



Professional Services
Standard Operating Procedures (SOP)

Command Center – Managed Services Operations Problem Management

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Table of Contents

1	Introduction	4
1.1	Purpose	4
1.2	Benefits of Problem Management.....	4
1.3	Outcomes.....	5
1.4	Target Audience	5
2	Scope.....	5
2.1	Out of Scope.....	6
2.2	Business Rules.....	6
3	Roles and Responsibilities	7
4	Process Overview	9
4.1	How Problem Management Works	10
4.2	Difference Between Incident and Problem Management.....	10
5	Process Activities.....	10
5.1	Problem Detection.....	10
5.2	Problem Logging	10
5.3	Categorization.....	11
5.4	Prioritization.....	11
5.5	Investigation and Diagnosis	12
5.6	Workaround.....	12
5.7	Problem/Known Error.....	12
5.8	Fix/Solution (Change Management).....	12
5.9	Resolution	12
5.10	Closure	13
5.11	Major Problem/RCA.....	13
6	Escalations.....	13
7	Process and Quality Management	13
8	Reference Documents and Related SOPs.....	13
9	Terms and Definitions	14
10	Version Control	15

List of Tables

Table 1: Business Rules	6
Table 2: Roles and Responsibilities	7
Table 3: Impact Classifications	11
Table 4: Urgency Classification	11
Table 5: Priority Level Classification Matrix	12
Table 6: Priority Level and Expected Delivery	12
Table 7: Process and Quality Management	13
Table 8: Related SOPs and Standards	14
Table 9: Terms and Definitions	14
Table 10: RACI Definitions.....	16
Table 11: Problem Management Roles to RACI Mapping.....	16

1 Introduction

This document was created to provide a description of the WWT Managed Services Operations Problem Management Process.

It has been created to:

- Specify in a complete, precise, and verifiable manner the characteristics of the process.
- Ensure a consistent, repeatable process that enables WWT Managed Services Operations to offer a high-quality service to our customers.
- Provide an understanding of the process as it is performed across WWT Managed Services.
- Provide a reference point for process queries and discussion.

Problem Management supports [Incident Management](#) by:

- Providing authorized workarounds
- Documenting Known Errors
- Facilitating requests for change that provide a permanent solution to the underlying cause of incidents

1.1 Purpose

This document serves as the official Problem Management process for WWT Managed Services. It introduces a process framework, workflow, roles and responsibilities, policies, and procedures needed to implement a high-quality Problem Management process to support Managed Service Customers. This is a living document that will be reviewed quarterly for continual improvements. The purpose of this process document is to reduce the likelihood and negative impact of high impact and recurring incidents by identifying actual and futuristically potential causes of incidents and managing workarounds and known errors.

1.2 Benefits of Problem Management

Problem Management works with Incident Management, Change Management, and Configuration Management to ensure increased IT service availability and quality. When the responsible party resolves incidents, information about the resolution is recorded in the company's knowledge management repository, where Managed Services and WWT leadership can access the information. Preferably, the knowledge management system should be linked to the incident and Problem Management systems. Over time, Managed Services uses this information to reduce the resolution time and identify permanent solutions, thereby reducing recurring incidents. This results in less downtime and less disruption to client systems.

Other benefits include:

- Stability and increased service availability
- Increase customer satisfaction and perception
- More efficient usage of resources (less repetition of work, less firefighting, less overtime, more time to do proactive work)
- Better prioritized workloads and resource allocation
- Increased accountability, decreased turnaround time for Root Cause Analysis (RCA) Requests
- Increased Knowledge Management
- Increased transparency and awareness
- Managed Services Operations Team awareness and actions alignment
- Timely and more efficient conflict resolution practices
- Compliance with audit and standard requirements

The term “problem” refers to the unknown cause of one or more incidents. Problem Management is not responsible for directly resolving incidents. Once a problem is diagnosed and a workaround created, the problem is referred to as a “Known Error.” These are documented in ServiceNow. After the Known Error is identified, the next step is to determine the fix or solution. Once a solution is created, a change request would be submitted to permanently address the issues affecting all devices or Configuration Items (CI).

1.3 Outcomes

As a result of the successful implementation of this process, problems are:

- recorded and classified
- prioritized through detailed analysis
- resolved and closed
- escalated if the resolution is not progressing according to agreed service levels
- The effect of unresolved problems is minimized through the application of known and developed workarounds
- The problem status and progress are maintained in problem records to communicate to interested parties.

