servicenow

Problem Management

Process Guide

Vancouver

Updated: September 2023

Asset number: 0001029

servicenow

Table of Contents

Introduction

This process guide will provide a detailed explanation on how the problem management process is enabled within the ServiceNow platform. It is intended that this process be followed as closely as possible. ServiceNow encourages simple, lean ITSM processes and that is reflected in the out-of-the-box design. Additional functionality can be incorporated into what is offered; however, this should only be in scenarios where there is a required business outcome gained that could not be achieved using an out-of-the-box method. Following this approach should also ease upgrade paths and the ability to expand the use of the platform.

Principles and Basic Concepts

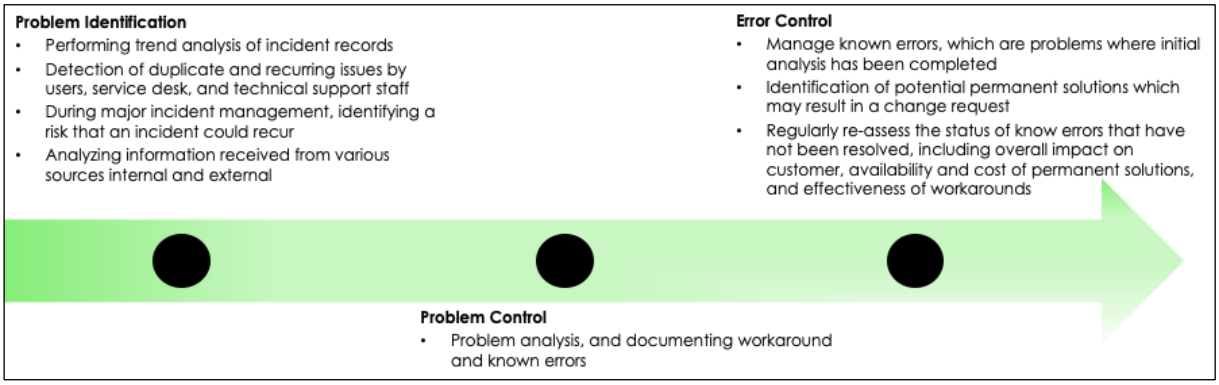
ITIL 4 defines the key purpose of Problem Management as being "to reduce the likelihood and impact of incidents by identifying actual and potential causes of incidents and managing workarounds[1] and known errors.[2]". ITIL further expand and explains that "Problems cause incidents. They need to be analyzed and investigated so that workarounds and resolutions can be identified which will in turn reduce the number and impact of future incidents."

Without Problem Management, you have:

- Repeat incidents, both major and minor
- Time is wasted by IT staff repairing the same kind of issue, over and over.
- Reputational loss because "I've had the same issue for weeks and it keeps happening and no one fixes it for good"

Problem Management activities are very closely related to incident management and the practices need to be designed together within the value chain.

Many Problem Management activities rely on the knowledge and experience of staff rather than following detailed procedures. People responsible for diagnosing problems often need the ability to understand complex systems and to think about how different failures might have occurred. The overall flow of the problem management process can be summarized as:



[1] A Workaround is defined as a temporary way to restore service failures to a usable level.
[2] A Known Error Article is a type of knowledge article the problem management team can create to help with incident deflection. A workaround or root cause may not be known.

You can detect a problem either proactively or reactively.

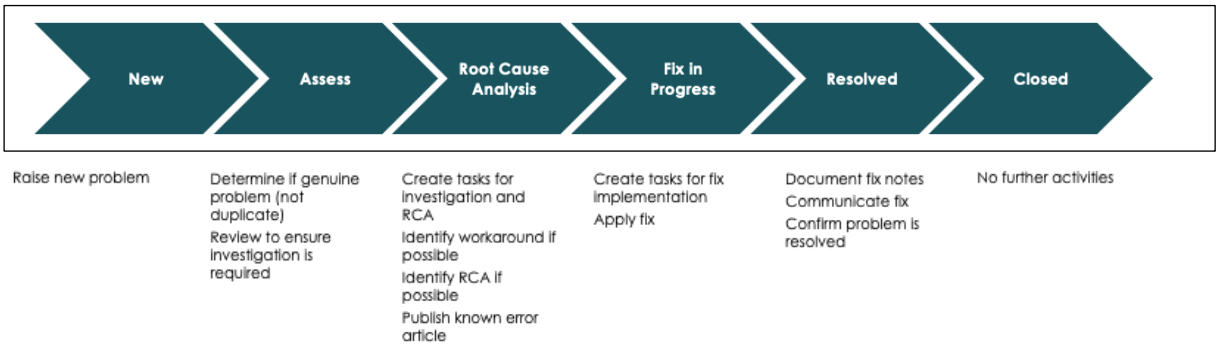
Proactive problem detection is identifying problems or issues that could result in future incidents. You may detect problems proactively by analyzing reporting trends, such as the health of your configuration management database, or by automated system notifications.

Start simple by asking service owners, business relationship managers and support teams what issues they are seeing and what is worrying users. Triaging and logging these as problems will ensure visibility.

Analysis methods outlined in this document can also help highlight if there are any common themes.

