Problem Management

Process Asset Library
Office of Information and Technology
# Table of Contents

- Problem Management Process Map ................................................................. 1
- **Process: Problem Management** ...................................................................... 2  
  - Problem Management Description and Goals .............................................. 3  
    - Description ................................................................................................. 3  
    - Goals ........................................................................................................... 3  
  - Problem Management RACI Information ....................................................... 4  
  - Problem Management Associated Artifacts Information .............................. 8  
  - Problem Management Tools and Web Sites Information ............................... 8  
  - Problem Management Standards Information ................................................ 8  
  - Problem Management Process ........................................................................ 9  
    - Process Activity Name: PBM-01 Identify Problem ........................................ 9  
    - Process Activity Name: PBM-02 Incident Management .................................. 10  
    - Process Activity Name: PBM-03 Log Problem ............................................... 11  
    - Process Activity Name: PBM-04 Categorize Problem .................................... 12  
    - Process Activity Name: PBM-05 Prioritize Problem ...................................... 13  
    - Process Activity Name: PBM-06 Investigate and Diagnose Problem for Root Cause ................................................................. 15  
    - Process Activity Name: PBM-07 Create Permanent Solution ....................... 16  
    - Process Activity Name: PBM-08 Create Known Error Record .................... 18  
    - Process Activity Name: PBM-09 Resolve Problem ....................................... 19  
    - Process Activity Name: PBM-10 AAR Needed? .......................................... 20  
    - Process Activity Name: PBM-11 Complete After Action Report .................. 21  
    - Process Activity Name: PBM-12 Change Required? ..................................... 22  
    - Process Activity Name: PBM-13 Change Management ................................. 22  
    - Process Activity Name: PBM-14 Resolved? .................................................. 23  
    - Process Activity Name: PBM-15 Close Problem .......................................... 24
Process: Problem Management

Overview: The process map for Problem Management cycles through the following process and review activities:

PBM-01 Identify Problem
PBM-02 Incident Management
PBM-03 Log Problem
PBM-04 Categorize Problem
PBM-05 Prioritize Problem
PBM-06 Investigate and Diagnose Problem for Root Cause
PBM-07 Create Permanent Solution
PBM-08 Create Known Error Record
PBM-09 Resolve Problem
PBM-10 AAR Needed?
PBM-11 Complete After Action Report
PBM-12 Change Required?
PBM-13 Change Management
PBM-14 Resolved?
PBM-15 Close Problem
Problem Management Description and Goals

Description
The Problem Management process is used to minimize the adverse business impact of incidents that are caused by errors within the IT infrastructure, and to prevent recurrence of incidents related to these errors. In order to achieve this, Problem Management seeks to get to the root cause of incidents and then initiate actions to improve or correct the situation.

Goals
The goals of Problem Management are to minimize the adverse business impact of incidents that are caused by errors within the Information Technology (IT) infrastructure, and to prevent recurrence of incidents related to these errors.

The objectives of the Problem Management Process are to:
- Reduce the number of incidents
- Control and resolve problems
- Establish a “Known Error Database”
- Manage problems proactively by performing a trend analysis of incidents
- Monitor and report problems
- Evaluate problem management performance
Problem Management RACI Information

The following describes the RACI information for this process:

**PBM-01 Identify Problem**

Responsible Role: Incident Management Analyst  
Accountable Role: Incident Management Manager  
Consulted Role: None Listed  
Informed Role: Stakeholders; Subject Matter Expert(s)

**PBM-02 Incident Management**

Responsible Role: Incident Management Analyst  
Accountable Role: None Listed  
Consulted Role: None Listed  
Informed Role: None Listed

**PBM-03 Log Problem**

Responsible Role: Incident Management Analyst  
Accountable Role: Incident Management Manager  
Consulted Role: None Listed  
Informed Role: Stakeholders; Subject Matter Expert(s)

**PBM-04 Categorize Problem**

Responsible Role: Incident Management Analyst  
Accountable Role: Incident Management Manager  
Consulted Role: None Listed  
Informed Role: Stakeholders; Subject Matter Expert(s)

**PBM-05 Prioritize Problem**

Responsible Role: Incident Management Analyst
Accountable Role: Incident Management Manager
Consulted Role: None Listed
Informed Role: Stakeholders; Subject Matter Expert(s)

**PBM-06 Investigate and Diagnose Problem for Root Cause**

Responsible Role: Subject Matter Expert(s)
Accountable Role: Incident Management Analyst
Consulted Role: Stakeholders
Informed Role: Incident Management Manager

