

Bed Management Solution (BMS)
Deployment, Installation, Back-Out, and Rollback
Guide

V2.9

WEBB*2*23 EVS Replacement



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V1.6

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Revision History

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07/21/2020	1.1	Updated for WEBB*2*17 BMS Release	Liberty IT Solutions
05/29/2020	1.0	Updated for WEBB*2*16 BMS Patch	Liberty IT Solutions

Artifact Rationale

This document describes the Deployment, Installation, Back-out, and Rollback Plan for new products going into the VA Enterprise. The plan includes information about system support, issue tracking, escalation processes, and roles and responsibilities involved in all those activities. Its purpose is to provide clients, stakeholders, and support personnel with a smooth transition to the new product or software, and should be structured appropriately, to reflect particulars of these procedures at a single or at multiple locations.

Per the Veteran-focused Integrated Process (VIP) Guide, the Deployment, Installation, Back-out, and Rollback Plan is required to be completed prior to Critical Decision Point #2 (CD #2), with the expectation that it will be updated throughout the lifecycle of the project for each build, as needed.

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1 Introduction

This document describes how to deploy and install the various components of the software for the Bed Management Solution (BMS) v2.9 project, as well as how to back-out the product and rollback to a previous version or data set. This document is a companion to the project charter and management plan for this effort. In cases where a non-developed Commercial Off-the-Shelf (COTS) product is being installed, the vendor provided User and Installation Guide may be used, but the Back-Out Recovery strategy still needs to be included in this document.

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 within the VA system. It provides performance information that can be used to measure and improve patient flow as it occurs within and between VAMCs. BMS enhances safety, quality of care, patient/staff satisfaction and improves patient flow for process and outcome improvements. BMS, the automated Bed Management Solution, 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 pulled directly from VistA to BMS resulting in minimal manual data entry.

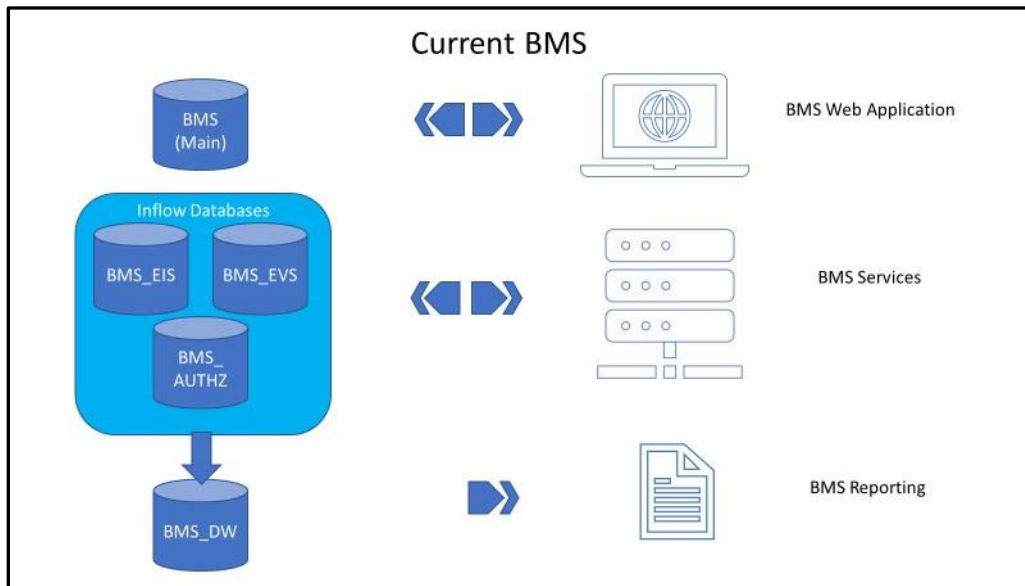
2 Purpose

The purpose of this plan is to provide a single, common document that describes how, when, where, and to whom the BMS application will be deployed and installed, as well as how it is to be backed out and rolled back, if necessary. The plan also identifies resources, communications plan, and rollout schedule. Specific instructions for installation, back-out, and rollback are included in this document.

3 Dependencies

BMS communicates with VistA to capture bed, patient, admission, transfer, and discharge information. BMS also interfaces with National Utilization Management Integration (NUMI) to retrieve information regarding NUMI reviews.

Figure 1: BMS Overview



3.1 Constraints

The software needs to address system-related issues associated with the currently deployed BMS v2.9.31 product, while continuing to meet functional business needs and requirements of the business owner.

The objective of this software release is to enhance the current BMS functionality as part of the nationally supported Class I solution, while complying with all previously established VA national release criteria.