Reactive problem detection means that one or more incidents have occurred, prompting you to explore the underlying cause of the issue. These incidents may be resolved, and the problem investigation is primarily meant to understand the underlying cause and prevent the incident from recurring. In other cases, the incident cannot be resolved without a deeper dive into the root cause and the application of a workaround or permanent fix.

Problems in ServiceNow move through a basic process that includes these stages:



There are three primary goals of the problem management process.

1. Provide a mechanism to understand the cause and permanently solve incidents that have occurred. These are cases where the incident process may have only identified a temporary solution purely to restore service.
2. Prevent incidents and service impacts from occurring.
3. Minimize the impact of incidents that cannot be prevented.

ServiceNow focuses on the use of automation and information to speed the path to root cause identification and permanent resolution.

Problem Management relies heavily on:

- The CMDB for problem assignment and impact analysis
- The Incident Management process for providing details of individual related incidents
- The Change Management process for controlling changes needed to solve problems
- The Knowledge Management process for sharing information about known errors

Process Scope

The scope of Problem Management includes:

- The identification and diagnosis of problems through Event Management, technical identification, and proactive Problem Management.
- The diagnosis of all problems as quickly as possible using:
  - Problem and error control
  - Event and incident trends
  - Identifying workarounds to reduce incident duration
  - Identifying and implementing permanent solutions to eliminate incidents reoccurring

Process Objectives

The objectives of Problem management are to:

- Determine the root cause of incidents, identify viable workarounds, and drive to permanent solutions that prevent recurrence
- Maintain information about problems, associated workarounds, and permanent solutions
- Communicate information appropriately to reduce and eliminate the number and impact of incidents over time
- Identify and solve problems proactively to improve IT services and prevent potential incidents from occurring

For further guidance see article : Problem Management and 10 steps to making it successful

Roles and Responsibilities

The Process Owner for Problem Management owns the overall process around problem management. Within Problem Management, the owner of individual problems needs to be designated and will therefore be responsible for problem resolution.

There are different approaches to define the ownership of a problem:

- A dedicated group of process coordinators
- The creator of the problem can be the coordinator

Design the ownership that works for your organization and communicate it within the organization.

Role Name	Process Owner
Description	The Problem Management Process Owner's primary objective is to own and maintain the Problem Management process. The role of the Process Owner is usually a senior manager with the ability and authority to ensure the process is rolled out and used by all stakeholders.
Responsibility	• Defining the overall mission of the process • Establishing and communicating the process mission, goals, and objectives to all stakeholders • Documenting and maintaining the process and procedures • Resolving any cross-functional (departmental) issues • Ensuring proper staffing and training for execution • Ensuring consistent execution of the process across the organization • Monitoring, measuring, and reporting on the effectiveness of the process to senior management • Continually improving the process
ServiceNow Role	There is no role in ServiceNow it is a functional role to support the process

Role Name	Problem Coordinator
Description	The Problem Coordinator is the responsible owner for getting a problem permanently resolved or prevented as soon as possible. They must also manage and co-ordinate all problems through the process.
Responsibility	• Assessing problems to ensure they are genuine • Monitoring and controlling the detection, recording, assignment, escalation, and resolution of problems • Coordinating technical and service Subject Matter Experts (SMEs) • Documenting problem information • Publishing workarounds • Publishing known error articles • Coordinating decisions on whether to apply a fix • Deciding whether to accept the risk of not applying a fix • Reviewing problems to check for quality and completeness • Driving the efficiency and effectiveness of the problem management process
ServiceNow Role	The problem_coordinator role is required in ServiceNow

Role Name	Problem Manager
Description	The Problem Manager is responsible for the overall Problem Management process and can configure Problem Management settings as well as act as a Problem Coordinator
Responsibility	• Can configure whether a problem or problem task can be re-opened and if so by which roles. • Can configure whether accepting risk of not fixing this problem moves the problem to resolved (still active) or closed.
ServiceNow Role	The problem_manager role is required in ServiceNow

Role Name	Technical Support
Description	Technical Support teams assist the Problem Coordinator to investigate problems, identify and implement solutions.
Responsibility	• Providing subject matter expertise • Conducting investigation into problems • Identifying the root cause of problems • Identifying workarounds, and notifying Service Desk and Technical Support of workaround availability • Publishing known error articles • Identifying technical solutions to eliminate faults • Providing stakeholder communication on active problems • Resolving problems, through Change Management where applicable
ServiceNow Role	The problem_task_analyst role is required in ServiceNow.

Specialist Roles

Request Read and Write roles

Roles to assign access permissions at a granular level when the ITSM Roles — Problem Management plugin (com.snc.itsm.roles.problem_management) is activated.

- sn_problem_read
- sn_problem_write

These roles are added when the ITSM Roles — Problem Management plugin is installed. The new roles added are:

- sn_problem_read: The user with this role has read access to the Problem Management application and related records.
- sn_problem_write: The user with this role has write access to the Problem Management application and related records.

Business Stakeholder Role

The business_stakeholder role to approve, view, or read records across the organization and view reports.

This role is an extended form of an approver role and contains the sn_incident_read, sn_problem_read, sn_change_read, sn_request_read, and approver_user roles.

You can assign this role to any user who is a business stakeholder to review and approve requests only if you have the appropriate entitlement from your organization. This role is added when the Business Stakeholder plugin (com.snc.business_stakeholder) is installed.

servicenow

How problems are initiated

Directly in ServiceNow - A Service Desk Agent, Incident Manager, Problem Coordinator, or other IT user can create a problem directly when they believe they see an underlying issue that is worth investigating.