1.4 Target Audience

Staff working for or on behalf of WWT Managed Services; particularly individuals responsible for:

- Delivering services efficiently and at an acceptable cost
- Providing services within prescribed service levels
- Maintaining user satisfaction of Managed Services

2 Scope

This document covers the WWT Managed Services Problem Management policy and process.

Problems should be addressed in priority order, with higher priority given to resolving issues that can cause severe disruption to critical IT services.

Problem Management practices ensure that incident information is documented so that it is readily available to support all Problem Management activities.

Problem Management has reactive and proactive aspects:

- Reactive – This is problem-solving when one or more incidents occur.
- Proactive – Identifying and solving problems and known errors before incidents occur in the first place.

Problem Management Activities include:

- Detection
- Logging
- Categorization
- Prioritization
- Investigation and Diagnosis
- Creating a Known Error Record
- Resolution and Closure
- Major Problem Review

2.1 Out of Scope

The following examples identify what is out of Scope for Problem Management:

- Externally hosted services where a specific support agreement with WWT Managed Services does not exist
- Defects identified during the development and testing of WWT Managed Services products
- Issues identified with the functionality of 3rd Party applications

2.2 Business Rules

The following attributes are fundamental to the success of Problem Management. The governance herein defines management expectations for the practical implementation of these rules.

Table 1: Business Rules

Category	#	Statements
1. General	1.1	A single process shall be defined for WWT Managed Services.
	1.2	There shall be a single accountable process owner.
	1.3	Problem Management shall be performed following formalized processes and procedures.
	1.4	Where relevant, processes and procedures shall comply with WWT Guidelines.
	1.5	This policy shall be used in conjunction with and not supersede statutory obligations.
	1.6	Problem records shall be evidenced within ServiceNow.
	1.7	Problems shall be classified using a standardized set of criteria.

	1.8	Problem records shall be verified on an ongoing basis to ensure conformance to formalized processes and procedures.
	1.9	A Knowledge Base (KB) shall exist for information regarding the root causes of problems and authorized workarounds/resolutions (Known Error Record).
	1.10	Problems shall be tracked separately from incidents.
	1.11	The KB shall be amended when a previously undocumented problem is resolved.
	1.12	Problem records may be opened after a Critical Incident causing a significant impact to the business/customer.
	1.13	Problem records will be opened for recurring issues (3 or more) within a customer's environment.
	1.14	Problem records will be opened upon customer/WWT management requests after an escalation that impacted the customer.
2. Engagement	2.1	Every problem record shall have an owner.
	2.2	WWT Managed Services shall commit appropriate resources to conduct activities as required by Problem Management.
3. Closure	3.1	Problem records can only be closed by the Problem Manager or their delegate.

3 Roles and Responsibilities

Below is the list of roles and responsibilities that assist the Managed Services (MS) team with Problem Management.

Table 2: Roles and Responsibilities

Role	Responsibility
Problem Management Process Owner	<ul style="list-style-type: none"> • Collaborates with other process owners to ensure integration with related processes • Accountable for the process being performed following policies and procedures • Ensures continual improvement reviews are conducted for Problem Management • Promotes awareness of Problem Management within the organization • Works with the organization concerning the strategy for capacity and capability as related to Problem Management

Role	Responsibility
Problem Manager	<ul style="list-style-type: none"> • Plans and manages the support for Problem Management tools and processes. • Conducting and coordinating problem registration based on the submitted information. • Manage the day-to-day activities of the process, ensuring operating procedures are documented to support the activities. • Develops and maintains the Problem Management process and procedures. • Coordinates with other Process Managers to ensure integration with related processes. • Acts as liaison with stakeholders to resolve problems and provide problem-related information. • Liaises with problem resolution groups to ensure swift resolution of problems. • Owns and maintains the KB articles. • Authorizes the inclusion of information into the KB. • Formally closes problem records. • Produces management information. • Documents all follow-up activities relating to Problem reviews.

