IT Governance Center

Integrating Mercury™ Project Management with Microsoft® Project

Introduction:

This paper describes the built-in capabilities of Project Management to integrate with Microsoft Project 98, 2000, 2002 Standard, and 2002 Professional. Expanding on the standard product documentation, this paper helps Project Managers gain a more detailed understanding of the integration process. Major topics include an overview of how the integration works, how to select an appropriate synchronization mode, and answers to frequently asked questions (FAQ) about integrating Project Management with Microsoft Project.

This paper assumes that readers have a good understanding of both Project Management and Microsoft Project. Before reading this paper, please familiarize yourself with the standard product documentation on the integration process, found in the "Integrating Project Management with Microsoft Project" chapter of *Managing Your Projects*. Topics such as system requirements and setup steps are covered in the chapter. If you are a newcomer to Microsoft Project, you will also want to review introductory documentation on Microsoft Project.

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1. How the Integration Works

To provide an understanding of the basics of the integration process between Project Management and Microsoft Project, the following sections describe:

- How projects in one application are associated with projects in the other application

- Mapping of fields between the two applications

- Different synchronization modes used during integration

1.1. Project-to-project Association

Each Mercury ITG master project is associated with a particular Microsoft Project file throughout the project life cycle. This association starts when one project is used to create the other project. This can happen in either direction - the Microsoft Project file can be imported as a new Project Management master project, or a Mercury ITG master project can be exported into a new Microsoft Project file. The Project Manager periodically brings the association up to date by synchronizing the two projects with each other.

At this high level, the integration is similar to using the Windows briefcase to synchronize local files on a laptop computer with the reference copies on a network drive, or to synchronizing a PDA device (such as a Palm Pilot) with its desktop application. There is a persistent relationship between information on each side of the integration, but the information on both sides is only brought up to date when the synchronization is run.

Note that this is a one-to-one association. Since the Mercury ITG Center is a distributed application (as opposed to a desktop application like Microsoft Project) there are some subtleties to this relationship. Each Mercury ITG project is associated with a particular Microsoft Project file at a particular directory location. This can either be a location on the local hard drive or a location on a shared network drive, but there is always a specific location and Microsoft Project filename associated with each Mercury ITG project.

1.2. High Level Data Map

Table 1 provides a high-level summary of the way in which the integration maps information between projects in the two applications. The Project Management field names are shown with their corresponding field names in Microsoft Project. Any additional information that would be useful to a Project Manager, especially in the treatment of project actuals by Microsoft Project, is in the Notes column of the table. See "Tracking Project Actuals through the Integration" later in this document for more information.

Table 1 Mapping Fields Between Project Management and Microsoft Project

Project Management field	Microsoft Project field	Notes
Planning information		
Task name	Task name	
Sub-project name	Task grouping name	
Resources	Resources	Microsoft Project resource names are matched with Mercury ITG user accounts.
Predecessors	Predecessors	For standard (finish-to-start) predecessor relationships.
Constraint type/date	Constraint type/date	For the constraint types supported by both applications.
Scheduled start date	Start	
Scheduled finish date	Finish	
Scheduled duration	Duration	Microsoft Project recalculates Duration from the Start and Finish dates.
Scheduled effort	Work	Days of scheduled effort are converted to hours of work using the Microsoft Project setting for "Hours per day" in Tools-Options-Calendar.
Scheduled effort/Resource Assignment	Work/Resource Assignment	For tasks with more than one assigned resource, the portion of the effort (work) assigned to each resource is synchronized.
Milestones	Milestones	Milestones imported from Microsoft Project must be manually set to 100% Complete. Milestones exported from Project Management behave normally in Microsoft Project.
Actuals information		
Percent complete	Percent complete	Microsoft Project is configured by default to equate Percent Complete and Percent Work Complete.
Actual start date	Actual start	Microsoft Project defaults Start to Actual Start when this date is known.
Actual finish date	Actual finish	Microsoft Project defaults Finish to Actual Finish when this date is known.
Actual duration	Actual duration	Microsoft Project recalculates Actual Duration from the Actual Start and Actual Finish dates.
Actual effort	Actual work	When any effort metric is tracked in Project Management, the default link in Microsoft Project between Percent Complete and

		Percent Work Complete is disabled.
Estimated finish date	Finish	Microsoft Project does not track an Estimated Finish as a distinct field from the scheduled Finish. The Baseline feature can be used to capture the original Finish date for variance reporting purposes.
Estimated remaining duration	Remaining duration	
Estimated remaining effort	Remaining work	

1.3. Synchronization Modes Explained

When the Project Manager performs a synchronization, information in the Mercury ITG project is used to bring the Microsoft Project up to date, and vice versa. But what information is used, and how? The answer depends on the synchronization mode selected for that Mercury ITG project.

To understand what a synchronization mode means, we need to understand the way that the integration categorizes project information. This is because the synchronization mode determines what will happen to each category of information during the synchronization. The integration classifies project information into the four categories described below. A summary of categories by synchronization mode is provided in Table 2.