Specific functionalities to be deployed in this release of BMS v2.9 will enhance functionalities of the following components of the system:

- EVS Inflow Replacement
- Replace EVS Workflow Services
- Remove EVS Configuration Table
- Replace EVS Cache
- Evacuated Patients not moving from Whiteboard to PPBP properly
- Adding a Discharge Clinic that does not exist causes an Exception
- Removal of BedBoardModule Page
- Display Correct User Login Account
- Deleting a Discharge Clinic causes an Error
- Display Specialty is not being Hidden on Whiteboard after unselecting Desktop checkbox (Add/Edit Ward)
- Patients modified in Whiteboard not showing up in Whiteboard Patient Icon Usage (Audit Log)
- Report results swapping data for Site Configurable and Standard Icons

BMS v2.9 will be a single code base system supporting all VAMCs and Veterans Integrated Service Networks (VISNs).

BMS v2.9 will be hosted in a browser-controlled environment.

BMS v2.9 design will support the server configurations deployed at the Austin Information Technology Center (AITC) that hosts BMS v.2.8.

4 Roles and Responsibilities

This section outlines the roles and responsibilities for managing the deployment of the BMS v2.9 application. The BMS Development Team will produce the deployment artifacts (RFC’s, DB Scripts, executables, etc.) and work directly with the AITC personnel to plan the actual deployment.

Table 1: Deployment, Installation, Back-out, and Rollback Roles and Responsibilities

ID	Team	Phase / Role	Tasks	Project Phase (See Schedule)
1	FO, EO, NDCP or Product Development (depending upon project ownership)	Deployment	Plan and schedule deployment (including orchestration with vendors).	Deployment
2	FO, EO, NDCP or Product Development (depending upon project ownership)	Deployment	Determine and document the roles and responsibilities of those involved in the deployment.	Design/Build
3	FO, EO, or NDCP	Deployment	Test for operational readiness.	Design/Build
4	FO, EO, or NDCP	Deployment	Execute deployment.	Design/Build
5	FO, EO, or NDCP	Installation	Plan and schedule installation.	Deployment
6	Regional PM/ Field Implementation Services (FIS)/ Office of Policy and Planning (OPP) PM	Installation	Ensure authority to operate and that certificate authority security documentation is in place.	Design/Build
7	Regional PM/FIS/OPP PM/ Nat’l Education & Training	Installations	Coordinate training.	Deployment
8	FO, EO, NDCP or Product Development (depending upon project ownership)	Back-out	Confirm availability of back-out instructions and back-out strategy (what are the criteria that trigger a back-out).	Deployment
9	FO, EO, NDCP or Product Development (depending upon project ownership)	Post Deployment	Hardware, Software and System Support.	Maintenance

5 Deployment

The deployment and installation is scheduled to run as depicted in the BMS v2.9 development master schedule.