Role	Responsibility
Problem Analyst	<ul style="list-style-type: none"> • Reviews incident data to analyze the assigned problem • Analyze problems for correct prioritization and classification • Investigates assigned problems to resolution or Root Cause • Communicates activities performed for analysis and resolution of issues with the Problem Manager and related subject matter analysts • Follows the Change Management Process to implement changes that resolve problems and known errors • Monitors progress on the resolution of Known Errors • Directs Incident Management team to achieve the best available workaround for incidents • Contributes to the creation, modification, or removal of artifacts within the KB • Subject Matter Expert for researching the technical solution • Provide updates on the issue resolution to the Problem Management team and stakeholders • Change Engineer – will plan, schedule, and implement the change to fix the problem • Consults and opens a ticket with vendors to find a solution
Tier 4 (Solutions Architect)	<ul style="list-style-type: none"> • Highly specialized, deeply technical experts who handle complex, deep-rooted Problems • Will provide technical support on Major Incidents and complex Problems • Assigned Solutions Architect (SA) will perform customer-related direct communications • MS Tier 3 or assigned Design Solutions Architect (DSA) will interface with 3rd party vendors as required.
Customer Relationship Manager / Champion (Stakeholders)	<ul style="list-style-type: none"> • Single point of contact between the customer and WWT MS regarding requests and problems • Consults with the Process Owner to review performance metrics • Provides guidance and support to Process Manager and affected Business Owners • Communicates relevant business impact information of issues in progress

4 Process Overview

4.1 How Problem Management Works

Problem Management works by using analysis techniques to identify the cause of the problem. It takes longer and should be done once the *urgency* of the incident has been dealt with. For example, removing a faulty computer and replacing it with a working computer takes the severity away and leaves the faulty computer ready for diagnostics.

Problem Management can take time. Therefore, it is crucial to set time limits for resolution, as a comprehensive solution can become expensive. To achieve its goal, Problem Management aims to:

- Identify the Root Cause– problem control
- Initiate corrective actions to improve and situation – error control

4.2 Difference Between Incident and Problem Management

Incident Management aims to restore the service to the user as quickly as possible, often through a workaround, rather than finding a permanent solution. The latter is the aim of Problem Management. Therefore, Incident Management is not usually concerned with the cause, only the *cure*, which is the restoration of services.

An incident is where an error occurs, or something doesn't work the way it is expected to. This is often referred to as:

- A fault
- An error
- It doesn't work
- A problem but the term used is incident

A problem can be:

- The occurrence of the same type of incidents many times
- An incident that impacts many users
- Network outages revealing systems not operating as expected

Therefore, a problem can exist without having an immediate impact on the users. On the other hand, incidents are usually more visible, and the effect on the user is more immediate.

5 Process Activities

5.1 Problem Detection

Trend analysis is the key to spotting problems. It is a proactive approach to Problem Management. that avoids the occurrence of the problem earlier on in the process.

5.2 Problem Logging

Problem logging is critical as all the necessary incident information must be captured while creating the problem. Create a problem from the incidents, maintaining the link to the incident(s). Avoid duplicates by searching for similar existing problems before the creation of a new record.

5.3 Categorization

Problem categorization is essential to avoid ambiguity. The categorization makes it simpler to search incidents and associated problem records. (See Table 2 and 3)

Table 3: Impact Classifications

Impact	Definition
1 – High	<ul style="list-style-type: none"> Service down or affects the entire organization, department, or line of business; or 50% outage impacting 50% or more of devices or end-users on covered equipment.
2 – Medium	<ul style="list-style-type: none"> Service down for single user; or Service degraded for a group of users; or 10% or more of total end-users on covered equipment at a site.
3 – Low	<ul style="list-style-type: none"> Non-outage or service impairment issue affecting < 10% of users at a site; or The incident is for a single user.

Table 4: Urgency Classification

Urgency	Definition
1 – High	<ul style="list-style-type: none"> Core (critical) Business Service as identified by formal Business Impact Analysis (BIA) Critical peak business period (e.g., Month-end, Start of Day) Business process stopped; users cannot work No workaround available
2 – Medium	<ul style="list-style-type: none"> Support Service that directly supports the execution of a core business service (e.g., Medium BIA rating) Business Processes affected, key functionality unavailable No workaround available
3 – Low	<ul style="list-style-type: none"> Non-urgent service that is not time-sensitive (e.g., Low BIA rating) Process degraded Workaround available

5.4 Prioritization

Problem prioritization helps technical staff to identify critical problems that need to be addressed. The impact and urgency associated with a problem decide which records to address first. When a problem is created from an incident, the ticket impact, urgency, and priority values get assigned from it automatically and reduce the task of prioritizing the problem for technical staff.

Table 5: Priority Level Classification Matrix

		Urgency		
		High	Medium	Low
Impact	Major	1	2	3
	Moderate	2	3	4
	Minor	3	4	4

Table 6: Priority Level and Expected Delivery

Priority	Urgency	Expected Delivery
P1	Critical	3 Business Days
P2	High	5 Business Days
P3	Medium	10 Business Days
P4	Low	15 Business Day

5.5 Investigation and Diagnosis

Problem investigation results in getting to the Root Cause of the problem and initiating actions to resume the failed service. The impact, Root Cause, and symptoms of the problem instance are analyzed to provide problem resolution.