Directly from an Incident – Incident Managers, Service Desk Analysts, Problem Managers, or other IT Support staff can raise a problem from an incident where they are seeing evidence of a problem based on the incident record/s.

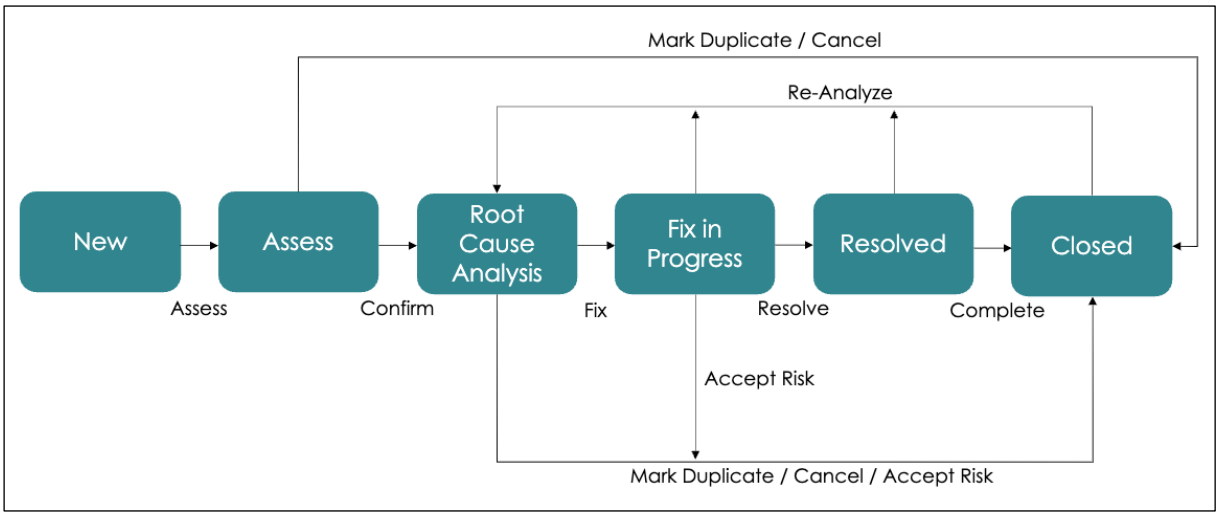
Automatically via Integrations - Problems can be automatically generated via external systems such as a vendor system integration.

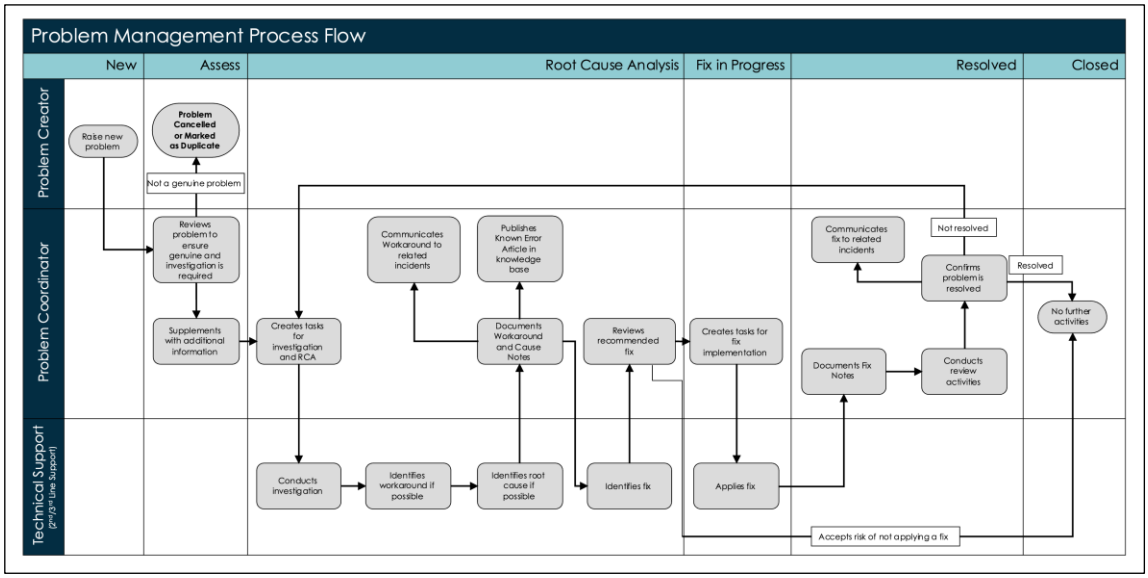
Problem Management Lifecycle

States in any ServiceNow application serve a specific purpose. They are designed to make it clear where in a process a record currently resides and to display progress. States should represent a unique phase in a process where a specific set of related activities are grouped together designed to achieve a particular outcome to move to the next phase of the process. Our recommended Problem Management process has the following state model:

