

Implementing ITIL Processes Using Numara™ FootPrints®

TECH NOTE

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OVERVIEW

ITIL (Information Technology Infrastructure Library) was originally developed almost 20 years ago by the United Kingdom's Office of Government Commerce (OGC) to improve IT service management for the United Kingdom central government. ITIL has since evolved into a detailed set of definitions relevant to organizations that wish to align IT practices with business objectives and deliver effective service management. ITIL is currently contained in an eight volume set. The the first two books, where the basic processes and functions for Service Support and Service Delivery are described, will be of most interest to help desks. Used by thousands of organizations worldwide, ITIL is being adopted by more companies in the United States than ever before, including small-to-medium sized IT organizations.

Book 1: Service Support	Book 5: Applications Management
Book 2: Service Delivery	Book 6: Security Management
Book 3: Business Perspective	Book 7: Planning & Implementation
Book 4: ICT Infrastructure Management	Book 8: Software Asset Management

In the current set of ITIL books, Service Support and Service Delivery include the basic processes which are addressed by Numara FootPrints.

It is important to keep in mind that ITIL is a recommended framework, not a corporate control requirement like Sarbanes Oxley, so there really is no such thing as "ITIL-compliant" software. Service desk software, like Numara FootPrints, is more accurately referred to as "compatible" with ITIL definitions. For example, Numara FootPrints has achieved the ITIL-Compatible verification from Pink Elephant, an organization recognized as the IT Service Management industry's foremost program for granting ITIL certification. In order to receive this endorsement, Numara Software had to demonstrate that Numara FootPrints addressed the four core ITIL processes for Service Support: Incident, Problem, Change, and Configuration Management. Additionally, Numara FootPrints offers support in the areas of Service Level Management and Release Management, which is part of Service Support.

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Service Support

Configuration Management
 Incident Management
 Problem Management
 Change Management
 Release Management

Service Delivery

Availability Management
 Capacity Management
 Service Continuity Management
 Financial Management
 Service Level Management

The processes for Service Support and Service Delivery in the first two ITIL books are outlined as illustrated above.

This Tech Note will discuss best practices for configuring Numara FootPrints for ITIL-compatibility for Incident, Problem, Change and Configuration Management as defined in the ITIL Service Support book, with brief descriptions of how Numara FootPrints relates to the other processes.

IMPORTANT ITIL TERMS

ITIL is broken down into two key disciplines, Service Support and Service Delivery, each of which is further divided into different processes or functions. While Service Delivery describes future strategy and planning, Service Support is more concerned with day-to-day operations and the maintenance of services for users. In terms of ITIL, Numara FootPrints focuses on Service Support, but it can also provide some assistance in the Service Delivery discipline.

The following definitions are found within the Service Support discipline:

- **Configuration Management** – This process deals with the tracking of individual “Configuration Items (CIs)” throughout the enterprise. Configuration Management involves relating assets or CIs and establishing dependencies and hierarchies. It also involves designating certain services as CIs, such as Email, Internet, etc, and then determining which CIs each Service is dependent upon. This process is very important for identifying the impact of any changes that would be made.
- **Incident Management** – The main goal of this process is to restore normal IT service for incidents that may occur to individual users.
- **Problem Management** – The main goal here is to determine the root cause of incidents and either make corrections by making a “change” or designating the problem as a “Known Error.”
- **Change Management** – Change Management, as it pertains to ITIL, is concerned with only the analysis (impact, risk, benefit, scope, etc.) of the change and the approval of the change. After a change has been approved, it goes through a Release Management process.
- **Release Management** – This is the mechanism by which changes are deployed/implemented into the enterprise. This includes the planning, design, development, testing, and deployment of the changes.

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The following definitions are found within the Service Delivery discipline:

- **Availability Management** – Allows organizations to sustain the IT service availability in order to support the business at a justifiable cost.
- **Capacity Management** – This process supports the optimum and cost effective provision of IT services by helping organizations match their IT resources to the business demands.
- **IT Service Continuity Management** – This process helps to ensure the availability and rapid restoration of IT services in the event of a disaster.
- **Financial Management for IT Services** – The aim of Financial Management for IT Services is to give accurate and cost effective stewardship of IT assets and resources used in providing IT Services.
- **Service Level Management** – This process provides for continual identification, monitoring and review of the levels of IT services specified in the Service Level Agreements (SLAs).

