

Using Standard Changes to Improve Provisioning

A MOF Companion Guide

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# Introduction

This guide introduces the concept of standard changes, illustrates how they can help streamline routine and repetitive changes, and demonstrates how they can be applied to commonly provisioned data center and client items. In addition, this guide will:

* Relate standard changes to other change types.
* Describe the steps in the change management process relevant to standard changes.
* Illustrate the concept and basic process of provisioning.
* Outline the basic process for provisioning.
* Highlight considerations for using standard changes and provisioning effectively.
* Provide examples of how standard changes can be applied to provisioning data center and client items.

Effective change management in general is a vital component of effective service management for the following reasons:

* **Changes are necessary**. Maintaining and improving the security, performance, manageability, and functionality of services relies on change.
* **Changes are frequent**. They occur in a relentless stream and need to be dealt with swiftly.
* **Changes are risky**. Services and systems are often critical, complex, and subject to regulatory requirements; unsuccessful changes can negatively affect business processes, compliance, and the perception of those who deliver technical services.

A strong change management process provides a mechanism for making changes to the production environment with predictable results, free of unintended side effects. It eliminates unnecessary change and provides comprehensive tracking to ensure up-to-date and accurate configuration information to support decision making and troubleshooting. Without effective change management, there is risk of disruption to the business disruption and possible drift between actual and recorded configurations.

Recognizing the need for predictability and the potential for self-inflicted injury has driven many organizations to sharpen flexible and casual change management policies and practices. However, these efforts sometimes result in a change management process that is (or perceived as) laden, tedious, and bureaucratic, particularly for smaller changes.

Change management is not a one-size-fits-all discipline. Change management is fundamentally a risk management tactic, and risk management approaches should be proportionate to impact. For example, a company is likely to manage the risk of losing its biggest customer more rigorously than it manages the risk of losing its smallest customer. Change management in technology is no different: Approaches can and should vary in proportion to risk.

It’s likely that many changes are routine and repetitive—such as applying patches, provisioning a standard server role, or changing a monitor threshold value in a monitoring rule. The risks associated with these changes do not merit the same time and effort as more substantial changes like large-scale software upgrades or major networking upgrades. Time and effort spent repeatedly reviewing, approving, and testing common, low risk changes is not a good investment, especially if it means less time and effort are available for managing higher-risk changes.

The standard change is one tactic an organization can use to pattern and streamline the handling of routine and repetitive tasks so that they can be completed with the highest quality, greatest speed, and lowest overhead. A standard change is essentially a routine, well established change that is pre-approved by policy and therefore not subject to review, approval, and testing on a case-by-case basis.

Despite this less intensive handling, standard changes still support desired outcomes of predictability and comprehensive tracking. Standard changes can be particularly useful when applied to provisioning—the introduction of new technology resources. Updates to commonly provisioned items (for example, user accounts, Microsoft® SharePoint® sites, and virtual machines) can often be streamlined via standard changes, which helps ensure that such updates to requested items are made consistently, expeditiously, and efficiently.

## Intended Audience

The primary audiences for this guide are the people responsible for adopting technology service management principles in an organization. They range from C-level executives to managers to architects and other more technically minded leaders.

A secondary audience is end users, the people who are on the front line, actually using service management processes the tools and products that embody service management.

Readers should ideally have some familiarity with best practices for change management as outlined in Microsoft Operations Framework (MOF) and a basic understanding of the concept of provisioning.

# Managing Change

Change management is a substantial topic. This guide is an introductory resource that deals with one aspect of change management. Developing a substantive understanding of change management overall will greatly enhance the likelihood of success in applying the concepts outlined in this paper.

## The MOF Change and Configuration SMF

The MOF Change and Configuration Service Management Function (SMF) provides comprehensive guidance on how to set up, manage, and optimize this process.

MOF guidance helps organizations create, operate, and support technology services while ensuring that the investment in them delivers expected business value at an acceptable level of risk. MOF aims to create an environment where business and technology can work together toward operational maturity, using a proactive model that defines processes and standard procedures to gain efficiency and effectiveness. MOF promotes a logical approach to decision making and communication and to the planning, deployment, and support of technology services.

Change and Configuration Management is one of many MOF SMFs. MOF SMFs define processes, people, and activities required to align IT services to business needs and to ensure that service delivery is at the desired quality and risk level. Figure 1 displays all of the MOF SMFs and their placement in the service management lifecycle.