**PBM-07 Create Permanent Solution**

Responsible Role: Subject Matter Expert(s)
Accountable Role: Incident Management Analyst
Consulted Role: Stakeholders
Informed Role: Incident Management Manager

**PBM-08 Create Known Error Record**

Responsible Role: Subject Matter Expert(s)
Accountable Role: Incident Management Manager
Consulted Role: Incident Management Analyst
Informed Role: Stakeholders

**PBM-09 Resolve Problem**

Responsible Role: Subject Matter Expert(s)
Accountable Role: Incident Management Manager
Consulted Role: Incident Management Analyst
Informed Role: Stakeholders

**PBM-10 AAR Needed?**
PBM-11 Complete After Action Report

Responsible Role: Subject Matter Expert(s)
Accountable Role: Incident Management Manager
Consulted Role: Incident Management Analyst
Informed Role: Stakeholders

PBM-12 Change Required?

Responsible Role: Subject Matter Expert(s)
Accountable Role: Incident Management Manager
Consulted Role: None Listed
Informed Role: None Listed

PBM-13 Change Management

Responsible Role: Supervisor
Accountable Role: None Listed
Consulted Role: None Listed
Informed Role: None Listed

PBM-14 Resolved?

Responsible Role: Subject Matter Expert(s)
Accountable Role: Incident Management Manager
Consulted Role: None Listed
Informed Role: None Listed
**PBM-15 Close Problem**

Responsible Role: Incident Management Analyst  
Accountable Role: Incident Management Manager  
Consulted Role: Subject Matter Expert(s)  
Informed Role: Stakeholders
Problem Management Associated Artifacts Information
Associated Artifacts information (including hyperlinks) for this process includes:
After Action Report
Incident Ticket
Problem Ticket
Request for Change

Problem Management Tools and Web Sites Information
The Tools and Web Sites associated with this process (including hyperlinks) include:
After Action Report Portal
Change Management (ChM)
One-VA Technical Reference Model
Service Operations Insight (SOI) Web
VIP Dashboard

Problem Management Standards Information
Standards associated with this process (including hyperlinks) include:
Framework for Improving Critical Infrastructure Cybersecurity Draft Version 1.1
OIT Problem Management Process Document
SDE SOP: Problem Management (PrM) Program
Problem Management Process

Process Activity Name: PBM-01 Identify Problem

Previous Activities
Process Begins

Next Activities
PBM-03 Log Problem

Description
The Incident Management Analyst reviews major incidents to identify the problem. A problem is defined as an escalated incident or the cause of one or more incidents. There are multiple ways of detecting problems that exist in the VA OIT organization.

Multiple ways of detecting problems exist such as:
- Suspicion or detection of a cause of one or more incident by the Service Desk
- Analysis of an incident by an assignment group
- Automated detection of an infrastructure or application fault
- A notification that a problem exists that has to be resolved
- Analysis of incidents as part of proactive Problem Management

Input
Incident Ticket

Output
Record in the Problem Management Tool

Associated Artifacts
None Listed

Responsible Role
Incident Management Analyst

Accountable Role
Incident Management Manager

Consulted Role
None Listed

Informed Role
Stakeholders; Subject Matter Expert(s)

Tools and Websites
After Action Report Portal
Frequent and regular analysis of incident and problem data must be performed to identify any trends as they become discernible. This will require meaningful and detailed categorization of incidents/problems and regular reporting of patterns and areas of high occurrence.

Additional tools used are CA Service Desk Manager Tool or Service Management Tools. Different regions use different Event, Incident, and Service Management Tools. Approved tools are referenced in the One-VA Technical Reference Model.

**Process Activity Name: PBM-02 Incident Management**

**Previous Activities**
Process Begins

**Next Activities**
If "Return to INM":
Incident Management Process

Or
If "Remain in PBM":
PBM-03 Log Problem

**Description**
There is a flow from the Incident Management Process into the Problem Management (PBM) Process. Incidents enter the PBM process for evaluation, analysis, and tracking.