Key ITIL terminology:

- **Service Desk** – This is a function, not a process, and is ITIL's term for a Help Desk. It is intended, though, to cover more than just Help Desk. The ITIL Service Desk provides a Single Point of Contact (SPOC) for users, assists users with basic IT-related issues, and helps users in the restoration of services.
- **Service Request** – Any request that comes into the Service Desk should start as a Service Request, and then set to Incident or Request For Change (RFC) where appropriate. Service Requests can cover password resets, "how to" questions, complaints, requests for information, and user errors. The service desk category excludes service disruption, which is covered by Incident.
- **Incident** – Incidents are any request made by a user involving a service disruption. Examples: inability to send email, access internet, or print.
- **Problem** – Problems are the root causes of Incidents. For example, a mail server crashing may leave multiple users unable to receive/send email or a server hard drive crashing may cause multiple users to not have access to a network drive. Problem management involves resolving the Problem so related Incidents no longer occur or designating the Problem as a Known Error.
- **Known Error** – This is a Problem for which the root cause has been identified (e.g. "mail server hard drive is corrupted) and has not been resolved, but a workaround (e.g. "use a different mail server") exists.

Distinguishing between Incidents, Service Requests, and Problems

Printer issues often bring out the ambiguity between an Incident and a Service Request. For example, a printer jam is a Service Request if the printer jam occurs at a frequency you might expect out of any printer. However, if the printer jams because the printer is damaged, then it would be an Incident, with the damaged printer being the related problem.

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CONFIGURING THE SERVICE DESK FOR ITIL COMPATIBILITY

Configuring a Service Desk project in Numara FootPrints is a straightforward process. A sample template is included, "Incident/Problem Management", that can be used as a basis for your Service Desk. You can then modify the fields, categories, add additional fields and workflow to tailor it to your needs. Some examples of what can be added:

- **Identify incoming requests as Service Requests, Incidents, Problems, Known Error or RFC** – Create a drop-down field, for example "Request Type" (or you can add choices to the built-in "Type" field), with these four choices. You may want to have this list tied to other fields, such as Problem Type or Category. In Numara FootPrints, you can include the related field as a part of a dependency group, so if Service Request is chosen, a subset of choices would appear, such as "Password Reset", "Change Toner Cartridge" and "Help User".
- **Create a mechanism for converting Incidents to Problems if no corresponding Problem or Known Error already exists** – The Global Issue feature of Numara FootPrints is appropriate. It is generally advisable to create a Global Issue for all Problems, and link all the Incidents to the main Global Issue. This will then update all the Global links, which represent the Incidents.
- **Create a mechanism for routing RFCs to the appropriate individuals for analyzing and fulfilling the change** – A status of "Change Required" can be added to the status field. Then an escalation rule can be created to copy the Incident or Problem to the Change Management Project when "Change Required" is selected.

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INCIDENT AND PROBLEM MANAGEMENT

Since Incident Management is a process that is handled by the Service Desk, much of the configuration required to make Numara FootPrints ITIL-compatible for Incident Management is already completed when configuring the Service Desk. The most important elements when configuring FootPrints for Incident Management are:

- **Differentiating from general Service Requests** – This is handled by defining the “Request Type” field.
- **Collecting information that will be helpful when resolving Incidents** – Create additional fields, such as dropdown menus and character notes fields, that can be used to collect information about the Incident. Fields can be used for:
 - o Incident detection and recording
 - o Classification and initial support
 - o Investigation and diagnosis
 - o Resolution and recovery
 - o Incident ownership, monitoring, tracking, and communication.
- **Be able to convert the Incident to a Problem** – Create a Global Issue from the Incident.
- **Be able to link the Incident to a Problem or Known Error** – Link the Incident to an existing Global Issue.

Problem Management is also covered under the Service Desk. Most Problems originate as Incidents that have been converted to Problems when root cause analysis is necessary. When configuring FootPrints for Problem Management, you will need mechanisms to:

- **Distinguish between Problems and Known Errors** – This can be accomplished by having the “Problem Status” field.
- **Do root cause analysis and determine** what resolution is required.
- **Convert Problems into Requests for Change** if a change is required for complete resolution.

