

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

V3.2

WEBB*3*5 Emergency Cache Optimizations



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V1.9

Department of Veterans Affairs
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Revision History

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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 Health DevSecOps (HDSO) Guide, the Deployment, Installation, Back-out, and Rollback Plan is required to be completed prior to BMS National Team sign-off of Approval 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) v3.2 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.

3.1 Constraints

The software needs to address system-related issues associated with the currently deployed BMS v3.2 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.

The BMS WEB 3*5 release provides performance and stability optimizations to the Entity Cache that stores and organizes Beds, Wards, and Ward Groups for each facility in the enterprise.

BMS v3.2 will be a single code base system supporting all VAMCs and Veterans Integrated Service Networks (VISNs).

BMS v3.2 will be hosted in a browser-controlled environment.

BMS v3.2 design will support the server configurations deployed at the Austin Information Technology Center (AITC) that hosts BMS v3.2.

4 Roles and Responsibilities

This section outlines the roles and responsibilities for managing the deployment of the BMS v3.2 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 v3.2 development master schedule.

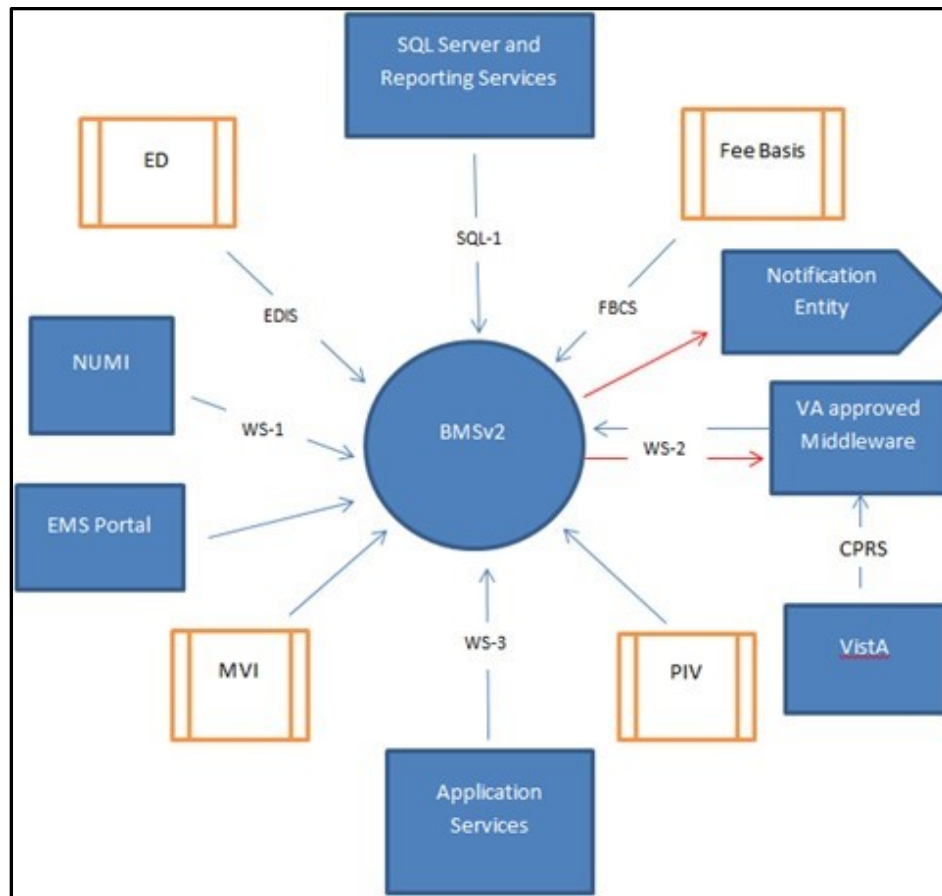
5.1 Site Readiness Assessment

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 1: 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 v3.1 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 v3.2 requires no hardware to install. BMS v3.2 will be supported on existing VA equipment.

5.2.4.3 Software

BMS v3.2 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 any database change scripts will be staged at the following location:

[BMS Team Share Location]\Release_3_5

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 Teams.
- 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 v3.2. 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	TBD		
Install	TBD		
Back-Out	TBD		

6 Installation

This section outlines the backup and installation steps for the various BMS v3.2 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 v3.2 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 v3.2 functionality.

6.1.1 Pre-installation Activities

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

[BMS TeamShare] Release_3_5\web

[BMS TeamShare] Release_3_5\app

*also copy the appropriate config file for each server to the deploy staging area

6.1.1.1 Web Server

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

1. Shutdown Prod website and app server services.
 - i. Shutdown order:
 - Web: vaausweb210:
 - a. Stop IIS
 - App: vaausapp211:
 - a. Stop and Disable BMS.VI.ServiceHost
 - App vaausapp210:
 - a. Stop and Disable
BMS.BedManagerServer
2. Backup the **D:\Web** directory on VAAUSWEBBMS210.
3. Copy the [\\vaussqlbms801\bms_team\Release_3_5\web](#) and [\\vaussqlbms801\bms_team\Release_3_5\web210.config](#) file to a local directory/desktop on VAAUSWEBBMS210

6.1.1.2 App Servers

This section outlines the installation steps for the BMS components on the app servers – vaausappbms210 & vaausappbms211

1. Backup the **D:\Services** directory on VAAUSAPPBMS210 & VAAUSAPPBMS211
2. Copy [\\vaussqlbms801\bms_team\Release_3_5\app](#) the and [\\vaussqlbms801\bms_team\Release_3_5\app210.config](#) / [\\vaussqlbms801\bms_team\Release_3_5\app211.config](#) file to a local directory/desktop on the appropriate app server

6.2 Post-installation and Smoke Testing

This section outlines the post-installation activities and the minimum BMS v3.2 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 Access 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 BMSv3.2 rollback/back-out plan is relatively straightforward since backup directories were created on each of the upgraded servers.

1. VAAUSAPPBMS211
 - a. Shutdown the services
 - b. Restore the backup app dll's
 - c. Restart the services.
2. VAAUSAPPBMS210
 - a. Shutdown the services
 - b. Restore the backup app dll's
 - c. Restart the services.
3. VAAUSWEBBMS210
 - a. Shutdown the services
 - b. Restore the backup app dll's
 - c. Restart the services.
4. Perform Smoke Testing