**Input**
None Listed

**Output**
Incident Ticket

**Associated Artifacts**
Incident Ticket

**Responsible Role**
Incident Management Analyst
**Accountable Role**
None Listed

**Consulted Role**
None Listed

**Informed Role**
None Listed

**Tools and Websites**
None Listed

**Standards**
None Listed

**More Info**
None Listed

**Process Activity Name: PBM-03 Log Problem**

**Previous Activities**
PBM-01 Identify Problem
Or
PBM-02 Incident Management

**Next Activities**
PBM-04 Categorize Problem
And
PBM-05 Prioritize Problem

**Description**
The Incident Management Analyst logs the problem. Regardless of the detection method, all the relevant details of the problem must be recorded so that a full historic record exists. This must be date and time stamped to allow suitable control and escalation. A cross-reference must be made to the incident(s) which initiated the Problem Ticket, and all relevant details must be copied from the Incident Ticket(s) to the Problem Ticket. Details such as:

- User details
- Service details
- Equipment details
- Date/time initially logged
- Priority and categorization details
- Incident description
- Details of all diagnostic or attempted recovery actions taken
Input
After Action Report
Incident Ticket

Output
Problem Ticket

Associated Artifacts
Problem Ticket

Responsible Role
Incident Management Analyst

Accountable Role
Incident Management Manager

Consulted Role
None Listed

Informed Role
Stakeholders; Subject Matter Expert(s)

Tools and Websites
After Action Report Portal

Standards
OIT Problem Management Process Document

More Info
All relevant details of the problems must be recorded so that a full historic record exists. This must be date and time stamped to allow suitable control and escalation.

Process Activity Name: PBM-04 Categorize Problem

Concurrent Activities
PBM-05 Prioritize Problem

Previous Activities
PBM-03 Log Problem

Next Activities
PBM-06 Investigate and Diagnose Problem for Root Cause

Description
The Incident Management Analyst categorizes the problem in terms of Configuration Item type. Problems must be categorized in the same way as incidents (and it is advisable to use the same coding system) so that the true nature of the problem can be easily traced in the future and meaningful management information can be obtained.
Input
Incident Ticket

Output
Problem Ticket

Associated Artifacts
Problem Ticket

Responsible Role
Incident Management Analyst

Accountable Role
Incident Management Manager

Consulted Role
None Listed

Informed Role
Stakeholders; Subject Matter Expert(s)

Tools and Websites
After Action Report Portal
One-VA Technical Reference Model

Standards
OIT Problem Management Process Document

More Info
Problems must be categorized in the same way as incidents so that the true nature of the problem can be easily traced in the future.

Additional tool used is the Incident Management Tool. Different regions use different Event, Incident and Service Management Tools. Approved tools are referenced in the One-VA Technical Reference Model.

Process Activity Name: PBM-05 Prioritize Problem

Concurrent Activities
PBM-04 Categorize Problem

Previous Activities
PBM-03 Log Problem

Next Activities
PBM-06 Investigate and Diagnose Problem for Root Cause
**Description**

The Incident Management Analyst prioritizes problems. Problems must be prioritized in the same way and for the same reasons as incidents, but the frequency and impact of related incidents must also be taken into account. The coding system described in Incident Prioritization table (which combines impact with urgency to give an overall priority level) can be used to prioritize problems in the same way that it might be used for incidents, though the definitions and guidance to support staff on what constitutes a problem, and the related service targets at each level, must obviously be devised separately. Prioritization should also take into account the severity of the problem. Examples may include:

- Determine if the system can be recovered, or if it needs to be replaced
- Determine how much it will cost
- Determine how many people, with what skills, will be needed to fix the problem
- Determine how long it will take to fix the problem
- Determine how extensive the problem is

**Input**

Incident Ticket

**Output**

Problem Ticket

**Associated Artifacts**

Problem Ticket

**Responsible Role**

Incident Management Analyst

**Accountable Role**

Incident Management Manager

**Consulted Role**

None Listed

**Informed Role**

Stakeholders; Subject Matter Expert(s)

**Tools and Websites**

After Action Report Portal

One-VA Technical Reference Model

**Standards**

OIT Problem Management Process Document
More Info
The coding system described in Incident Prioritization table can be used to prioritize problems in the same way that it might be used for incidents, though the definitions and guidance to support staff on what constitutes a problem, and the related service targets at each level, must obviously be devised separately.

Additional tool used is the Incident Management Tool. Different regions use different Event, Incident and Service Management Tools. Approved tools are referenced in the One-VA Technical Reference Model.

Process Activity Name: PBM-06 Investigate and Diagnose Problem for Root Cause

Previous Activities
PBM-04 Categorize Problem
Or
PBM-05 Prioritize Problem
Or
PBM-14 Resolved?