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CHANGE MANAGEMENT PROCESS

Change Management involves three steps: analyzing the change, determining the impact, approving the change. Multiple Change Management project templates are included with the Numara Change Management module with examples of fields, categories and workflow for IT, Software, and Business change management. In addition to ITIL standards, tracking of changes related to IT governance initiatives such as Sarbanes-Oxley compliance can be included in the designing of your Change Management processes.

Here are some considerations for designing your Change Management project:

Analyzing the Change

Examples of fields you might want to use when logging Change Requests:

- **Reason for Change** – This could be a dropdown menu that contains reasons such as “New Requirements”, “Changed Legislation”, “Reported Problem”, etc.
- **Impact** – What is the impact of the change? What users will be affected? What equipment will be affected? What services will be affected?
- **Scope** – How many users/systems will be affected?
- **Cost** – A dollar value associated with the change.
- **Type of Data affected** – This is particularly important for SOX compliance. They can have a dropdown field that indicates whether this is Financial Data, Product Related, Personnel, etc.
- **Asset/CIs Affected** – This information will be pulled dynamically from Numara Asset Manager (NAM), Track-It! Audit, or any asset database.

Impact Analysis

Impact analysis is a central element to any ITIL change. The goal is to determine, based on the nature of the change and the CIs involved, which users will be affected by the change and what the impact on those users will be. There are two courses of action:

- **Manual impact analysis** – This means that you either do not have available or decided not to use a Configuration Management Database (CMDB) for your impact analysis. Instead, you determine the impact of any change on an ad hoc basis. If you choose this approach, a small set of fields can be added to allow the user to enter impact information.
- **Do the impact analysis from the Configuration Management Database** – This involves establishing a link between the RFC and a CI, and then reviewing the associated CI to determine which users will be impacted. The link can be created by configuring one of the following:
 - o Numara FootPrints Dynamic SQL Field Mapper – This optional add-on module pulls information dynamically from the CMDB into fields used in this project
 - o HTML-based Field Headers – The Numara Software Professional Services team can help you configure field headers to link to CMDB information.

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Configuring the Approval Process

The Numara FootPrints Change Management module enables you to create different processes for different types of changes. Within a process, one or more Phases of approval can be defined to allow managers, directors, Change Advisory Boards, etc. to approve a change before it is scheduled. Here are some best practices for creating Approval Processes in Numara FootPrints Change Management:

- An Approval Process can be initiated automatically by any combination of criteria. You may want to create one process for Software changes, one for Hardware changes, one for Purchases > \$10,000, etc. A Process for pre-defined urgent changes is also recommended that contains minimal approval phases.
- Within a process, the first phase can be the requestor's manager, or a designated Change Manager.
- For a second phase, a Change Advisory Board can be selected from the stakeholder groups for a particular type of change, including IT and non-IT employees. A majority vote, or a unanimous vote, can be defined as the criteria for approval.
- Additional phases can be added if a "chain" of approval of stakeholders is required.
- Email notification, reminders, and secure email voting make it easy for approvers to approve changes quickly, while still keeping a complete audit trail of approvals.
- Approved changes can automatically trigger a status change and assignment to the builders and testers of the change. Rejected changes can be automatically closed, or sent back to the requestor to re-submit with changes, a new proposed implementation date, etc.

Other Best Practices for Change Management

Many other features in Numara FootPrints can be used to aid in the management of changes and how they relate to the other processes:

- Calendar: Approved changes can be linked to the FootPrints Calendar using an "Implementation Date" field. Blackout periods for important CIs (see Configuration Management below) can be placed on the Calendar. In this way, changes can be scheduled to have a minimal impact on the business.
- Field Level Permissions can be used to allow only certain users to complete certain fields.
- Dynamic links, created manually, through a copy, or through escalation, can be used to keep different processes in sync. Incidents and Problems can be linked to related Changes, to show the relationships and to keep different groups up-to-date on the latest updates to issue description, priority, and status.
- Quick Issue Templates can be designed to handle common Incident, Problem and Change types, such as "Password Reset", "New Hire", "UNIX Server Upgrade", etc.
- Subtasks can be used to break down a major Change into its associated parts, such as a Corporate Software Rollout where many offices, users and CIs are affected.
- Documentation of a proposed Change can be attached to the change for review by the approvers.
- Reports can be run showing the Forward Schedule of Changes to help manage the flow of changes performed. Other reports can include the full history of changes for auditing purposes.