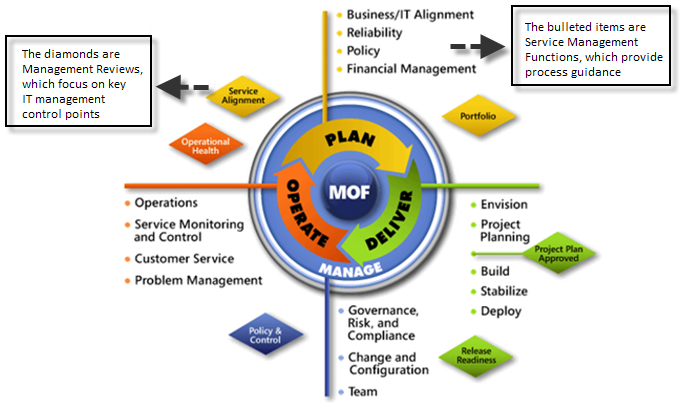


Figure 1. MOF SMFs

## Getting Change Management Right

Getting change management right is important both in terms of the means and the ends. The right change management approach for a given organization will successfully balance the organization’s objectives for managing change and its capacity to do so. This means the organization will be very clear about its prioritized outcomes for managing change (for example, reduction of risk to service availability, maintenance of accurate configuration records, compliance with regulatory obligations, and so on) and equally clear about the amount of time and effort it can and should devote to the achievement of those outcomes. Defining those outcomes and that capacity will shape the depth and breadth of the overall change management process, influencing decisions about what constitutes a material change, the appropriate parties involved in review and approval, testing policies, timing, documentation, post-implementation review, and quality indicators.

While the MOF Change and Configuration Management SMF provides comprehensive guidance, MOF cannot prescribe the exactly right approach for a given organization. Change management is both an art and a science that is subject to many technical, policy, and cultural considerations. As noted in the introduction, change management is not a one-size-fits-all discipline.

The aim of this paper is to provide information and insight to help readers determine the right ways to apply standard changes to provisioned resources in their organizations.

## Standard Changes Defined

In MOF terms, a **change** is the addition, modification, or removal of approved, supported, or baselined hardware, network, software, application, environment, system, desktop build, or associated documentation. Changes result in a material change to at least one attribute of a configuration item (CI).

Configuration Items (CIs)   The role of the CI in change management is important to understand. CIs are IT components that represent the state of the production environment. A CI may have multiple attributes, each with its own value. The Windows® Registry is effectively a database of configuration items and their attributes. A configuration baseline represents the CIs associated to a given system at a specific point in time, and changes to baselines are commonly made, tracked, and potentially versioned through change management.

Change management is the process of controlling the deployment of changes, thereby reducing the risk of negative impact. One purpose of change management is to minimize drift between baseline and actual configurations by ensuring proper tracking of changed CIs, thus reducing the potential for erosion of service quality or availability.

For the purpose of this paper, it’s important to describe and distinguish a few different types of changes. Changes are commonly categorized by their scope and impact as illustrated in the table below.

Table . MOF Change Categories

| **Change Type** | | **Typical Scope/Impact** | **Approval** | **Example** |
| --- | --- | --- | --- | --- |
| Normal | Major | Corporate-wide or department-wide/ High impact | Advanced approval required | Release of a new business-critical application |
| Significant | Within a department/ Moderate impact | Advanced approval required | Upgrade of critical networking equipment |
| Minor | Within a workgroup/ Low impact | Advanced approval required | Installation of a new workgroup printer |
| Standard | | Single user/ Very low impact | Pre-approved | Setup of a user account |

Major, significant, and minor changes are all considered normal changes and require case-by-case approval for implementation.

Standard changes have the smallest scope and lowest impact of any change and are therefore pre-approved as a matter of policy. They meet the following essential criteria:

* Routine with low risk.
* Frequently performed.
* Easy to implement.
* Simple to back out.
* Well documented.
* Do not require case-by-case review.
* Pre-budgeted.
* Involved a material change to a CI.

As noted above, provisioning falls under the category of a standard change.

A comparison of the steps in processing normal and standard changes is pictured in Table 2.

Table 2. Comparison of Normal and Standard Change Processes

|  |  |  |  |
| --- | --- | --- | --- |
| Normal Changes | | Standard Changes | |
|  | Configurations are baselined for normal changes | Baselining is not needed for standard changes |  |
| Normal and standard changes require formal requesting, logging, and tracking. | |
| Normal changes are classified on a case-by-case basis. | Classification is pre-defined for standard changes |
| Normal changes are approved on a case-by-case basis. | Standard changes are pre-approved. |
| Normal changes require individual development and testing. | Standard changes are effectively pre-developed and tested. |
| Normal and standard changes are released according to established release policies and procedures. | |
| Normal and standard changes are validated and reviewed according to established validation and post-implementation review policies and procedures. | |

Configuration baselining, classification, approval, development, and testing are omitted for standard changes because standard changes are well-established, and these steps have already been performed.