Next Activities
PBM-07 Create Permanent Solution

Description
The Subject Matter Expert(s) investigates and diagnoses the problem. An investigation is conducted to try to diagnose the root cause of the problem. The speed and nature of this investigation varies depending upon the impact, severity and urgency of the problem. The appropriate level of resources and expertise should be applied to finding a resolution commensurate with the priority code allocated and the service target in place for that priority level. There are a number of useful problem solving techniques that can be used to help diagnose and resolve problems, and these should be used as appropriate. Using tools such as the Configuration Management Database (CMDB) must be used to help determine the level of impact and to assist in pinpointing and diagnosing the exact point of failure. The Known Error Database can also be accessed and problem-matching techniques (such as key word searches) should be used to see if the problem has occurred before and, if so, to find the resolution. A Problem Resolution Team (PRT) will be convened to investigate the root cause.

Input
Incident Ticket
Problem Ticket
Request for Change
Output
Request for Change
Root Cause Analysis Record

Associated Artifacts
Request for Change

Responsible Role
Subject Matter Expert(s)

Accountable Role
Incident Management Analyst

Consulted Role
Stakeholders

Informed Role
Incident Management Manager

Tools and Websites
After Action Report Portal
One-VA Technical Reference Model

Standards
OIT Problem Management Process Document

More Info
If the problem is not diagnosed or the cause of the problem remains unknown or a resolution is not found then document the problem accordingly as Unresolved.

Additional tools used are the Change Management System, Configuration Management Database, Incident Management Tool, and the Known Error Database. Different regions use different Event, Incident and Service Management Tools. Approved tools are referenced in the One-VA Technical Reference Model.

Process Activity Name: PBM-07 Create Permanent Solution

Previous Activities
PBM-06 Investigate and Diagnose Problem for Root Cause

Next Activities
PBM-08 Create Known Error Record

Description
The Subject Matter Expert(s) (SME) collaborates with designated SME’s and creates a permanent solution for the problem. This is a way of restoring service to the Configuration Item
or Service. In cases where a workaround is found, it is therefore possible that the Problem Ticket remains open and details of the workaround are always documented. If it is a permanent solution, the Problem Ticket is documented with the solution and closed.

If the Incident is classified at the Critical Level the Technical SME completes both an After Action Report and a Known Error Record. If the Incident is not classified as Critical then the Technical SME completes a Known Error Record only.

**Input**

- Incident Ticket
- Problem Ticket
- Root Cause Analysis Record

**Output**

- After Action Report
- Known Error Record
- Request for Change
- Workaround Instructions

**Associated Artifacts**

- Request for Change
- After Action Report

**Responsible Role**

Subject Matter Expert(s)

**Accountable Role**

Incident Management Analyst

**Consulted Role**

Stakeholders

**Informed Role**

Incident Management Manager

**Tools and Websites**

- After Action Report Portal
- One-VA Technical Reference Model

**Standards**

- OIT Problem Management Process Document

**More Info**

In cases where a workaround is found, it is important that the problem record remains open and details of the workaround are always documented within the problem record.
Additional tool used are the Incident Management Tool and Known Error Database. Different regions use different Event, Incident and Service Management Tools. Approved tools are referenced in the One-VA Technical Reference Model.

**Process Activity Name: PBM-08 Create Known Error Record**

**Previous Activities**
PBM-07 Create Permanent Solution

**Next Activities**
PBM-09 Resolve Problem

**Description**
The Subject Matter Expert(s) opens a known error record as soon as the diagnosis is complete, and particularly where a workaround has been found. A Known Error Record must be opened, so that if further incidents or problems arise, they can be identified and the service restored more efficiently.

**Input**
Permanent solutions
Root Cause
Workarounds

**Output**
Known Error Records

**Associated Artifacts**
None Listed

**Responsible Role**
Subject Matter Expert(s)

**Accountable Role**
Incident Management Manager

**Consulted Role**
Incident Management Analyst

**Informed Role**
Stakeholders

**Tools and Websites**
One-VA Technical Reference Model

**Standards**
OIT Problem Management Process Document
More Info
A Known Error Record is opened in the Known Error Record for both workarounds and permanent solutions.

Additional tool used is the Known Error Database Tool. Different regions use different Event, Incident and Service Management Tools. Approved tools are referenced in the One-VA Technical Reference Model.

Process Activity Name: PBM-09 Resolve Problem

Previous Activities
PBM-08 Create Known Error Record

Next Activities
PBM-10 AAR Needed?

Description
The Subject Matter Expert(s) resolves the problem. As soon as a solution is determined, it should be applied to resolve the problem. If any change to an existing CI or service is required, this will require a Request for Change (RFC) to be opened to the appropriate Change Control Board (CCB) for approval before the resolution is applied.