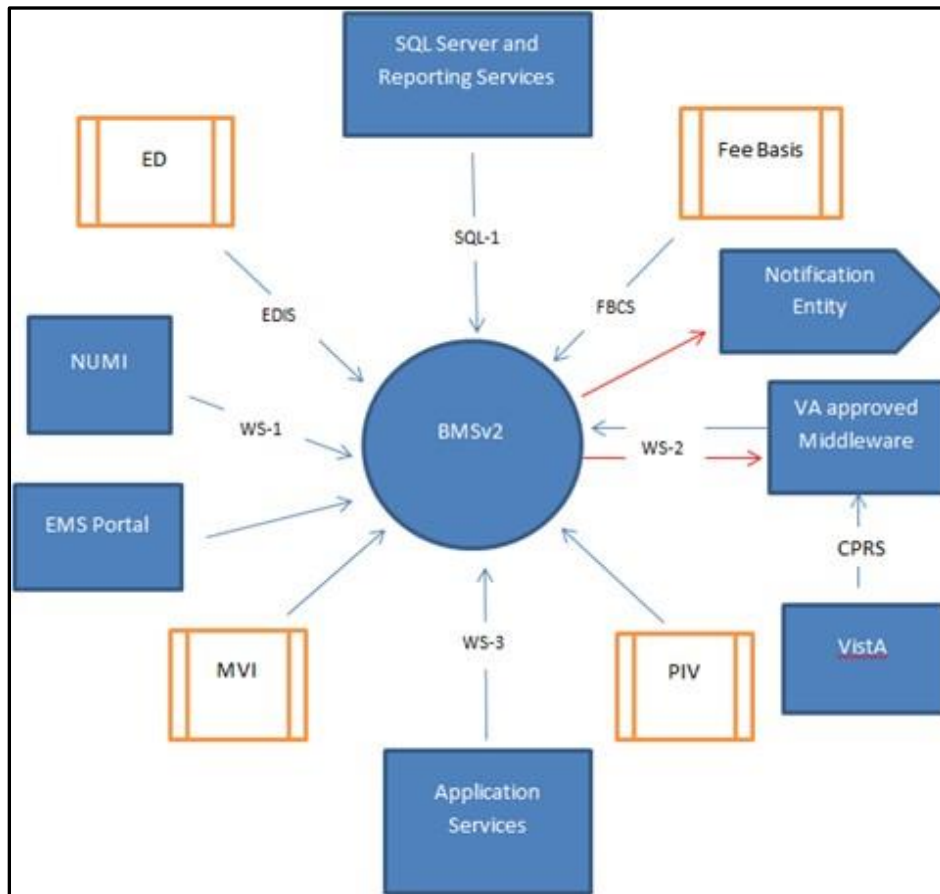
5.1 Site Readiness Assessment

The product will be released by the BMS Development Team to the AITC Build Manager via a Change Order. The AITC Build Manager will follow the installation steps in Section 0 to complete the product's activation at AITC. The Implementation Manager has assured site readiness by assessing the readiness of the receiving site to deploy the product. AITC, under contract, will provide the product dependencies, power, equipment, space, manpower, etc., to ensure the successful activation of this product.

5.2 Application Architecture

The following diagram represents the high-level architecture for the BMS application. BMS is a national application deployed at the AITC data center. The application is accessed at VA medical centers using approved web browser software. BMS reads data from VistA systems associated with each site's VistA instance.

Figure 2: BMS Architecture Diagram



5.2.1 Deployment Topology (Targeted Architecture)

This product will be released to AITC. The AITC, under contract, will house and secure this product on its Pre-Production and Production servers. The BMS system will be available to VA users on a continuous basis (excluding scheduled maintenance activities).

5.2.2 Site Information (Locations, Deployment Recipients)

AITC will host the web and application servers for the BMS system.

5.2.3 Site Preparation

BMS will be supported on VA equipment that currently runs the existing BMS 2.3.1 system; therefore, no site preparation activities are required.

5.2.4 Resources

This section describes the hardware, software, and communications for the deployment of BMS, where applicable.

5.2.4.1 Facility Specifics

No facility-specific features are required for this deployment.

5.2.4.2 Hardware

As middleware, BMS v2.9 requires no hardware to install. BMS v2.9 will be supported on existing VA equipment.

5.2.4.3 Software

BMS v2.9 will be updating the system to implement a patch to fix post-deployment defect fixes. Other than changes to the application files and database objects, no new COTS software or database/operating system updates are required.

The software components and database change scripts will be staged at the following location:

[BMS Team Share Location]\prod_deployment\patches

5.2.4.4 Communications

This section outlines the communications to be distributed to the business user community:

- Communication between the development team, AITC, and the Sustainment team will occur via email and conference calls scheduled through Microsoft Lync.
- Notification of scheduled maintenance periods that require the service to be offline or that may degrade system performance will be disseminated to the business user community a minimum of 48 hours prior to the scheduled event.
- Notification to VA users for unscheduled system outages or other events that impact the response time will be distributed within 30 minutes of the occurrence.

5.2.4.5 Development/Installation/Back-Out Checklist

The table below outlines the coordination effort and documents the day/time/individual when each activity (deploy, install, back-out) is completed for BMS v2.9. The table will be populated once the activities are completed.

Table 2: Deployment/Installation/Back-Out Checklist

Activity	Day	Time	Individual who completed task
Deploy	9/15/2021	11a CST	
Install	9/15/2021	11a CST	
Back-Out	TBD		

6 Installation

This section outlines the backup and installation steps for the various BMS v2.9 components.

6.1 Pre-installation and System Requirements

This section outlines the minimum requirements for the product to be installed, as well as the recommended hardware and software system requirements. BMS v2.9 is being deployed to fix post deployment defects. As an upgrade, there are no changes to the existing hardware and software system components. The only changes are to the BMS application and database objects - to support the BMS v2.9 functionality.

6.1.1 Pre-installation Activities

Download the files from the following directories and download to the applicable App, Web, and Database servers:

[BMS TeamShare] Release_EVS_2021\Prod\

[BMS TeamShare] DBA_DB_deployment_scripts\EVS_Release\

6.1.1.1 Database Server

This section outlines the installation steps for the various BMS v2.9 database components on vaussqlbms210.