5.6 Workaround

A workaround is defined as a quick way to restore service failures to a usable level.

5.7 Problem/Known Error

Once a workaround has been identified, a workaround/Known Error is documented in the Known Error Database or the KB. Searching through Known Error records/workarounds helps in resolving incidents and in lowering the incident resolution time.

5.8 Fix/Solution (Change Management)

The successful diagnosis of a Root Cause results in a change request to resolve the problem. This should not be mistaken as a workaround; this is a solution to permanently fix all known errors related to the problem record.

5.9 Resolution

The resolution resolves the underlying cause of a set of incidents and prevents those incidents from recurring. This step occurs once the Root Cause is identified. The analyst resolves the incident by a

permanent solution. Please note, sometimes a workaround could become the permanent solution. All details, contributing factors, lessons learned, and known errors have been documented.

5.10 Closure

Closure of the problem is completed by closing out the problem ticket once all steps above are met and validated. Once the problem is closed, a report can be created to review.

5.11 Major Problem/RCA

A problem record is marked as a “major problem” when the impact is “Major”, and urgency is “High.” Management may decide to review the entire series of events during the issue. The review for this problem classification is an organizational activity that prevents future problems. This problem review should result in improved processes, staff training, or more complete documentation.

6 Escalations

The Problem Analyst will escalate problem records that the individual can’t resolve or have outstanding issues that need attention to the Problem Manager. The Problem Manager will engage the appropriate senior managers to help address the challenges.

7 Process and Quality Management

Over time, some process and quality management controls will be implemented to ensure the MS team performs as expected and adheres to agreed-upon service level expectations.

Table 7: Process and Quality Management

Critical Success Factor	Category	Key Performance Indicator	Metric
Maintain IT Service Quality	Compliance	Problem Records	Total number of problems
	Compliance	Workarounds	% of workarounds defined for open problems
	Effectiveness	Problem Resolution	# & % of problems resolved within resolution targets
	Efficiency	Problem Records	# & % of backlogged problems per service
	Efficiency	Problem category	# & % of problems incorrectly categorized
	Efficiency	Problem Assignment	# & % of problems incorrectly assigned
Minimize the impact of non-preventable incidents	Compliance	Known Error Records	# of Known Errors added to KEDB
	Compliance	Incident Records	# & % of incidents linked to authorized workarounds or KEDB records
	Effectiveness	Incident Records	# of repeat incidents per service
	Efficiency	Incident Resolution	Average incident resolution time of incidents linked to problems
	Effectiveness	Change Records	# & % of problems linked to successful changes

8 Reference Documents and Related SOPs

Table 8: Related SOPs and Standards

References	Relationship
Traceability	ISO 2000:2011, ISO 9001:2015, ITIL 4
Policy	Problem Management Policy
Process	Incident Management Process Change Management Process Service Asset and Configuration Management Process Event Monitoring and Reporting Process
Tools	ServiceNow

9 Terms and Definitions

Table 9: Terms and Definitions

Term	Meaning
Customer	The individual or entity who pays for a service
Problem	The unknown underlying cause of one or more incidents
Response	The time it takes to assign the problem to the appropriate support team
Identification	The time it takes to propose a resolution to the underlying cause of the problem
KEDB / KB	Known Error Database. A database containing all Known Error records. It can be the same as KB
Known Error	The documented Root Cause of a problem
Major Problem	Any problem that has caused a significant impact on the customer and requires a review with management
Root Cause Analysis	This is an approach for identifying the underlying causes of an incident so that the most effective solutions can be identified and implemented
Workaround	The reduction or elimination of the impact of an incident for which a full resolution is not available. A temporary way of overcoming symptoms until a justifiable permanent solution is implemented

10 Version Control

Version	Date	Author/Contributor	Summary of Changes
V1.0	06.29.21	Julie Somerville and Leslie Okere	Initial draft
V1.0 Publish	01.18.22	Bizzy Gonacha, Kay Bryant	Technical edit and publish

Appendix A: Process RASCI

Table 10: RACI Definitions

Legend	
R = Responsible	Carries out the activity to its completion.
A = Accountable	Answerable for the correct completion of the activity. The accountable person does not perform the activity.
C = Consulted	Consulted before a decision or final action.
I = Informed	Informed after a decision or specific action has taken place.