1.3.1. Information Specific to either Project Management or Microsoft Project

The first two categories are information that is distinct to either Project Management or to Microsoft Project. For instance, a task in Project Management can contain references to other Mercury ITG information, such as Requests and Packages. There is no equivalent type of information in Microsoft Project. Conversely, the resource cost rates in a Microsoft Project file have no equivalent in Project Management.

All synchronization modes treat these two categories of information in the same way: the information is not altered. If the information existed prior to the synchronization, then the synchronization will not change or delete the information. The exception to this rule is when a task is deleted during the synchronization. In that case, all information associated specifically with that task will be deleted.

1.3.2. Information Shared in Common by Project Management or Microsoft Project

The remaining categories consist of information that is tracked by both applications. These are project planning information and project actuals information. This shared information is handled differently depending on the synchronization mode selected.

The project planning information is the information determined before work begins on a task. This category includes the names, sequence, and level of indenture of subprojects (task groupings) and tasks (the work breakdown structure.) Planning information also includes the assigned resources, scheduled start and finish dates, scheduling constraints, and the scheduled duration and scheduled effort.

Project actuals information is the collection of metrics detailing how much time and effort are actually required to complete tasks. This category includes actual start and finish dates, actual durations of tasks, and actual effort. Actuals information also includes each of the related estimated total and estimated remaining values: percent complete, estimated finish date, estimated effort remaining, etc.

1.3.3. Categories of Information by Synchronization Mode

Table 2 summarizes how each category of information is treated during the synchronization. The *Managing Your Projects* chapter entitled "Integrating Project Management with Microsoft Project" explains in detail how the Project Management interface changes, depending on the synchronization mode, to support the flow of information between the two projects.

Table 2 Categories of Information by Synchronization Mode

	Project Management controlled	Project Management controls actuals	Microsoft Project controlled
Information in Project Management only	Not altered	Not altered	Not altered
Information in Microsoft Project only	Not altered	Not altered	Not altered
Planning information	Project Management information used to update Microsoft Project	Microsoft Project information used to update Project Management	Microsoft Project information used to update Project Management
Actuals information	Project Management information used to update Microsoft Project	Project Management information used to update Microsoft Project	Microsoft Project information used to update Project Management

2. Choosing the Right Synchronization Mode

Not all Project Managers will want to use Project Management and Microsoft Project together in the same way. The integration process offers a choice of three synchronization modes.

Each Mercury ITG project can have a different synchronization mode. This allows each Project Manager to use the interface differently, or even for a single Project Manager to manage two projects differently.

On the other hand, there are benefits to an organization from standardizing on the use of synchronization modes. For instance, if all projects are synchronized with Microsoft Project in the same manner, external stakeholders can have the same expectations about the timeliness of the project information presented in the Mercury ITG Dashboard.

The following examples illustrate different methods of integrating the two applications with different synchronization modes, depending on the strategy adopted by the Project Manager.

2.1. Plan a new Mercury ITG project based on a previous Microsoft Project plan

A Project Manager who is planning a new project may want to create the plan using Project Management, but use a previous project as a starting point. The Project Manager can use the integration to import this old Microsoft Project file. When importing the project, the Project Manager should select the 'Project Management controlled' synchronization mode since all subsequent project planning will be performed inside Project Management. The new Mercury ITG project will be placed in the 'Plan' project state, and the Project Manager can rework the project as desired.

Planning the project in Project Management gives the Project Manager an opportunity to become familiar with the Project Management features that will be new to him or her, such as task states and references from tasks to Demand Management Requests. If the Project Manager wants to see or present the project in the familiar Microsoft Project views, the modified plan can be exported back to Microsoft Project by synchronizing in 'Project Management controlled' synchronization mode.

2.2. Gradual conversion - display active projects in the Mercury ITG Dashboard

For active projects, a Project Manager may want to make a gradual transition to Project Management. If the stakeholders and participants are not yet familiar with Mercury ITG, this is usually the best choice. When importing the project, the Project Manager will select the 'Microsoft Project controlled' synchronization mode. This means that the project plan will be presented to stakeholders and participants in the Mercury ITG Dashboard, but Project Management will not allow the project plan or actuals to be directly modified through Project Management.

After importing the project, the Project Manager should review the synchronization report to see if any parts of the project plan will need special attention for conversion. This is also a good opportunity to familiarize participants and stakeholders with the presentation of the project in the Mercury ITG Dashboard, and to make any desired adjustments to the configuration of the Mercury ITG project. The Project Manager can synchronize the project as often as required to bring Project Management up to date with changes made in Microsoft Project. The Project Manager can also change the synchronization mode to one of the other available modes, once participants are prepared for the transition. The other synchronization modes are discussed in the following sections.