Input
Permanent Solution
Workaround

Output
Applied Solution
Applied Workaround

Associated Artifacts
None Listed

Responsible Role
Subject Matter Expert(s)

Accountable Role
Incident Management Manager

Consulted Role
Incident Management Analyst

Informed Role
Stakeholders
Tools and Websites
After Action Report Portal
One-VA Technical Reference Model

Standards
OIT Problem Management Process Document

More Info
If the solution changes an existing CI or Service, a Request for Change (RFC) must be opened to the appropriate CCB for approval before the resolution is applied.

Additional tool used is the Change Management Tool. Different regions use different Event, Incident and Service Management Tools. Approved tools are referenced in the One-VA Technical Reference Model.

Process Activity Name: PBM-10 AAR Needed?

Previous Activities
PBM-09 Resolve Problem

Next Activities
If "Yes":
PBM-11 Complete After Action Report
Or
If "No":
PBM-12 Change Required?

Description
The Subject Matter Expert(s) determine if an After Action Report (AAR) is needed (Yes) or not needed (No).

Responsible Role
Subject Matter Expert(s)

Accountable Role
Incident Management Manager

Consulted Role
None Listed

Informed Role
None Listed
Process Activity Name: PBM-11 Complete After Action Report

Previous Activities
PBM-10 AAR Needed?

Next Activities
PBM-12 Change Required?

Description
The Subject Matter Expert(s) completes the After Action Report and uploads to the AAR Portal for all Incidents classified at the critical level.

Input
Permanent solutions
Root Cause
Workarounds

Output
After Action Report

Associated Artifacts
After Action Report

Responsible Role
Subject Matter Expert(s)

Accountable Role
Incident Management Manager

Consulted Role
Incident Management Analyst

Informed Role
Stakeholders

Tools and Websites
After Action Report Portal
One-VA Technical Reference Model

Standards
OIT Problem Management Process Document

More Info
Additional tool used is the Known Error Database Tool. Different regions use different Event, Incident and Service Management Tools. Approved tools are referenced in the One-VA Technical Reference Model.
Process Activity Name: PBM-12 Change Required?

Previous Activities
PBM-10 AAR Needed?
Or
PBM-11 Complete After Action Report

Next Activities
If "Yes":
PBM-13 Change Management
Or
If "No":
PBM-14 Resolved?

Description
The Subject Matter Expert(s) determine if a change is required (Yes) or not required (No).

Responsible Role
Subject Matter Expert(s)

Accountable Role
Incident Management Manager

Consulted Role
None Listed

Informed Role
None Listed

Process Activity Name: PBM-13 Change Management

Previous Activities
PBM-12 Change Required?

Next Activities
If "Navigate to CHG":
Change Management Process
Or
If "Remain in PBM":
PBM-14 Resolved?

Description
There is a flow from the Problem Management (PBM) Process into the Change Management Process to address the Request for Change and a return to PBM for follow-up.
**Input**
Request For Change (RFC)

**Output**
Successful Implemented Change Records

**Associated Artifacts**
Request for Change

**Responsible Role**
Supervisor

**Accountable Role**
None Listed

**Consulted Role**
None Listed

**Informed Role**
None Listed

**Tools and Websites**
None Listed

**Standards**
None Listed

**More Info**
None Listed

**Process Activity Name: PBM-14 Resolved?**

**Previous Activities**
PBM-12 Change Required?
Or
PBM-13 Change Management

**Next Activities**
If "Yes":
PBM-15 Close Problem
Or
If "No":
PBM-06 Investigate and Diagnose Problem for Root Cause
Description
The Subject Matter Expert(s) determine if the problem is Resolved (Yes) or not Resolved (No).

Responsible Role
Subject Matter Expert(s)

Accountable Role
Incident Management Manager

Consulted Role
None Listed

Informed Role
None Listed

Process Activity Name: PBM-15 Close Problem

Previous Activities
PBM-14 Resolved?

Next Activities
Process Ends

Description
The Incident Management Analyst closes the problem ticket. When a change has been completed and successfully reviewed, and the resolution has been applied, the Problem Ticket should be properly documented and closed, any related Incident Tickets still open should be properly documented and closed. The status of any related Known Error Record should be updated to show that the resolution has been applied.

Input
Applied Solution
Applied Workaround

Output
Closed Incident Ticket
Closed Problem Ticket
Updated Known Error Database Record

Associated Artifacts
Incident Ticket
Problem Ticket

Responsible Role
Incident Management Analyst
**Accountable Role**
Incident Management Manager

**Consulted Role**
Subject Matter Expert(s)

**Informed Role**
Stakeholders

**Tools and Websites**
After Action Report Portal

**Standards**
OIT Problem Management Process Document

**More Info**
None Listed

END OF PROCESS