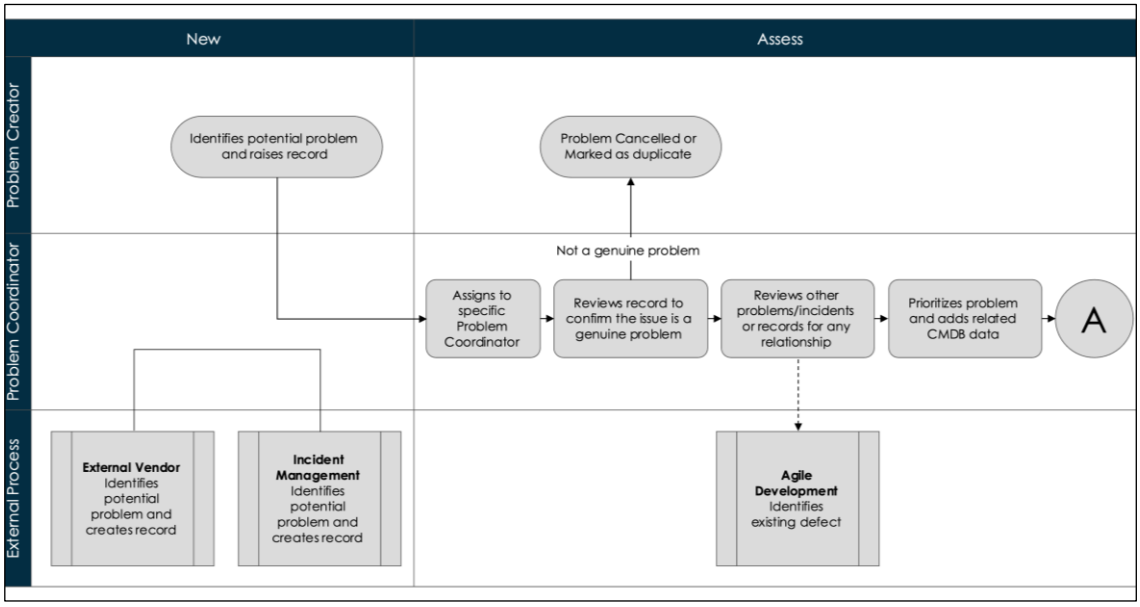
- New
- Assess
- Root Cause Analysis
- Fix in Progress
- Resolved
- Closed

Process Overview





State: New



When a problem is first created, it is in a state of New. This is where very basic information is added that may suggest a problem exists. All known information about the symptoms experienced is captured, with enough information to warrant an investigation.

The mandatory fields are:

- Problem statement

If other fields such as CIs are known at this point, they can still be added and will be automatically added if they are coming from an existing incident record; however, they do not need to be mandatory to progress. In addition, if the fields in the Assess Dialog Form View dialog are filled, the problem is automatically moved to the Assess state without having to manually change the state

Problem Assignment

At the New state, it is necessary to identify the appropriate assignment group to assess the problem in the next phase of the lifecycle. This will need to be a Problem Management group or if a dedicated function does not exist in the organization then the group that will perform that function such as the Service Owner or Incident Management team, these users will require the problem_coordinator role. This assignment is best achieved by automatically updating the *Assignment group* field rather than letting the user try to pick the correct group manually since this approach is prone to error.

At this point, if the assignment group is automatically updated, a member of the group will need to choose an individual Problem Coordinator to take responsibility for the problem on behalf of the group. This is done by populating the *Assigned to* field.

Once the fields are populated, the problem coordinator is expected to click the *Assess* button. This will move the problem into the lifecycle where it is considered 'live' and something that requires attention.

Each agent has access to the queue of problems to be worked on. In order to help the agent decide which problem needs to be worked first, it is important to set the correct prioritization rules in the queue, visualize the relative fields, and properly report the problem backlog. Furthermore, idle time should be managed so that problems are continually processed. Problems and problem tasks have a "priority" field to help the agents. Address the issue of idle time. When (e.g. after 4 days) and how agents should be reminded to work on an open problems or Problem tasks. It is recommended to display in the list of fields of the problem queue the current ongoing SLA and all other fields that can be useful in the specific context to prioritize the work.

State: Assess

At the Assess state, the Problem Coordinator is primarily assessing the problem to determine whether it is genuine or not.

The Assigned to individual (the Problem Coordinator) will now conduct an initial review of the problem primarily to check that it is indeed a real problem.

- If the Problem Coordinator determines that this is a duplicate problem, he or she will click Mark Duplicate and select the problem this is a duplicate of.
- If the Problem Coordinator recognizes it is not a genuine problem, he or she will click Cancel and populate a Canceled reason field to explain why the problem is not considered to be genuine and explain why no further investigation is required.
- If the Problem Coordinator is comfortable to proceed with the investigation, he or she may need to update the Priority, Service, and CI before clicking Confirm.

Establishing Priority

Problem prioritization typically drives the criticality associated with the handling of the problem and the order in which problems will be focused on. Priority is calculated through a combination of Impact and Urgency.

Impact is the affect that a problem has on business.

Urgency is the extent to which the problem's resolution can bear delay.

Priority is generated from urgency and impact according to the following table.