The interface attempts to match Microsoft Project resource names to Mercury ITG users in three different ways. The order of precedence of resource mapping is username, then full name in "First Last" order, and finally full name in "Last First" order. (Note that Microsoft Project does not allow resource names containing the comma character.)

This order of precedence means, for instance, that when a resource name matches a Mercury ITG user by username, the interface does not attempt to match by full name.

If the Project Manager has made any typographical mistakes, these will be detected during the import and presented in the list of unmatched resources. The Project Manager can correct resource names in the Microsoft Project resource sheet view. Resources who are not yet defined as Mercury ITG users will also be presented as unmatched resources. The Project Manager can print this list and ask the Mercury ITG Administrator to create these user accounts.

2.3.   Convert active projects from Microsoft Project to Project Management

If stakeholders and participants are familiar with Project Management, the Project Manager can transition all project planning and tracking to Project Management. The Project Manager can also decide to transition only the tracking of actuals to Project Management.

To transition the tracking of actuals to Project Management, the Project Manager will select the 'Project Management controls actuals' synchronization mode. This means that project participants, in addition to seeing their task assignments, can enter actuals for these tasks using Project Management. Project Management will not allow the project plan (structure, schedule dates, etc.) to be modified through the Project Management interface.

A project manager who is managing a project using the 'Project Management controls actuals' synchronization mode for the first time will want to collect only a few actuals. Collecting only a few fields mitigates the risk of mistakes while the Project Manager and resources are becoming familiar with both the integration and a new way of tracking project work in real time. More actuals fields can be enabled in Project Management later.

The Project Manager may instead choose to transition all activities into Project Management immediately. In this case, the Project Manager will import the project using the 'Project Management controlled' synchronization mode. The integration recalculates the durations of each task, keeping the start and finish dates the same, to reconcile with Project Management base calendar and resource calendars. This recalculation prepares the project to be rescheduled using the Project Management duration-based scheduling algorithm. The project will initially be placed in the 'Plan' project state. Once the Project Manager has visually compared the converted project to be sure the dates are correct, the project should be moved to the 'Active' state.

2.4.   Augment Microsoft Project with the Mercury ITG Dashboard

Some Project Managers who are accustomed to planning and tracking projects using Microsoft Project will want to continue to do so. This strategy is similar to that of gradually

converting from Microsoft Project to Project Management, but in this case we consider those Project Managers who do not wish to eventually make a full conversion. These Project Managers can leverage the Mercury ITG Dashboard as a way to publish project information to stakeholders and resources. By importing their Microsoft Project file into Project Management, the Project Manager automatically present project overviews and task assignments to interested parties.

When using the integration in this way, the Project Manager may need to set stakeholders' expectations about project information in the Mercury ITG Dashboard. Unlike projects controlled by Project Management, the project status information presented in the Mercury ITG Dashboard will not always be current. For example, the Project Manager could collect and enter project actuals into Microsoft Project on a weekly basis, and then synchronize the projects. This means that the project information presented in the Mercury ITG Dashboard may be up to a week out of date. Project Managers may want to make sure that stakeholders have appropriate expectations to avoid miscommunications.

Using this strategy, Project Managers do not want to allow project resources to enter actuals directly. The Project Managers prefer to collect actuals information from their resources (verbally or by email) and then enter that information into Microsoft Project personally. Likewise, the Project Manager will not want to allow changes to the project planning information in Project Management.

To enforce these constraints, the Project Manager selects the 'Microsoft Project controlled synchronization' mode when importing the Microsoft Project file into Project Management. The previous discussion of resource naming and matching (in the conversion strategies) applies to this strategy also.

2.5. Augment Microsoft Project by Collecting Simple Actuals with Project Management

A Project Manager may want to use advanced Microsoft Project planning functionality (resource leveling with a shared resource pool, for instance) while providing real time visibility to stakeholders and collecting actuals directly from resources. The 'Project Management controls actuals' synchronization mode supports this style of integration.

When starting to use the 'Project Management controls actuals' synchronization mode, a Project Manager should try to "keep it simple" by enabling only a few straightforward actuals fields to be collected through Project Management. Resources should be asked to focus on updating the state of their Project Management tasks from "Ready" to "In Progress" and then to "Complete" in a timely manner. If early or late starts and finishes are common, the Project Manager may choose to enable these actual fields, to allow resources to directly communicate when work actually occurred. If these are uncommon events, the Project Manager may prefer to track these exceptions personally by changing the start and finish dates in Microsoft Project, avoiding the possibility of resources entering incorrect dates as they learn to use a new way of project tracking.

The 'Tracking Project Actuals through the Integration' section of this paper discusses in detail why keeping it simple is a good way to start, but we offer a few of the highlights here. First, few resources will be accustomed to reporting their progress in a timely fashion. Further, although a Project Manager is used to thinking about tasks in terms of the time or duration worked, percent complete, remaining work, and so forth, most resources will not be as familiar with these concepts. These metrics have nuances with which the Project Manager is familiar (for instance, is percent complete a duration or effort metric? Does actual duration include non-working days?) The Project Manager will want to be judicious in planning how many of these concepts to introduce, and how quickly.