Table 11: Problem Management Roles to RACI Mapping

Activity	Problem Management Process Owner	Problem Manager	Problem Analyst	Customer Relationship Manager
Detect	A	R / C / I	R / C / I	C / I
Record	A	R / C / I	R / C / I	C / I
Classify	A	R / C / I	R / C / I	C / I
Investigate & Diagnosis	A	C / I	R / C / I	C / I
Record "Known Error"	A	R / C / I	R / C / I	C / I
Resolution & Recovery	A	C / I	R / C / I	C / I
Closure	A	R / C / I	C / I	C / I

Appendix B: Problem Process Flow

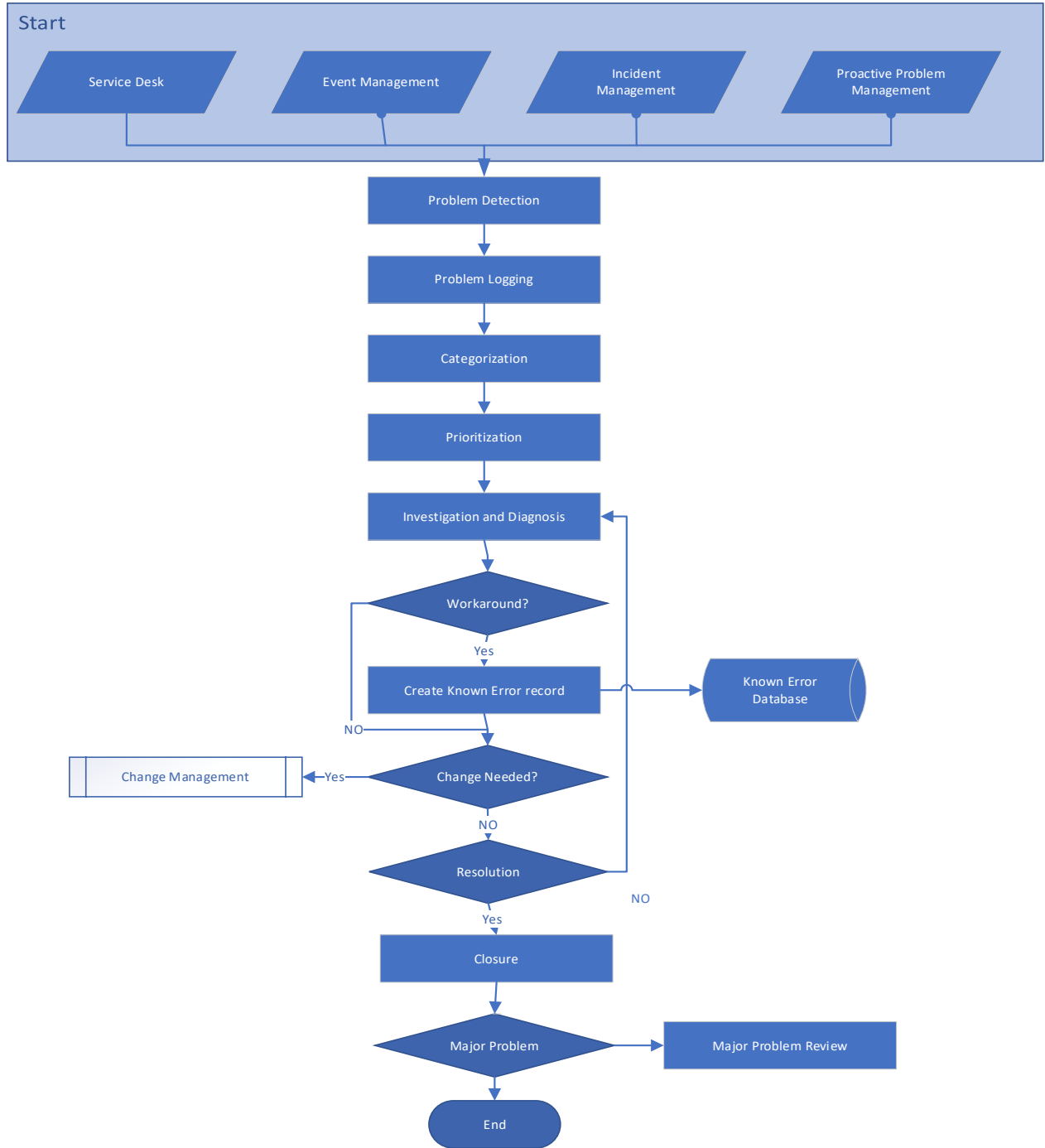


Figure 1: Problem Management Process Flow Diagram