		Urgency		
		1 - High	2 – Medium	3 - Low
Impact	1 - High	Priority 1 - Critical	Priority 2 - High	Priority 3 - Medium
	2 - Medium	Priority 2 - High	Priority 3 - Medium	Priority 4 - Low
	3 - Low	Priority 3 - Medium	Priority 4 - Low	Priority 4 - Low

It is possible to automatically establish the priority of the problem based on the CI that is identified in the problem record. With this technique, the business criticality value of the CI is used to determine the priority of the problem. For example, an online banking service would be considered critical to a financial organization. If this CI is related to the problem the priority can be automatically set to Critical as a result. This ensures a more accurate and consistent prioritization of problem, as the determination of impact and urgency can be a subjective call. If this automated method is being used this can occur at the New state when the problem is first raised as it will be helpful to the Problem Coordinator to see this immediately.

Categorization

Proper categorization of the problem supports an easy classification and correct routing to the right team. Furthermore, reports of problems based on the categorization can help drive business decisions

The categorization should be meaningful and, if possible, be the same as on incident. It should be carefully planned and analyzed. Often, too many categories are created. When more categories are offered to the user, the less likely it is they will select the correct one – resulting in inaccurate data.

It is recommended to use a 2-level categorization. The top level of categorization should be the (business) services. The next level should be the Affected CI – where a CMDB is/will be in place.

In cases without a CMDB, the categories can be used. It is not recommended to use subcategories.

The lowest level of the categorization should determine the support group for the auto assignment.

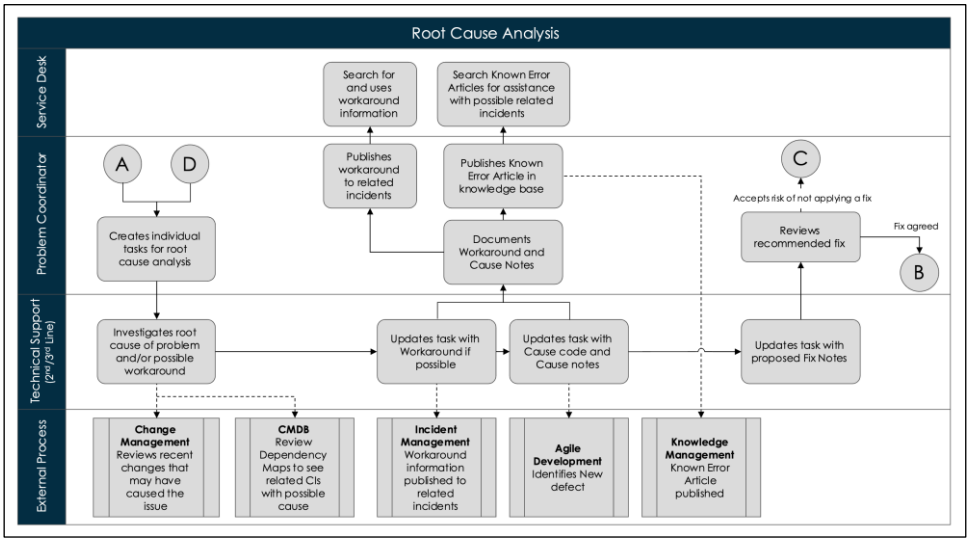
Services and CIs

The *Service* and *CI* fields are used to identify what is being impacted by the problem. These fields use CMDB data which is also used across other ITSM processes therefore creating a valuable link and traceability particularly for services. This also offers the use of the Dependency Views feature that displays the relationship map from the service/CI in question to other related CMDB components and will display any ongoing incidents or changes that may exist to aid with root cause analysis.

If the Agile Development application is in use, existing defects should be searched to look for possible causes or relationships to the problem.

Once this data has been entered the Problem Coordinator will click *Confirm* to move to the Root Cause Analysis state.

State: Root Cause Analysis[3]



The Problem Coordinator may now need to engage one or more technical support teams to investigate and potentially help to fix the problem. This is achieved using Problem Tasks.

[3] A Root Cause is defined as the underlying or original cause of an Incident or Problem.

Problem Tasks

The parent problem record remains assigned to the Problem Coordinator throughout the entire process. The Problem Coordinator creates and assigns individual tasks out to the various technical support teams to aid in the investigation and diagnosis. Each team will capture their own investigation and discoveries in their individual tasks and the Problem Coordinator will review and coordinate them all. There are two types of problem tasks. Root Cause Analysis and General. The RCA type should be selected for specific tasks required to investigate the root cause and should be created by the Problem Coordinator at this point.

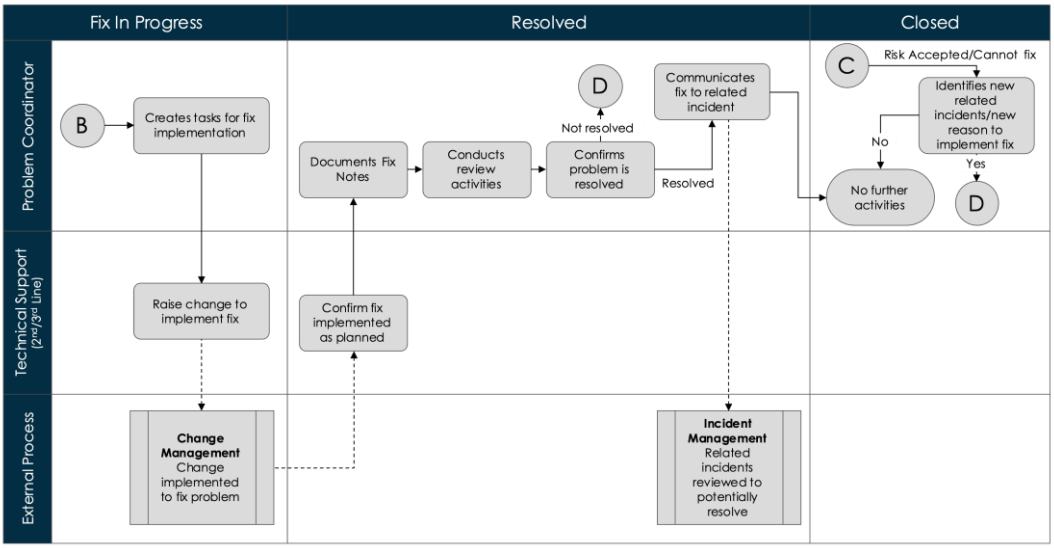
During the Root Cause Analysis state four main activities are intended to occur:

1. Discover a workaround (if possible), the Problem Coordinator should enter it into the *Workaround* field and communicate it to all open related incidents using the *Communicate Workaround* related link. This populates the text from the *Workaround* field into the *Activity Log* of all related open incidents explaining that it is a workaround from the problem record.
2. Discover the root cause and document it using the *Cause notes* field on the problem. If the Problem Coordinator needs help to discover the root cause, they can assign a Root Cause Analysis problem task to the relevant team who will attempt to document the cause code, cause notes, proposed fix and provide a workaround on the problem task.
3. Discover a permanent fix for the problem to prevent it from happening in the future, enter it into the *Fix notes* field and communicate it to all related incidents (incidents must be in On Hold state with an On hold reason of Awaiting Problem) using the *Communicate Fix* related link. As with the root cause, if the Problem Coordinator needs help to discover a permanent fix, they can use a problem task to gather that information.
4. As it could take time to implement a permanent fix it may be helpful to communicate that this problem is known about and currently being worked on which can help to deflect incidents. The Problem Coordinator should create and publish a Known Error knowledge article. Known Error articles show up when an end user goes to create an Incident via the Portal. Click the *Create Known Error article* related link to create a Known Error article from a problem which creates a link between the two records displayed in the *Primary Known Error article* on the problem record. The Problem statement, Description, Workaround and Cause notes are copied over when creating a Known Error article. The Known Error article will be in the draft state and can then be published. If it is not deemed necessary to publish the known error in the Knowledge Base, Service Desk Analysts and other Technical Support users can simply search for all problems to find these and use the information as they require it. Most commonly this will be used by the Service Desk if they are trying to resolve an incident, find a workaround or if they recognize a pattern of similar incidents.

These activities can all happen in parallel and may be discovered at different times through Root Cause Analysis. It is possible that none of these are discovered, some or all four.

If the root cause and a permanent fix are discovered, then the problem can be moved to the Fix in Progress state using the *Fix* button. If a fix cannot be discovered or the fix cannot be implemented, the Problem Coordinator can use the *Accept Risk* button and provide reason why they are accepting the risk of not fixing this problem for now.

State: Fix in Progress



Fix in Progress state represents a problem that has been investigated and is now needing a fix. It is mandatory to enter Cause notes and Fix notes in order to move Problem from Root Cause Analysis to Fix in Progress

The Problem Coordinator can create or relate to one or more Change Requests to show the clear path to resolution.

Once the change(s) are implemented and the problem considered to be resolved the *State* field is now updated to Resolved using the *Resolve* button.

Risk Accepted

From the Root Cause Analysis or Fix in Progress states, the Problem Coordinator can accept the risk of not fixing the problem for now:

- Due to cost implications the business may determine it is not worth the cost of fixing
- A fix cannot be determined

The resolution code is set to *Risk Accepted*.

Risk Accepted problems in these situations can be reviewed by the Problem Coordinator at appropriate intervals. The coordinator establishes whether the impact has increased, or the situation has changed to the point where either the problem will be fixed or is no longer required due to some other change that has occurred and resolved it. The Problem Coordinator can then choose to re-analyze the problem, so the problem process can then be worked through to find the solution.

The out-of-the-box default is that Risk Accepted problems are set to Closed because there is currently no work to do on the problem at that time. You can easily see the list of Risk Accepted problems whether they are active or closed. The overall concept is that a problem is only active if there is work that needs to be done on it right now.

Recommendation is that Risk Accepted problems should be set to Resolved and can remain in Resolved indefinitely. It is important to remember that this is a key difference between Incident and Problem Management. Incident Management is concerned with the restoration of service as quickly as possible using whatever means possible. Problem Management is concerned with permanently resolving the issue and ensuring it will not reoccur - therefore it is acceptable for this to take as much time as is required. There should be no driver to close out unresolved problems purely because they are not going to be fixed at that time and are sitting in a list of active problems.

State: Resolved

Once the problem has been moved to Resolved state the Assigned to individual will need to populate or update the *Fix notes* field with text to describe exactly what has been done to solve the issue.

At the Resolved state it is also possible for an organization to conduct a review of the problem if their process requires it. Additional fields can be added here to capture that information. Alternatively, problem tasks can be assigned out by the Problem Coordinator as required.

A set period can also be observed before setting the problem to Closed state to confirm that the known error has been solved. If evidence suggests that the issue persists, the state can be set back to Root Cause Analysis using the *Re-analyze* button. The process can then be worked through again to continue to find the solution.