2.6. Augment Microsoft Project by Collecting Complex Actuals with Project Management

Once the Project Manager has become familiar with how the integration operates in the 'Project Management controls actuals' synchronization mode, and has educated the Project Team on how to understand and report task actuals, the Project Manager may want to collect a richer set of actuals. Many actuals, such as actual work performed, are a key to understanding performance and making progressive improvement.

In addition to the observations in the previous section about how to begin working in the 'Project Management controls actuals' synchronization mode, the Project Manager will want to review the later section of this paper on tracking actuals through the integration. A guiding observation to keep in mind is this: through the integration, resources entering actuals into Project Management will behave in a very similar fashion to the Project Manager typing the same information directly into the associated field of Microsoft Project.

Microsoft Project offers a wide range of actuals fields, which are tightly interrelated by automatic data integrity rules. Most Project Managers do not take the time to completely learn all of these automatic data integrity rules. Instead, they learn how to track the information that matters to them by making entries into only a few fields. When using the integration to track actuals through Project Management, these are probably the fields that the Project Manager will want to enable in the Mercury ITG Dashboard.

3. Answers to Frequently Asked Questions

This section of the document answers many of the questions and problems that may occur when integrating Project Management with Microsoft Project. You will probably encounter only a few of these questions in any particular implementation. Some questions address cases where the operation of the integration depends on detailed functionality in one of the two applications that users infrequently encounter.

3.1. General

General questions, including those that relate to several synchronization modes or business scenarios, are part of this category.

3.1.1. How does Project Management communicate with Microsoft Project?

Project Management communicates with Microsoft Project using the COM interface. COM is a standard capability of Microsoft Project that is used by other applications to access or change information in a Microsoft Project file. There is no special installation required to enable COM connectivity, other than simply installing Microsoft Project on the computer where the integration activities will be performed.

3.1.2. Does the interface update Project Management or Microsoft Project custom fields?

Although both Project Management and Microsoft Project have custom field functionality, the two features have significant functional differences. Currently, this information is not exchanged during synchronization in either direction. The interface does not alter information of this type contained in either project.

3.1.3. Does the interface update Project Management or Microsoft Project task notes?

Although both Project Management and Microsoft Project have task notes functionality, the two features have significant differences. Currently, this information is not exchanged during synchronization in either direction. The interface does not alter information of this type contained in either project.

3.2. How Project Management information is exported into Microsoft Project

Questions in this category are related to how the information in a Mercury ITG project is represented after being exported into a Microsoft Project file. The information can either be exported, or sent out during a later synchronization of changes to the Mercury ITG project. Most answers in this section apply to the 'Project Management controlled' synchronization mode.

See "Tracking Project Actuals through the Integration" for more information about how actuals are handled in the 'Project Management controls actuals' synchronization mode.

3.2.1. How are Project Management predecessor relationships exported?

All Project Management predecessor relationships are exported. The master project in Project Management is sequence one, while the root task grouping in Microsoft Project is sequence zero. Because the two applications number the tasks differently, the exact predecessor numbers will all decrease by one in Microsoft Project. However, the relationships are identical.

3.2.2. How are Project Management scheduling constraints exported?

Both Project Management and Microsoft Project represent a scheduling constraint using two kinds of information: a constraint type and a constraint date. Some constraint types (for example, 'as soon as possible') do not require a constraint date. All Project Management scheduling constraints are exported to Microsoft Project.

3.2.3. How are Project Management references to Requests and Packages exported?

Unlike Project Management, Microsoft Project is not tightly integrated with Request management and deployment/change management products. Microsoft Project does not have a rich capability for managing references from a task to related work items.

Microsoft Project does have the capability to track a hyperlink (URL) for each task, and this capability is leveraged in the integration to provide a drill-down capability in Microsoft Project. Each Microsoft Project task grouping and task and is given a hyperlink to the corresponding page in the Project Management interface. Following the hyperlink will open either the subproject overview page or the task details page, respectively, in a new browser window. From this page all Project Management reference details are available.

3.2.4. Are all types of Project Management references allowed?

In the 'Project Management controlled' and 'Project Management controls actuals' synchronization modes, all types of references are allowed.

When a project is in the 'Microsoft Project controlled' synchronization mode, one type of reference is not allowed. This reference type is labeled 'task updated by request' when viewed from the task, and labeled 'request updates task' when viewed from the Request. References of this type indicate that the progress of the Demand Management Request through its Workflow determines the percent complete of the task. Since Project Management prevents users from altering task actuals on projects in this synchronization mode, it likewise prevents users from creating references of this type.