Implementing ITIL Processes Using Numara™ FootPrints®

CONFIGURATION MANAGEMENT PROCESS

Configuration Management is the ITIL process involved with managing CIs and determining how each CI affects the system in general. There is some overlap between Configuration Management and Asset Management (which is not an ITIL process). As far as ITIL is concerned, the distinctions are quite significant. Furthermore, a CI Item is not always a PC or Server asset. It can be a service, such as “Email Service”, an application, documentation, or even a hard drive.

One of the most important goals of Configuration Management is to make it possible to determine the Impact a change or service interruption on a particular CI would have on other CIs and Services, so the relationship between CIs is very important.

The first step in Configuration Management is to determine the different CI types. The different CI types that an enterprise might use are largely based on the services that are offered, and on what CI's the service is dependent upon. CI types are often determined in layers. Consider an Email Service:

- Layer 1 (Service) Corporate-wide Email
- Layer 2 (Servers) Mail Servers – You might have multiple mail servers in this Layer.
- Layer 3 (Transmission) Routers, Switches, Cables
- Layer 4 (PC) Each individual PC
- Layer 5 (Application) Microsoft Outlook, Lotus Notes, etc.

In the example above, Corporate-wide Email is the service being offered, and it depends on the Mail Servers, Routers, Switches, Cables, PCs, and Applications to all run correctly. You can see how a change or problem that occurred to a Layer 2 CI would have a much larger impact than a change or problem that occurred to a Layer 5 CI. Depending on your needs, you may only require 2 or 3 layers for Email Service.

CIs can also be linked to and dependent on other CIs in the same level or layer. Since the proper functioning of Email is dependent on Internet Access, the Level 1 Service Email is dependent on the Level 1 Service Internet Access.

A good asset management tool, such as Numara Asset Manager, can help identify what PCs, Servers, Routers, Switches, etc. exist. But even with a good asset management tool, a separate CMDB should be created to manage relationships between CIs, keep non-discovered assets, and link to the Service Desk. A FootPrints project can be configured to track CIs, with data being entered manually or imported from the asset database or other source.

Some considerations when designing a Configuration Management project in Numara FootPrints:

1. Records in this project can be called “Configuration Items” or “CIs”. They can then be linked to the owners of those CIs through the shared Address Book.
2. Unique names for CIs can be kept in the “Title field”, which can be renamed “CI Name”.
3. A field can be created called “CI Type” with the list of types tracked, such as Service, PC, Server, Application, Documentation, etc. We recommend starting with the most important CI types first, i.e. the essential services and assets required for the business to run. Additional CIs can be added later.
4. Determine what other information you want to collect about each Configuration Item. These will be represented as fields in your Configuration Management project.

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Possible examples:

- CI Subtype – A dependency field on the CI Type, so if Application were chosen, this field would have a list of applications.
 - CI Location
 - CI Owner/User ID
 - Manufacturer
 - Serial Number
 - Model Number
 - Purchase Price
 - Depreciation Cost
5. Create different statuses that a CI might be in (e.g., Planned, In Production, Dead, etc)
 6. Manually enter all “Service” Layer Configuration Items.
 7. Manually enter and/or import all CIs into Numara FootPrints. Make sure each CI has the appropriate layer designated. This includes Servers, Routers, Switches, PCs, Macs, Hubs, LAN Cables, Applications, etc. Remember, ITIL is very vague on what exactly needs to be included here. You might want to take a router and all its supporting cabling and hubs and refer to that as a single CI.
 8. Configure relationships between CIs in Numara FootPrints. Links can be used to create relationships. The Numara Software Professional Services team can assist in creating custom relationship types for links such as Backs up/Is Backed Up By, documents/Is Documented By, Is Parent Of/Is Child Of, Uses/Is Used By, and Depends on/Is Depended on.

Implementing ITIL Processes Using Numara™ FootPrints®

OTHER ITIL PROCESSES

The automation and tracking of many of the other ITIL processes can be aided by Numara FootPrints and other available modules:

- **Release Management** – Numara FootPrints can be used to manage and track a release in conjunction with Change Management. Numara Deploy can aid greatly in the automated deployment of software changes and rollouts to the enterprise.
- **Service Level Management** – The Service Level Management feature supports the creation of Service Level Agreements (SLAs) with automated response due dates, associated escalations and notifications, and reporting on service level targets.
- **Availability Management** – Numara Network Monitor can help in monitoring the availability of servers and other CIs associated with key IT services.
- **Capacity Management** – Numara Asset Manager can help manage IT resources, and when integrated with Incident Management, can help manage the demands of them.
- **IT Service Continuity Management** – Disaster and Backup plans can be tracked and approved through Numara FootPrints Change Management.
- **Financial Management for IT Services** – Numara Asset Manager and a Configuration Management project can be used to track IT assets, history, depreciation costs, and proposed upgrade costs.