If the problem is confidently considered solved, then the *Assigned to* individual will close the problem using the Complete button.

State: Closed

At Closed state, several Resolution codes are displayed. These are automatically determined by certain actions that occurred during the process:

- Duplicate
  The problem was marked as a duplicate of another problem. Any related incidents and tasks will be moved over to the problem that this one is a duplicate of. This is configurable in the problem properties.
- Canceled
  The problem was canceled. There are very few scenarios where a problem is genuinely canceled. This will only occur when a problem was raised in error usually prematurely before realizing there is no real problem.
- Fix Applied
  A permanent fix was applied, and the problem was resolved.
- Risk Accepted
  The problem has not been resolved but it has been accepted that the solution is not to be applied at this time. If that decision changes, the problem can revert

The problem management properties determine whether a closed problem can be re-analyzed. For example, additional incidents were added to this problem after the fix was applied. Set the role to Nobody if you do not want to be able to re-analyze the problem. Then if the problem reoccurs, create a new problem ticket, and set the "First reported by" field to refer back to this problem so you can trace it.

Other Processes

Incident Management

Most problem records are triggered in reaction to one or more incidents. Incident history helps identify trends or potential weaknesses as part of proactive problem management.

Incident records that are related to problem records which are pending resolution are automatically updated when a problem is resolved or closed as Risk Accepted

San Diego update:

- New property has been introduced in San Diego release so Problem Coordinators can relate any incidents including closed to a Problem so they can show the true scope of the issue
- File attachments, attached knowledge and workaround could also be copied over from the incident to a problem record if a corresponding property is enabled

Change Management

For problems, implementing the workaround or the permanent solution will require work on a service, hardware, or software. Conducting this work will require a change record to be raised. This is done by selecting the Create Normal Change or Create Emergency Change option in the context menu.

Emergency changes typically require an incident record to be related to prove that they are urgent enough to bypass the full process and lead times.

Configuration Management

The configuration management system underpins all records and activities related to any CI. It contains details of the infrastructure vital to services, CIs, and their relationships.

The CMDB is used within the problem management process by relating Configuration Items including Services to the problem. This allows Dependency Views to be used which display the relationship between the selected CI and other CIs related up and downstream.

Knowledge Management

Knowledge is a vital part of the problem process. Known errors are documented and published in the knowledge base including workaround information to allow end users to see knowledge articles and, if appropriate, make use of workaround information to help themselves while the known error is being fixed.

User Experience

Mobile platforms and Virtual technology can have a positive impact on how end users interact with the end-to-end process and ultimately how the entire user experience is perceived. Consider which touch point in the process can leverage the mobile platform to minimize delays in the process. Tasks such as chat can all be performed on mobile devices. Consider also how Virtual agent can be deployed to assist users in common actions and tracking progress.

servicenow

Process Governance

Measurement

Key Performance Indicators (KPIs) evaluate the success of a particular activity toward meeting the critical success factors. Successfully managing KPIs can be either through repeatedly meeting an objective (maintain) or by making progress toward an objective (increase/decrease). The Benchmarks feature gives you instant visibility into your key performance indicators (KPIs) and trends, as well as comparative insight relative to industry averages of your peers. You can contrast the performance of your organization with recognized industry standards and view a side-by-side comparison of performance with global benchmarks.

The main point of note when creating any KPIs or metrics for problem management is not to be driven by the same measurements used for incident management. With incidents the purpose of the process is to restore service as quickly as possible using whatever means available. Therefore, speed of resolution is a key measurement for this process. With problem management the purpose is to understand the underlying cause of issues and permanently fix them no matter how long that takes or if it is even possible. Therefore, in problem management speed of resolution is not something that should be measured. This would drive the wrong behavior for the process and focus on closing records rather than finding the permanent fix. Process Owners need to feel comfortable with problem records potentially remaining open for months or even years.

Metrics

Process KPIs

- Provide information on the effectiveness of the process and the impact of continuous improvement efforts
- Are best represented as trend lines and tracked over time
- Monitored by the Process Owner

Item	Purpose
Mean time to first respond to problems, by priority	Measure of how well response SLAs are achieved
% of problems with a root cause identified for the failure	Measure the effectiveness of problem management in defining root cause
% of problem with workaround defined	Measure the effectiveness of problem management in defining and communicating workarounds
Percentage of incidents resolved by fixing known errors	Measures the effectiveness of problem management in supporting the timely resolution of incidents

Operational Data

Item	Purpose
Problems ready to be assessed	Shows all problems that require a Problem Coordinator to assess them
Number of active problems that have missed target response times	Highlights where there may be a process issue in assessing new problems
Aged list of backlogged problems	Provides visibility to unassigned work
Risk Accepted problems with new incidents	Highlights where a risk accepted problem may need to be reviewed for further work

Reports and Homepages

There are numerous default reports available in ServiceNow that can be used to generate charts, be published to a URL, or can be scheduled to be run and distributed at regular intervals. Users can also create custom reports.

In addition to reports, each user can create a personal homepage and add gauges containing up-to-the-minute information about the current status of records that exist in ServiceNow tables.