3.2.5. How are cancelled or bypassed Project Management tasks exported?

Microsoft Project has a simpler task state model than Project Management. For instance, in Microsoft Project all unstarted tasks share a common state. Microsoft Project does not clearly distinguish between tasks that are pending predecessors, tasks that are ready, and tasks in progress where no percent complete has yet been reported. This is a consequence of the assumption that task actuals are not entered into Microsoft Project in real time.

Microsoft Project also does not have distinct states to recognize tasks that have been cancelled or bypassed. When a cancelled or bypassed Project Management task is exported, the keyword 'Cancelled' or "Bypassed" is pre-pended to the task name in Microsoft Project to clearly indicate the task state.

Bypassed tasks are exported as 100% complete. If any actuals were reported, this information is also exported. The bypassed state indicates that some effort may have been spent, but that work was discontinued.

Cancelled tasks are exported as 100% complete and with zero duration. Microsoft Project automatically omits these tasks from the Gantt Chart view.

3.2.6. How can an unscheduled Mercury ITG project be exported to Microsoft Project?

Microsoft Project is usually used in the 'automatic' calculation mode. In this mode, when a predecessor or constraint is defined, tasks are immediately shifted to comply with the constraint. Project Management instead evaluates scheduling constraints selectively, when the Project Manager chooses to schedule all or part of the project. This means that the Project Manager may choose to leave the project dates out of compliance with a defined

scheduling constraint, instead of requiring the Project Manager to adjust the project plan definition to satisfy the tool.

In order to accommodate the Mercury ITG project information, the integration automatically places Microsoft Project into the 'manual' calculation mode. This change only occurs when exporting a project in the 'Project Management controlled' synchronization mode. In this calculation mode, Microsoft Project will not force the project dates to meet its scheduling rules for task relationships.

To later change the calculation mode of Microsoft Project, use the menu selection **'Tools** | **Options'** and select the **Calculation** tab.

3.2.7. Why are the scheduled dates in Microsoft Project sometimes different than in Project Management?

In Project Management, a task can have actual start and finish dates that are earlier or later than the planned dates. In Microsoft Project, on the other hand, these actual dates will override the respective scheduled dates. For example, if a task was scheduled to start on May 1st but is reported to have actually started on May 2nd, Microsoft Project automatically changes the task start date to May 2nd.

When Project Management tasks with actual dates are exported, Microsoft Project applies these rules are to the task data. For this reason the scheduled dates in Microsoft Project may not be identical to the dates in Project Management.

3.2.8. Are Project Management resource calendars exported?

Although resource assignments to tasks are exported, the calendars of these resources are not exported from Project Management.

You do *not* need to maintain resource calendars in both applications. Differences in resource calendars can result in discrepant task durations. (See the following question and answer for details.) The start and finish dates, however, will be accurate in the exported Microsoft Project file.

3.2.9. Why are task durations in Microsoft Project sometimes different than in Project Management?

When Project Management task data is exported, the highest priority is given to keeping the start and finish dates identical. In most cases, the duration will also be identical. However, Microsoft Project will always recalculate the duration of each task based on the start and finish dates and the Microsoft Project resource calendars. As a result, there may be some discrepancies.

Usually these discrepancies arise from differences in the resources calendars in the two applications. Note that Project Management resource calendars are not synchronized with Microsoft Project resource calendars. For example, the Microsoft Project duration would be longer if some of the intervening days were recognized as non-working time only in Project Management.

3.2.10. How are Microsoft Project resource units for task assignments determined during export?

In Project Management, each resource on a task may be assigned different hours of effort for that task. The total effort for the task is the sum of the scheduled effort values for each resource. For example, if Fred is assigned to work 12 hours on a task, and Barbara is assigned to work 8 hours on the same task, then the total task effort would be (12 + 8 =) 20 hours.

This representation of effort breakdown is slightly different than Microsoft Project's concept of "resource units". Following the same example, if both Fred and Barbara are full-time resources in Microsoft Project, then they might have 60 and 40 resource units assigned on the task, respectively (depending on the task's duration). But if Barbara is only a half-time resource in Microsoft Project, her resource units on the task would double (to 80), representing the same amount of work, which now takes a larger percentage of her capacity.

When exporting a project, the hours of effort for each assigned resource on a Project Management task is provided, and Microsoft Project automatically translates the value into the appropriate resource units for the assignment. If the resources involved are full-time resources in Microsoft Project, then their respective resource units for each task will be proportional to their respective assigned effort values on the corresponding Project Management task.

3.3. How Microsoft Project information is imported into Project Management

Questions in this category are related to how the information in a Microsoft Project file is represented after it is brought into Project Management. The information can be brought in either during an import, or during a later synchronization of changes to the Microsoft Project file. Most answers in this section apply to the 'Microsoft Project controlled' and 'Project Management controls actuals' synchronization modes.

3.3.1. Are Microsoft Project resource calendars and cost rates imported?

Although resource assignments to tasks are imported, the calendars and cost rates of these resources are not imported into Project Management.