Examples of standard change include:

* Provisioning a new VM to scale a production service where the system and applications are adhering to a governed baseline.
* Changing a system or application Microsoft System Center Operations Manager monitor threshold value to turn out false positive failures.

Standard changes offer several potential benefits:

* Standard changes are faster to deploy because they are approved in advance and require fewer steps in the change management process than normal changes.
* Because they don’t flow through the entire change management process, they alleviate some volume within the process, allowing participants to spend more time on higher-impact changes.
* The outcomes of standard changes are very predictable since they are well established, resulting in lower risk.
* Standard changes can often be implemented by less skilled resources since their steps are consistent and well documented.

### Service Fulfillment Requests

One variant of the standard change is the service fulfillment request. A service fulfillment request is an inquiry to gain access to additional features or services offered through the Service Catalog. They are pre-approved and typically come through and are fulfilled by the service desk. Examples of service fulfillment requests include:

* Remediating a functioning system or application that drifted from its published configuration baseline back to baseline.
* Adding a new user in an Active Directory® group or Exchange DL.
* Responding to requests for password resets relocation of desktop equipment, or other types of information.

### Comparing Standard Changes and Service Fulfillment Requests

To be clear, service fulfillment requests are standard changes because they meet the standard change criteria in the list above. However, there are two important differences between standard changes and service fulfillment requests as described in Table 3.

Table 3. Differences Between Standard Changes and Service Fulfillment Requests

|  |  |  |
| --- | --- | --- |
| Type | Result | Recording |
| Standard change | A material change to at least one attribute of a CI | Change log and CMDB |
| Service fulfillment request | No material changes to any CI attributes | Incident system |

The primary difference is the result: Standard changes result in a material change to a CI, and service fulfillment requests do not. As such, standard changes are recorded in the change log, and the resulting CI change is recorded the CMDB. Service fulfillment requests are usually logged in the incident system only.

There are policy implications to this small but important difference. Specifically, there may be a desire to handle certain standard changes through the service fulfillment request process for the sake of ease.

Depending on the workings of the specific service fulfillment request process, this approach may result in changes to CI attributes that are not reflected in the configuration management system—this may therefore cause drift between the actual environment and the configuration management system’s logical representation. It is therefore worth carefully evaluating candidate service fulfillment requests to ensure they do not materially change any CI attributes.

## Establishing Standard Changes

As noted, all standard changes begin as normal changes (minor, significant, or major). And only after a normal change has been thoroughly tested, deployed, and validated and the execution steps have been documented is it ready for consideration as a standard change. Approval of standard changes occurs through the organization’s change management process—in approving a normal change as standard.

A practical approach to establishing standard changes is as follows:

1. **Gather data**. The best starting point for identifying candidates for standard changes is to gather data from the organization. There are two sources of relevant data:
2. **Review past changes**. The change log will provide good empirical data on changes that have been processed regularly and/or have been rated as low risk.
3. **Brainstorm within individual teams**. Each team is likely to handle what they consider to be routine changes worthy of approval as standard changes.
4. **Establish criteria**. The change management process needs to include some criteria, however flexible, for standard changes. They don’t need to be absolute and can be adjusted over time, but it’s helpful to establish boundaries that set expectations. For example, criteria might include:
5. Thresholds for risk, cost, effort, or complexity.
6. Exclusions (for example, no standard changes on a specified business system).
7. Frequency (for example, changes can become standard after 5 successful implementations).
8. **Assess and approve candidates**. Data about past changes and the results of brainstorming need to be assessed against standard change criteria to identify legitimate candidates. Note that the approval of a change as a standard change has the effect of approving all subsequent instances of that change, so careful consideration is required in selection.
9. **Document decisions**. It’s essential to thoroughly document the approval decision for any standard change as well as to publish and keep an updated list of standard changes for the environment. This listing serves to confirm the current standard changes and to set the requester’s expectation regarding deliverables and schedule.