Implementing ITIL Processes Using Numara™ FootPrints®

S U M M A R Y

The amount of configuration of Numara FootPrints required will vary depending on your organization's level of commitment to ITIL. Since establishing an ITIL-compatible service organization is a large undertaking, it makes sense to start with the better defined Service Support and related Incident and Problem Management processes. Once these are in place, and the value that ITIL brings to the help desk is validated, it may then make sense to introduce the Change and Configuration Management processes. With Numara FootPrints, ITIL can be introduced as the organization's own pace. This Tech Note has shown that four core ITIL processes can be implemented in Numara FootPrints, with support for other key processes as well. For additional help, the Numara Software Professional Services team is experienced in assisting organizations outline business requirements and configure Numara FootPrints for best results.

While the current version 2 of ITIL is comprehensive in outlining general best practices for many areas of IT Service Management, it often falls short of "prescriptive" strategies for implementing a successful IT service organization, as well as leaving out key IT processes such as Knowledge Management. The upcoming ITIL v3 "refresh", due out in 2007, is expected to be greatly expanded in these and other areas like Security. It also promises to address the changing needs of users as technology evolves as well as address the needs of small-to-medium sized IT organizations. The new ISO/IEC 20000 international standard for IT Service Management also has the potential to affect how IT organizations are run, introducing an IT service organization certification similar to what ISO 9000 did for general business practices, but aligned with ITIL best practices.

Our recommendation is to use common sense in applying standards-based best practices to your IT organization. There is much value in the ITIL standard to help organize and streamline IT to better support the business, and the OGC promises that the existing core of ITIL will not be "thrown away", but instead rewritten to a more practical and business-oriented framework. With an incremental approach, service improvements can be continually measured along the way. And when flexible tools are employed that can change as your needs (and standards) change, an ITIL-based deployment can be a rewarding undertaking for the IT organization and the entire business.

TECH NOTE

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ABOUT THE AUTHOR



Mark Krieger was President and Co-founder of UniPress Software. Mr. Krieger was pivotal in growing UniPress to a leading position in the service desk software market. As the chief architect of its web-based FootPrints software, he was responsible for managing UniPress' development and product support teams. At Numara™ Software, Mr. Krieger continues in his software development role as Vice President of Product Development for the company's FootPrints product line. Prior to founding UniPress in 1983, Mr. Krieger was founder and Vice President of Whitesmiths Ltd., a software development company, where he managed technical operations and co-authored several C compilers.

ABOUT NUMARA SOFTWARE

Founded in 1991, Numara Software, Inc., (formerly Blue Ocean Software), is a global provider of service desk management solutions for IT and support professionals who need to simplify and gain control over their increasingly complex environments.

The company's two flagship products, Numara Track-It! and Numara FootPrints, make it the service desk management leader in small to mid-sized enterprises, serving IT and support professionals at more than 50,000 customer sites worldwide.

Overall, the Numara Software trusted solutions automate critical IT and support functions, such as service desk automation for internal and external support along with asset management, software patch and deployment, and network monitoring for small and mid-sized enterprises.

To register for a one-on-one guided walkthrough, attend a webinar or download a trial, please call (800) 557-6970 or visit: www.numarasoftware.com.

ABOUT NUMARA FOOTPRINTS PRODUCTS

Since its launch in 1996, the Numara FootPrints line of support automation solutions has evolved as a flexible, web-based service desk suite with a low total cost of ownership and fast ROI, and today is used by over 2,400 organizations worldwide. The Numara FootPrints product line, which has garnered many industry awards and is frequently recognized by industry analysts, consists of four principal applications, including Numara FootPrints, Numara FootPrints for eService, and Numara FootPrints Hosting Service. These products are complemented by numerous add-on modules to help organizations extend the value of their Numara FootPrints investments, including, Numara Asset Manager, Numara FootPrints Integration with Microsoft SMS Asset Management, Numara FootPrints Deploy, Numara FootPrints Sync, and Numara FootPrints Telephony Integration.