You do *not* need to maintain resource calendars in both applications. The task durations resulting from the Microsoft Project resource calendars are maintained. These task durations are only recalculated to match the Project Management resource calendars when placing a project in the 'Project Management controlled' synchronization mode.

3.3.2. Are Microsoft Project resource units imported?

When importing a project, Microsoft Project automatically translates the resource units for each task assignment into real hours of effort. These effort values are then specified directly on task assignments in Project Management. (See section 3.2.10 for an examination of the difference between Microsoft Project's resource units and Project Management's hours of effort.)

3.3.3. Are Microsoft Project baseline dates imported?

Baseline information is not synchronized by the integration. The project baseline can be captured and maintained in either product, as the project manager prefers.

3.3.4. How are Microsoft Project predecessor relationships imported?

The most commonly used type of predecessor is a finish-to-start predecessor. This type of predecessor means that the preceding task must be finished before the successor task should start. Many Microsoft Project users never use any other type of predecessor.

Predecessors of this type are imported into Project Management. The root task grouping in Microsoft Project is sequence zero, while the master project in Project Management is sequence one. Because the two projects number tasks differently, the exact predecessor numbers will all increase by one in Project Management. However, the relationships are identical.

Microsoft Project also supports other types of predecessors that are infrequently used. These types of predecessors are not supported by Project Management, and will be omitted from the Mercury ITG project. The Mercury ITG project will preserve the dates calculated by Microsoft Project based on these predecessor relationships. Rescheduling the project in Project Management could change these dates.

3.3.5. How are Microsoft Project scheduling constraints imported?

Both Project Management and Microsoft Project represent a scheduling constraint using two kinds of information: a constraint type and a constraint date. Some constraint types (for example 'as soon as possible') do not require a constraint date. Both the constraint type and date are imported into Project Management.

Microsoft Project supports some scheduling constraints that are infrequently used: as late as possible, must finish on, and finish no earlier than. These scheduling constraints are one way to plan a project backward from an end date. These constraints are not supported by Project Management, and will be omitted from the Mercury ITG project. The Mercury ITG project will, however, preserve the dates calculated by Microsoft Project based on these constraints. Rescheduling the project in Project Management could change these dates.

3.3.6. How are split tasks imported?

Microsoft Project can schedule work on a task to start and stop several times. This is referred to as a split task. Task splits are usually automatically (and sometimes accidentally) created by the Microsoft Project resource leveling feature with settings that instruct Microsoft Project to split task work, instead of adjusting units.

Project Management tracks a task with a single start and finish date. When a split task is imported, the start date will be the start date of the earliest split, and the finish date will be the finish date of the last split. If the project is in either the 'Microsoft Project controlled' or 'Project Management controls actuals' synchronization mode, the imported duration will be identical to the Microsoft Project duration. In the 'Project Management controlled' synchronization mode, the duration will be recalculated to span from the earlier split start to the latest split finish date. In either case, the task split information in Microsoft Project will not be altered by the integration.

3.3.7. How does the integration work with Microsoft Project resource leveling?

Microsoft Project offers an automatic resource-leveling feature, which attempts to automatically resolve resource overallocations. Resource leveling calculates a 'leveling delay' for each task and adjusts the schedule dates accordingly.

A project can be scheduled in Microsoft Project using resource leveling and then imported or synchronized with Project Management. Only the leveled start and finish dates are imported into Project Management. Although the 'leveling delay' is not imported, Project Management will faithfully maintain the resulting schedule dates. Rescheduling the project in Project Management could change these dates.

3.3.8. How are lag or lead offsets on Microsoft Project predecessor relationships imported?

When a Microsoft Project predecessor relationship is defined to have a lag or lead (a positive or negative offset to the normal predecessor relationship) Microsoft Project will adjust the start and finish dates of the successor task accordingly. These adjusted dates are imported into Project Management. Although the lag or lead value is not imported, Project Management will faithfully maintain the resulting schedule dates. Rescheduling the project in Project Management could change these dates.

The only functional consequence is that the successor task will be recognized as 'Ready' to begin work exactly when the predecessor task is updated to a 'Complete' state, instead of at some time either before or after depending on the lag or lead defined. However, the My Tasks portlet in the Mercury ITG Dashboard displays tasks that are scheduled for the near future even if these tasks are still pending completion of a predecessor. Therefore, the resources will still have clear visibility to the upcoming work assignments.

3.3.9. Are Microsoft Project work contours or delayed assignments imported?

Microsoft Project allows task assignments to be further specified with a work contour or delayed start to work. Contoured or delayed assignments are imported into Project Management as simple assignments.

As an alternative, a Project Manager can create similar project plans by dividing the task into several sub-tasks that have distinct non-contoured assignments. This approach is often preferable since it gives clearer visibility from project views and is easier to explain to resources.

3.3.10. Will the import affect my macros and VB scripts?

Macros, VB scripts, or other extensions should not be affected by the integration. It may be necessary to disable some extensions of this type during synchronization, because the changes made using the Microsoft Project COM interface can trigger these extensions.