### Standard Change Considerations

The following are several things to consider as part of establishing a standard change approach:

* Standard changes work best in the context of an already sound change management process. The broader process ensures that those changes deemed standard are satisfactorily vetted before they become standard. An immature change process may not be equipped to deal optimally with standard changes.
* Like change management itself, establishing standard changes is part art and part science. There’s no absolute right and wrong when it comes to establishing criteria for standard changes or to approving changes as standard; what is right will vary by organization. These decisions will depend on the people involved, the criticality of the affected service(s), the complexity of the technology, and the comfort of the decision makers in the change management process.
* The experience associated with a candidate for a standard change doesn’t need to come from firsthand experience. Relevant experience in outside organizations may be substituted in cases where external experience is clear and compelling.
* Standard changes only become standard changes by formal approval through the change management process. Care should be taken to ensure changes are not deemed standard changes outside the change management process (for example, by individual teams that own them). Regardless of a team’s confidence, the approval process cannot be subverted.
* Standard changes must be monitored through the overall change management process to ensure they are performing as expected. Where they are not, remedial action needs to be taken, potentially including revoking the standard status and returning the change to normal. The process should also monitor normal changes that approach or meet standard change criteria to identify candidates for standard changes.
* It’s helpful to measure standard changes as a percentage of all changes. A high percentage of standard changes suggests a mature change management process and a consistent environment, with the effect that more time and effort can be allocated to higher-risk changes.

# Provisioning Resources

As already mentioned, provisioning is an example of an activity in which standard changes can be particularly useful.

## Provisioning Defined

**Provisioning** is the process of introducing new technology resources through standardized and automated methods. Provisioning begins with a user request and ends with the delivery of the requested resource in a “ready to use” state. Provisioning is one method of delivering standard changes.

The purpose of provisioning is to fulfill common and routine requests for new technology resources with optimal speed, quality, and consistency. Standardization and automation are extremely important to achieving these outcomes and, as such, commonly provisioned resources lend themselves to standardized and automated fulfillment methods. Provisioned resources usually exhibit the following characteristics:

* They are requested frequently.
* Fulfillment tasks are well understood and thoroughly documented.
* They don’t require approval on a case-by-case basis.
* The risk associated is low.

Examples of provisioned resources include:

* New network and computing devices.
* New virtual machine, storage LUN, or networking VLAN.
* New Hosting system—Windows Server® 2008 R2 DC Core with Hyper-V™.
* System Center Operations Manager sealed vendor monitoring pack for Windows Server 2008 R2.
* Custom System Center packs for Operations Manager, Configuration Manager, and Service Manager.
* Custom services, which includes web application, business system application, and database.
* New Active Directory OU for newly purchased or custom applications.

Provisioning has many potential benefits:

* Provisioning helps ensure new resources meet established configuration standards, thereby maintaining the security and privacy of enterprise resources and compliance with applicable regulatory requirements.
* Automation reduces opportunity for human error, reducing performance and availability issues.
* Standardization reduces cycle time, resulting in faster deployment of new resources.
* Because provisioning tasks are well established, tasks can be delegated reliably to less skilled resources.

Provisioning can theoretically introduce any combination of hardware, software, user objects, and services. Clients, servers, mobile devices, storage devices, network devices, and peripherals like printers and scanners are all candidates for provisioning. So too are items like user accounts, privileges, virtual servers, new management packs, and monitoring rules. Most organizations have many resources they provision on a daily basis.

The following is an example a provisioning process:

* New technology resources are orderable (and potentially customizable) through a standardized request process.
* Resources are based on standard configurations; for example, client types might include office worker, mobile worker, and executive, and server types might feature web, file, and application.
* Each request triggers a standardized workflow that may include everything from management approval of the request to procurement of necessary components to configuration, testing, and delivery of the requested item.
* This workflow may feature automated steps for either building and testing the resource or tracking its progress through the fulfillment process.

While this example suggests simplicity, provisioning certain resources actually may be complex. In the case of servers, provisioning will likely involve many individual steps, which may cross organizational boundaries. Streamlining this complexity requires effective coordination and proper timing in addition to standardization and automation.

## Applying Standard Changes to Provisioned Resources

Because standard changes provide a means of dealing consistently and efficiently with routine requests, they are well suited to handling provisioned resources. In organizations with ad hoc or informal provisioning processes, standard changes can help streamline fulfillment, promote consistency, ensure effective tracking, and enhance overall quality.

### Identify Changes and Service Fulfillment Requests

As illustrated previously, provisioned resources will divide into standard changes and service fulfillment requests. The implications of this are important to remember: Service fulfillment requests will not result in material modifications to CIs and therefore will not flow through the change process; standard changes will result in material modifications to CIs and therefore must observe the change process, including recording in the change log and updating the configuration management system. Therefore, one of the first decisions to be made when contemplating standard changes for provisioned resources is to determine which resources truly qualify as changes and which will be handled as service requests. Consider the following examples listed in Table 4.