VAAUSSQLBMS210

1. Stop the BMS.VI.ServiceHost on vausappbms211
2. Backup the directory \\vausappbms211 D:\Services\BMS
4. Restart the BMS.VI.ServiceHost on vausappbms211
5. Execute the scripts located on the database server by editing the _Inflow_DB_deployment_automation_script.sql and updating the scripts Directory folder line that starts with Set @Dir... for each of the following folders:

- 1.13_AuthZ_PostDeploy\
 - 1.20_EVS_tables_01\
 - 1.22_AC\
 - 1.23_EVS_tables_02_AfterETL\
 - 3_DH\
 - 4_JM_JP_AS
6. Enable Transactional replication to VAAAUSSQLBMS211 and 212 from VAAUSSQLBMS210 for the following BMS tables:
- Bed
 - BedBedStatuses
 - BedBoardModule
 - BedStatus
 - BedUnavailableReason
 - BedWardGroups
 - CensusCategory
 - Comments
 - Decision
 - Disposition
 - Era
 - EvacDisposition
 - EvacTransportationProvider
 - EvacTransportationType
 - Facility
 - FeeDisposition
 - FeeReason
 - Gender
 - GenderColor
 - HAvBed
 - Location
 - LocationStatus
 - MedicalDivision
 - Numa
 - OrderableItem
 - OrderableItemType
 - OrderableItemTypeFacilities
 - Patient
 - PatientWaitingTimes
 - PatientWaitingViews
 - Physician
 - PTDisplay
 - Region
 - SchedAdmNextDays
 - SelectBedGroupingsView

- ServiceReceivingFee
- Specialty
- State
- TimeZone
- TransactionBed
- TransferStatus
- TreatingSpecialty
- Visn
- WaitingArea
- WaitListView
- Ward
- WardBeds
- WardBedsBedStatuses
- Wardgroup
- WardOccupancyBedFilter
- WardType

VAAUSSQLBMS211

7. Navigate to the VAAUSSQLBMS211 report server portal.
8. Backup the following RDL files on VAAUSSQLBMS211:
 - BMS\Others\Audit Log Report.rdl
 - BMS\Emergency Management Report.rdl
 - BMS\Facility Diversion report.rdl
 - BMS\VISN Diversion Report.rdl
 - BMS\VISN Emergency Management Report.rdl
- b. Upload the updated Audit Log Report to the BMS\Others folder and the Emergency Management Report, Facility Diversion Report, VISN Diversion Report, and VISN Emergency Management Report to the BMS folder from this location: [\[BMS TeamShare\DBA\ DB deployment scripts\EVS Release\EVS Report RDLs\]](#)

6.1.1.2 Web Server

This section outlines the installation steps for the BMS components on the web server – vaauswebbms210.

1. Backup the **D:\Web** directory on VAAUSWEBBMS210.
2. Copy the [\[BMS Teamshare\]Release EVS 2021\Prod\BMS.Web.210.2.8.19.1.zip](#) file to a local directory/desktop on VAAUSWEBBMS210

6.1.1.3 App Servers

This section outlines the installation steps for the BMS components on the App server for vaausappbms210 and vaausappbms211.

1. Backup affected app dll's from D:\Services\BMS both on

VAAUSAPPBMS210 and VAAUSAPPBMS211.
VAAUSAPPBMS210

2. Copy the [\[BMS TeamShare\]Release_EVS_2021\Prod\BMS.Services.210.2.8.19.1.zip](#) file to a local directory/desktop on VAAUSAPPBMS210.
3. Extract the contents of the .zip file and copy to D:\Services\
VAAUSAPPBMS211
4. Copy the [\[BMS TeamShare\]Release_EVS_2021\Prod\BMS.Services.211.2.8.19.1.zip](#) file to a local directory/desktop on VAAUSAPPBMS210.
5. Extract the contents of the .zip file and copy to D:\Services\
VAAUSAPPBMS211

6.2 Post-installation and Smoke Testing

This section outlines the post-installation activities and the minimum BMS v2.9 functionality to smoke test.

6.2.1 Post-installation Activities

Log into the BMS Web Application.

6.2.2 Smoke Testing

1. Perform Smoke Testing
 - a. The CancelOrder numbers should not get higher as the day/week progresses. Canceled orders should be properly processed and not accumulate
 - b. User is able to view/load the User Acces Report from the "BMS User Add/Edit" page
 - c. User is able to transfer patients from the Facility to VISN bed board, with the correct wait times listed Verify that User Roles work according to the previous version of BMS.

7 Rollback/Back-Out Plan

The BMSv2.9 rollback/back-out plan is relatively straightforward since backup directories were created on each of the upgraded servers.

1. VAAUSSQLBMS210
 - a. Restore and Compile the backup stored procedures
2. VAAUSAPP211
 - a. Shutdown the services
 - b. Restore the backup app dll's

- c. Restart the services.
3. Perform Smoke Testing