3.3.11. Will the import affect my use of a shared resource pool?

A project can be scheduling using a shared resource pool and imported into Project Management in the normal fashion. If the shared resource pool is not already open, the synchronization may pause when Microsoft Project presents a dialog asking whether you would like to open the shared resource pool. When this happens, shift to the Microsoft Project application and respond to the dialog. The synchronization will then be able to proceed.

3.4.   Troubleshooting

Because Project Management and Microsoft Project make conflicting assumptions about how to interpret data, integrating the two applications can result in the same data being presented differently from one application to the other.

This section addresses some of these points in the integration. It also describes how to troubleshoot any synchronization problems, should that be necessary.

3.4.1. How will importing a Microsoft Project file change the project?

Importing a project file into Project Management will make several minor changes to the Microsoft Project file. If the project is being fully converted to Project Management, then these changes do not need to be saved. However, if the Microsoft Project file will later be synchronized with Project Management, the changes must be saved so the integration can recognize the file correctly later.

During the import, all blank lines are deleted from the project. If blank lines were deleted, the synchronization report will contain a message to that effect.

Unlike Project Management, Microsoft Project allows a task to have dates and even actuals yet have no name. Tasks that do not have names will be given simple default names by the integration. The names and sequence numbers of any tasks changed in this way are listed in the Synchronization Report. The Project Manager will want to use the report as a reference, to give the previously nameless tasks more appropriate names than these defaults.

Lastly, each Microsoft Project task is given a hyperlink to the associated page in the Mercury ITG Dashboard. This hyperlink is placed in a standard Microsoft Project task field, 'Hyperlink URL.' If you have already place data into this field on some tasks, you should first copy the values in the Hyperlink URL field to a Microsoft Project custom text field (Text1, Text 2, etc.) Microsoft Project will automatically recognize the text as a URL and present it as a click-able link.

3.4.2. How does cutting and pasting affect the import process?

In Microsoft Project, if you cut and paste a task, you have effectively deleted it and created a new task with the same attributes. This is important, because the new task is not considered for purposes of synchronization to be the same task – the synchronization can't figure that out. If, instead, you select the task and then drag it to the desired position, it is still the same task.

If you're in doubt about the effects of edits in Microsoft Project (creating a new task, moving the existing task) you can show a column called "Unique ID". As long as the Unique ID value doesn't change, you are fine.

3.4.3. How is an unsatisfied finish-to-finish request predecessor exported?

When a Project Management task is a finish-to-finish predecessor of an open Demand Management Request, the task can be 100% complete but not fully finished. Tasks that are successors of this task will stay in a 'Pending Predecessor' state until the Request is completed.

When exporting tasks in this condition, the integration will report the task percent complete as 99% instead of 100%. This reduction indicates that although task work is essentially complete, the task is not yet fully complete due to the external reference.

3.4.4. How are finish-to-start and finish-to-finish request predecessors handled during import?

When a task has either a finish-to-start or a finish-to-finish request predecessor that is incomplete, some types of task updates are not blocked. For instance, a task that is pending a request cannot be marked as complete. Project Management enforces these constraints automatically.

Unfortunately, Microsoft Project does not similarly limit the actuals that can be entered. When synchronizing a project in the 'Microsoft Project controlled' synchronization mode, the integration checks whether the actuals brought in from Microsoft Project conflict with references of these types. If a conflict is found, it is reported as a warning in the Synchronization Report, and the warning is brought to the Project Manager's attention when the synchronization completes.

3.4.5. Why isn't Microsoft Project calculating roll-up values?

Microsoft Project allows you to choose between 'automatic' and 'manual' scheduling modes. Since automatic is the default, many users never discover that there is another choice. When Microsoft Project is in 'manual' scheduling mode, you must press the **F9** key to recalculate task grouping roll-up values. You will only want to do so, however, when you are not using the 'Project Management controlled' synchronization mode. Instructing Microsoft Project to schedule a project synchronized in this mode can make many changes to project dates.

For projects that are controlled in whole or in part by Microsoft Project, the Microsoft Project setting for "calculation mode" will be returned to the original setting at the end of the synchronization. For exports, the setting for the new Microsoft project is set to the "Automatic" option explicitly. When exporting or synching a "Project Management controlled", the Microsoft Project calculation mode is always set to the "Manual" option.

3.4.6. How did Microsoft Project get into manual scheduling mode?

There are two likely possibilities.

- If you created this Microsoft Project file by exporting a Mercury ITG project, then the integration turned off automatic scheduling functionality. This allows the integration to set the dates on Microsoft Project tasks to match the Project Management dates (instead of allowing Microsoft Project automatic scheduling to immediately revise the dates.

- If you opened a Microsoft Project file that was in manual mode and then created a new Microsoft Project file, Microsoft Project may have carried over this scheduling setting as a default.