Table 4. Examples of Standard Changes

| Resource | Is it a change? |
| --- | --- |
| New physical server | Yes, because it introduces new CIs. |
| New virtual server | Possibly, depending on how VMs are handled in terms of CIs. |
| New SharePoint site | Probably not, because it doesn’t materially change defined CIs. |
| Windows Server patch | Very likely, assuming that operating system patches are tracked as attributes to CIs. |
| New distribution list in the Exchange address book | Probably not, because it doesn’t affect a CI. |

| Resource | Is it a change? |
| --- | --- |
| New monitoring rule in System Center Operations Manager | Probably not, because it doesn’t affect a CI. |
| Relocating a physical server | Potentially, assuming the server’s physical location is a CI attribute. |
| Adding a rule to a firewall | Probably not, because it doesn’t affect a CI. |

These examples demonstrate how CI variability makes it difficult to draw an absolute line between changes and service fulfillment requests. Defining CIs is itself a substantial undertaking and one not covered thoroughly in this paper.

The composition of CIs will affect strategies for all changes, standard and normal. The more granular the CI, the more likely it is that operations activities will modify CI attributes and thus increase the likelihood that these activities will involve changes. Therefore, part of the strategy in defining CIs involves deciding what an organization really wants to control through change management—similar to how part of the strategy in change management is to determine what constitutes material changes to CIs.

Resources that don’t qualify as standard changes can be provisioned similarly to standard changes, although they will not be recorded in the change log or reflected in the configuration management system.

### Establish and Catalog Configuration Standards

To the degree they don’t already exist, configuration standards or baselines must be established to facilitate requests and to avoid propagating inconsistent resources. Depending on the resource, this step may entail architectural review and approval.

Standardized resources available for request should be documented and published to the organization—effectively a catalog of orderable resources. These resources may feature options that fall within configuration standards and therefore within the scope of a standard change. The availability of these pre-approved resources should create incentives for requesters to stay away from customized requests, thereby enhancing consistency and reducing the volume of normal changes.

### Develop Fulfillment Tasks and Policies

As a standard change, the process of building and deploying a provisioned resource should be well known and should also be well documented. For execution by the provisioning process, tasks should also be highly standardized and, wherever possible, automated.

Every orderable resource should have a set of documented fulfillment tasks that outline how the resource should be built, configured, tested, and delivered. This should include automation methods and tools (for example, scripts, images, and so on).

It is very important to determine and assign the group(s) responsible for fulfilling these requests. These groups must be adequately equipped with documentation, tools, policy information, and training to ensure they can respond promptly, efficiently, and properly to requests.

In cases where fulfillment spans multiple groups, the workflow should be documented with ownership of individual tasks and deliverables clearly assigned and quality gates made clear. For example, a new server may require the purchasing team to procure the hardware, the data center team to configure the server and install it in the rack, and the network team to establish connectivity. Each team must understand the work it needs to do, the corresponding work products, and the criteria for acceptance by the subsequent team. It is also important to determine which group is on point to liaise with the requester in the event further information is needed or issues arise in completing the request.

### Set Up Request Policies

While standard changes are pre-approved by policy, there may be limits on who can request them. For example, it is sensible and practical to have limits on who (individual or role) can request resources based on budgetary, security, privacy, or compliance impact. These policies need to be published for reference by both requesters and those groups responsible for fulfilling requests. It may also be useful to establish quantity thresholds—a request for an item in quantity (for example, 20 servers) may in some cases be better handled as a small project depending on the size of the organization.

### Set Up a Fulfillment Process and Policies



Figure 2. Fulfillment process sequence

A provisioning process will typically feature the following six steps, the overall duration of which will vary depending on the complexity of the resource, the work involved, the automation of the process, and the availability of components.

These steps are outlined below:

1. **Request**. To ensure satisfactory fulfillment of the request, a formal request procedure is needed to capture all necessary information from the requester. This could be accomplished manually (that is, a Word document or Excel spreadsheet) or through built-in request functionality in a tool like System Center Service Manager.

The ordering process should make it as easy as possible for requesters to:

1. Identify themselves and their contact details.
2. Review and select available resources and options.
3. Confirm the delivery date for the resource.
4. Confirm any conditional approvals to which the request is subject.
5. **Dispatch**. Completed requests need to be dispatched to the group(s) responsible for fulfillment. An automated process can deliver the request to the group(s) responsible; manual dispatch may be needed at the group level to assign the request. Each request should be reviewed for completeness and validity (that is, the requester’s permission to request the item) and any missing information obtained or the validity of the request confirmed. When the request is determined to be complete and valid, it can be recorded in the change log and fulfillment can proceed. Provisioned items that are not changes should be logged in the appropriate system (likely the service desk tool).
6. **Prepare**. Preparation includes ensuring the target environment for the resource is adequate and confirming the availability of all components needed to fulfill the request. This might include:
7. Confirming space, power, and connectivity.
8. Confirming adequate software licensing.
9. Confirming the availability of hardware, either from a pool or through purchase.
10. Procuring any unavailable components.

All work completed should be logged in the request record.

1. **Build**. Building includes executing all manual and automated tasks required to deliver the resource in the ready-to-use state. The resource is configured in accordance with established architectural standards and with any selected customizations. All work completed should be logged in the request record.
2. **Test**. Testing follows a standard set of procedures to ensure the resource performs as expected. Testing should be appropriately documented, attached to and/or recorded in the request record, and available to the requester.
3. **Deliver**. Delivery includes any further work required to deploy the resource in a ready to use state (for example, physical installation in its permanent location). This step also includes notification to the requester that the resource is available, updating the request record accordingly, and updating the configuration management system to reflect new and/or modified CIs resulting from the request.
4. **Tracking**. Tracking is needed throughout the entire provisioning process to ensure that relevant SLAs are met and bottlenecks are avoided. Ideally, the change log will offer adequate functionality to record all work performed throughout the process, highlight requests at or near SLA breach, and put requests in a wait state in cases where the SLA can be lifted (that is, awaiting further information from the requester). Monitoring of in-progress requests is typically done at the group level.

# Relating Change Types to Processes



Figure 3. Relating changes and requests to fulfillment processes

As illustrated in Figure 3 above, different change types are delivered by different processes.

Table 5. Examples of Change or Request Types

| Change or request type | Examples |
| --- | --- |
| **Service fulfillment requests** are handled exclusively by the request fulfillment process, usually within the Service Desk. These requests do not create a new CI or materially change an existing one. | * Setting up a user to receive System Center management reports, monitoring alerts, and requests (for example, from Operations Manager, Configuration Manager, or Service Manager). * Adding a new user to specific Active Directory OU or Exchange (mail) DL. |
| **Standard changes** may be handled through the provisioning process if they involve the introduction of a new resource or through the relevant steps of the change management process if they involve a change to an existing resource. They are typically handled by specialist teams outside the Service Desk. Standard changes result in the creation of a new CI or the material change of an existing one. | * Provisioning a new VM to scale a production service—system and applications are adhering to a governed baseline. * Changing a single or set of system or application System Center pack monitors, alerts, or desired configuration or baseline CIs as part of a tuning and stabilization effort. |
| **Normal changes** are handled through the change management process. They are typically handled by specialist teams outside the Service Desk and always result in the creation of a new CI or the material change of an existing one. | * Adding a new vendor or custom System Center pack to the management system (Operations Manager, Configuration Manager, or Service Manager). * Changing a vendor set CI in the baseline: the change of Microsoft’s default value for Windows Server 2008 for “Maximum password age” (42 days) to the custom desired values of 90 days. * Self-provisioning a temporary lab system for testing or training (for example, using VSTS Lab Manager). |

# Call to Action

Change management is an essential and sometimes intricate process whose planning and execution require much care and consideration. Within change management, standard changes are a valuable tactic for streamlining operations while still achieving the desired outcomes of the overall process. Commonly provisioned resources are an ideal target for standard changes.

As you get started with standard changes in your organization, consider the following actions:

1. Assess the soundness of your overall change management process. Consider the operational and cultural fit of standard changes. Will they represent a significant departure from the norm? How will they be perceived?
2. Examine your approach to configuration management. Consider how your strategies for defining and managing CIs will affect standard changes.
3. Gather data—empirical and anecdotal—about potential standard changes to determine the volume and nature of standard change candidates. Project the potential workload reduction through introducing standard changes. Look for problems with consistency and manageability, which might be reduced through standardization.
4. Look specifically at your approaches to provisioning and assess the impact of applying standard changes to those resources.

## Feedback

Please direct questions and comments about this guide to [satfdbk@microsoft.com](mailto:satfdbk@microsoft.com).

# Acknowledgments

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