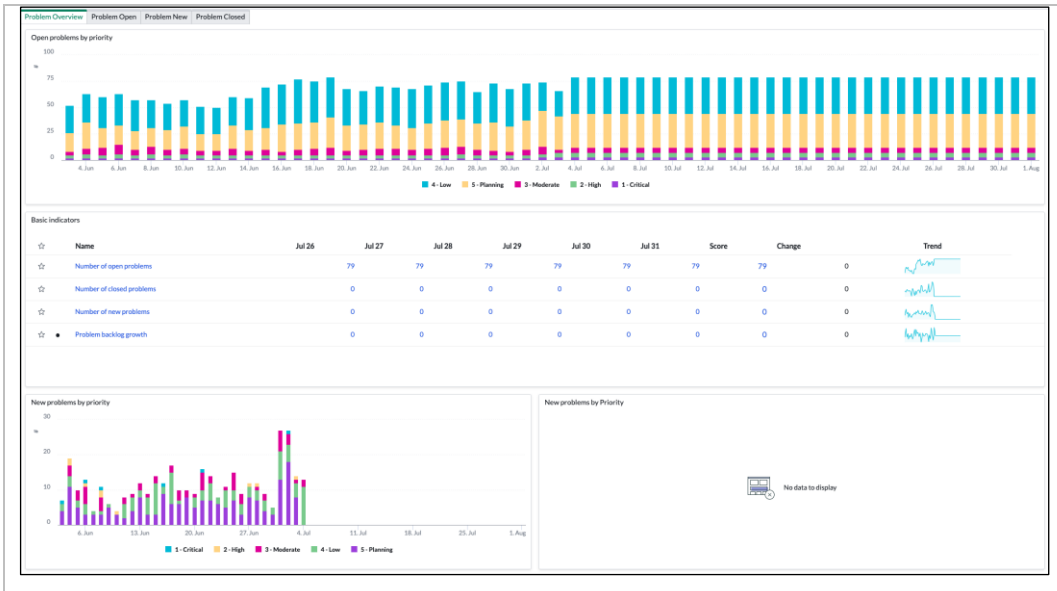
Report view access control can be used to restrict access to reports to uses who have one of the required roles that contain the restricted resource.

Performance Analytics is recommended to report on KPIs and metrics, and answer key business questions to help increase quality and reduce the costs of service delivery

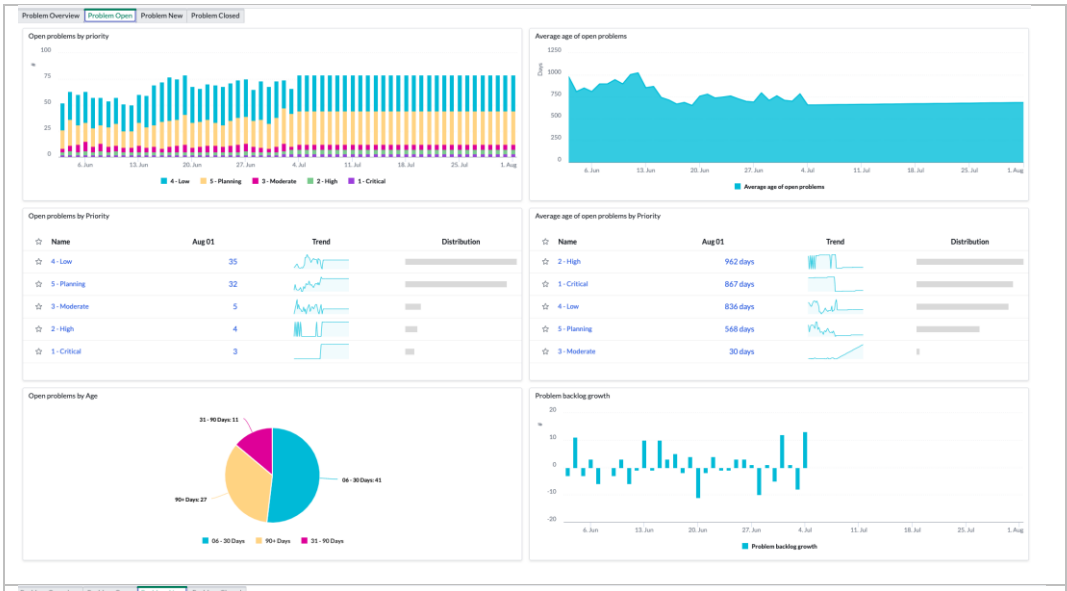
Performance Analytics Dashboard Examples

Performance Analytics Problem Management Dashboards provide in depth trend analysis. These can be enabled as an ITSM Professional licensed user.

Problem Overview	Open problems by priority Basic indicators (number of open problems, number of closed problems, number of new problems, problem backlog growth) New problems by priority
Problem Open	Open problems by priority Average age of open problems Average age of open problems by Priority Open problems by Age Problem backlog growth
Problem New	% of new critical problems New problems by Priority
Problem Closed	Number of closed problems Average close time of problems Closed problems by Priority Average close time of problems by Priority



Problem Overview Tab



Problem Open Tab

Problem New Tab

Problem Closed Tab

Process Diagrams

The process diagrams in editable format (Vision) can be found on Now Create link

Process Scoping Considerations

When scoping the process there are a range of considerations that should be made. The following are areas to be considered when scoping the process: