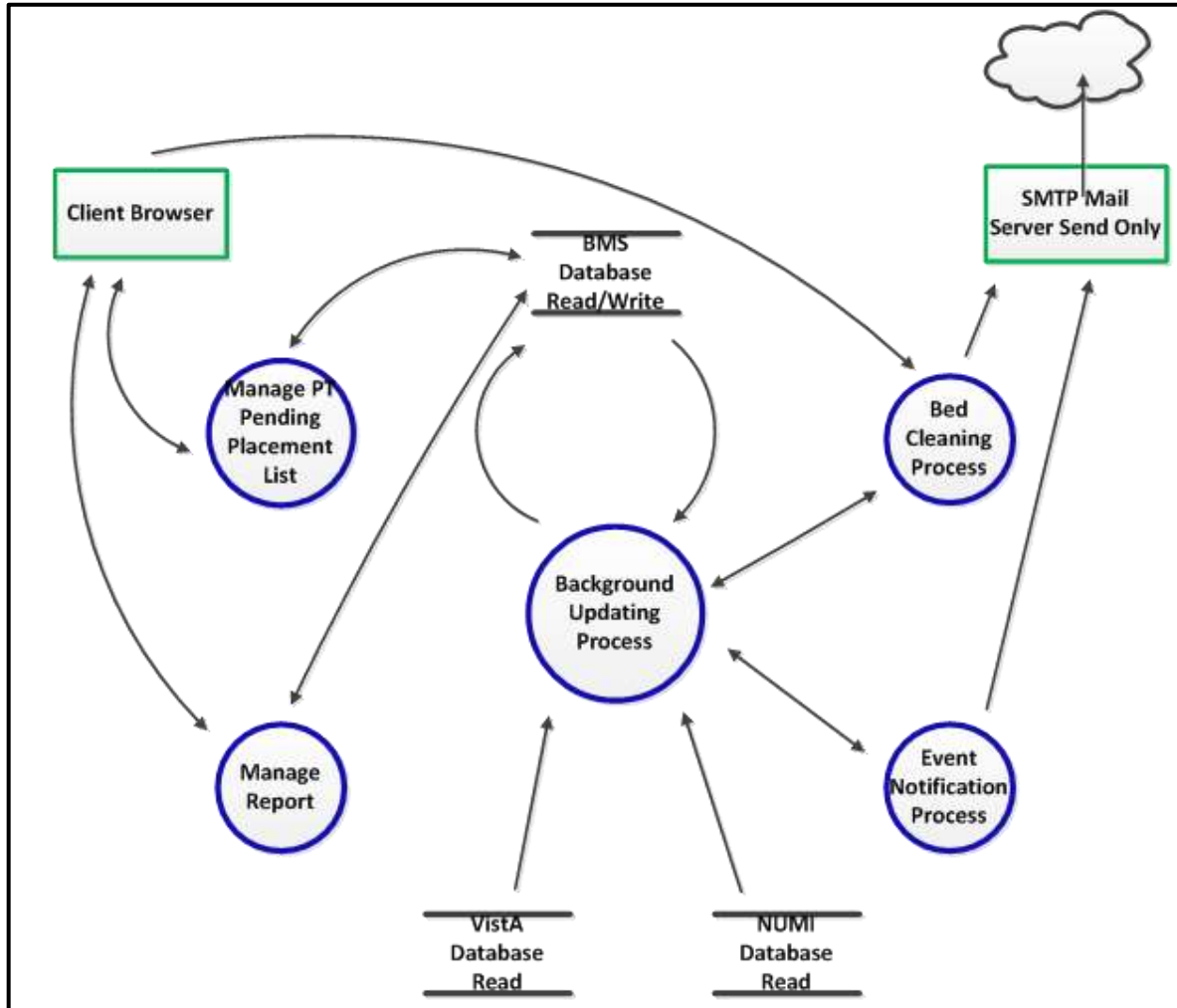
10.3. Functional Flow Diagram

Figure 75-BMS Overview Functional Flow Diagram



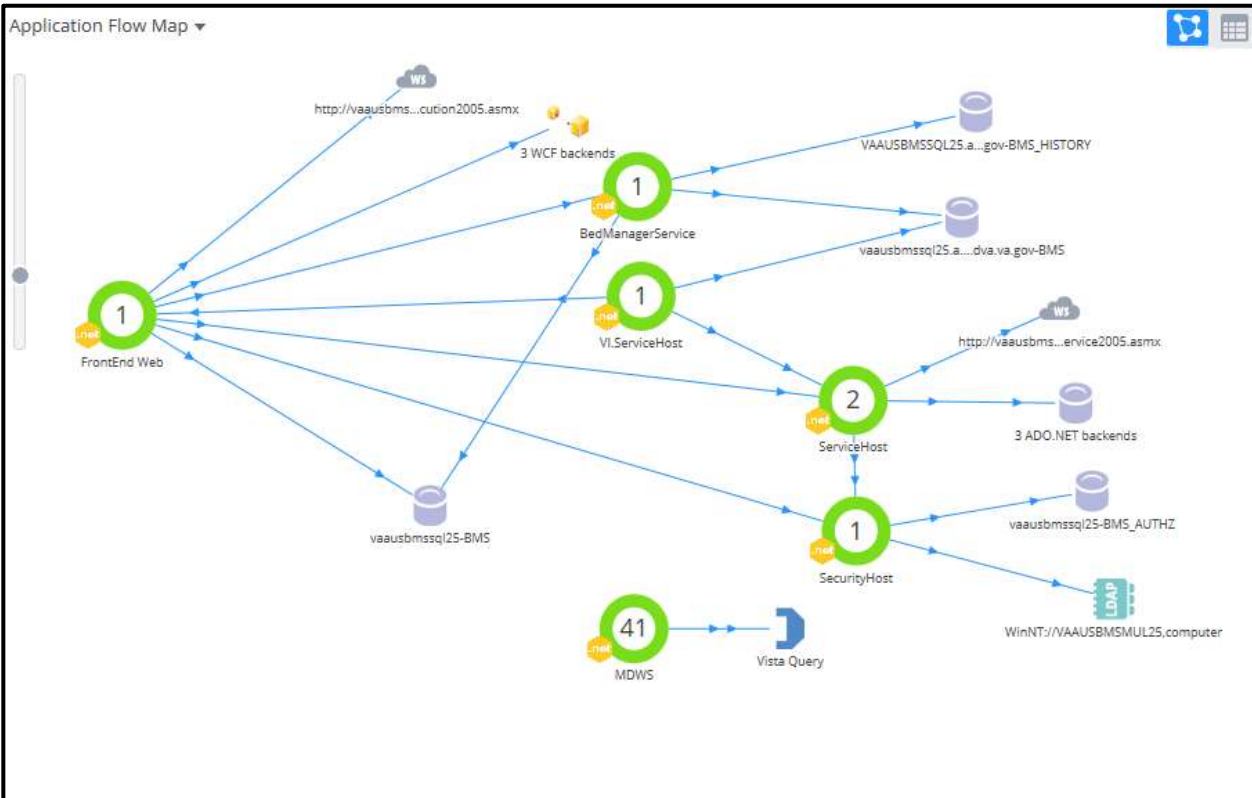
10.4. Data Flow Diagram

Figure 76-BMS Overview Data Flow Diagram



10.5. Application Flow Map from APPDYNAMICS

Figure 77-Application Flow map from APPDYNAMICS



11. Appendix B – Terms, Acronyms, and Abbreviations

Table 20-Terms, Acronyms, and Abbreviations

Terms, Acronyms, Abbreviations	Definitions
ASP	Active Server Pages
BMS	Bed Management Solution
CRUD	Create, Read, Update, Delete
EIS	Entity Identification Service
EMS	Environmental Management Service
ETL	Extract Transform Load
EVS	Enterprise Vocabulary Service
IE	Internet Explorer
IIS	Internet Information Services
IRM	Information Resources Management
MDO	Medical Domain Objects
MDWS	Medical Domain Web Services

Terms, Acronyms, Abbreviations	Definitions
MVC	Model-View-Controller
NUMI	National Utilization Management Integration
ODBC	Open Database Connectivity
PAP	Policy Administration Point
PPBPL	Patients Pending Bed Placement List . A list of patients in need of beds at VA facilities
PDP	Policy Decision Point
RS	Reporting Services
SOA	Service Oriented Architecture
SQL	Structured Query Language
STS	Secure Token Service
URI	Uniform Resource Identifier
URL	Uniform Resource Locator
VA	Department of Veterans Affairs
VAMC	VA Medical Center
VIA	Vista Integration Adapter
VISN	Veterans Integrated Service Network
VistA	Veterans Health Information Systems and Technology Architecture
WCF	Windows Communication Foundation
XAML	Extensible Application Markup Language
XML	eXtensible Markup Language
WMI	Windows Management Instrumentation