3.4.7. Why did synchronizing actuals change the scheduled dates in Microsoft Project?

Microsoft Project automatically reschedules the project in response to the actual dates from Project Management. The following notes summarize the interaction. See "Tracking Project Actuals through the Integration" for more information.

When you synchronize projects in the 'Project Management controls actuals' synchronization mode, information is transferred in both directions. First, the Project Management actuals are applied to Microsoft Project. Second, the Microsoft Project schedule dates are applied to Project Management.

When a task is updated with actuals, Microsoft Project checks whether the scheduled dates and durations are consistent with the actuals. If Microsoft Project finds any discrepancies, it automatically reschedules the task to correct the problem. You will observe the same behavior if you type in the actuals manually.

When the synchronization applies Project Management actuals to the tasks in Microsoft Project, it is likely that Microsoft Project will implicitly adjust some of the schedule dates. There is no way to turn off that feature of Microsoft Project. For that reason, you should always take a careful look at the active portions of your project in Microsoft Project after the synchronization is complete.

3.4.8. How can I synchronize a Microsoft project in a SQL Server database?

In order to synchronize a project with Project Management, the project needs to be in a file format (preferably the binary MPP file format.) To synchronize with a project stored in an ODBC source like a SQL Server database, you should first open to project from the remote source and use the Microsoft Project "Save As ..." feature to save the project to your local computer. After you have synchronized with Project Management, you can save the local file back to the ODBC source if you wish.

3.4.9. Why are the actual durations of some task groups not imported into Project Management?

Project Management and Microsoft Project do not have the same functionality for the actual durations of task groups or subprojects that are still in progress. Microsoft Project presents the actual duration to date as a tentative figure. Project Management waits until the entire subproject is complete to present a rolled-up total. When the task grouping is complete, Project Management will display the same actual duration value.

The explanation above applies to the 'Microsoft Project controlled' and 'Project Management controls actuals' synchronization modes. In the 'Project Management controlled' synchronization mode, there is a simpler explanation. When a project is initially imported in this mode, it is placed in the "Plan" project state. Roll-up values, like exceptions and other indicators, are calculated when the Mercury ITG project is changed to the 'Active' project state and saved.

3.4.10. Why is the Microsoft Project start date of a task group sometimes later than some tasks?

When using the 'Project Management controlled' synchronization mode, the start date of a task group may not be the earliest start date of all tasks within that group. This is a side effect of the integration placing Microsoft Project in 'manual' calculation mode, which stops Microsoft Project for recalculating the Project Management schedule dates. In 'manual' calculation mode, Microsoft Project does not automatically roll up dates to task groups. When the Project Management scheduled start date for the subproject is later than the actual start dates of some tasks (because a task was started early, for instance), Microsoft Project will correct the scheduled start dates of the tasks but not of the task group.

3.4.11. Why did exporting an estimated finish date from Project Management create a constraint?

Unlike most Project Management actuals, there is no corresponding Microsoft Project field for the estimated finish date. The closest match available is the scheduled finish date, since in Microsoft Project the start and finish dates are automatically updated to reflect actual dates and estimates as these become available.

When a specific value is entered as the finish date in Microsoft Project, the application assumes that the task should also be constrained to finish exactly on that date. When the integration updates the finish date of a Microsoft Project task to match a Project Management estimated finish date, Microsoft Project implicitly creates a finish-no-earlier-than constraint with this same date.

The integration detects these new constraints and reports them in the Synchronization Report. When these dates are on time or early, the constraint should not cause a problem. When the estimated finish date is late, the Project Manager will want to remove this constraint when revising the plan in Microsoft Project, or the constrained task will not reschedule forward.

3.4.12. Can I automatically create Mercury ITG user accounts for unmatched resources?

The integration does not currently have this capability. The Project Manager should save or print out the list of unmatched resources generated by the integration, and work with the Mercury ITG Administrator to create these user accounts.

3.4.13. What do I do if the synchronization hangs?

The synchronization can sometimes appear to be stuck because Microsoft Project has raised a warning dialog. These are usually warnings about scheduling conflicts.

When this happens, the Microsoft Project button in the Windows task bar at the bottom of the screen should flash, as a signal that the application needs attention. To get the synchronization moving again, go to the Microsoft Project file and dismiss the warning dialog.

In some cases, the synchronization will continue. For instance, when a warning message about use of a shared resource pool is presented, simply select the option **Do not open other files** and click **OK** to close the dialog. The synchronization will proceed.

However, sometimes the synchronization will fail with an error message after a Microsoft Project warning dialog is presented. In some cases, it can be unclear what scheduling constraint is objectionable. The constraint can even be in another open Microsoft Project file. If this happens, you should close all open Microsoft Project file files and close the Microsoft Project application before restarting the integration. Allowing the integration to start Microsoft Project with only the single project open gives the integration a clean starting point and resolves the vast majority of problems.

When you first start using Microsoft Project 2000, Windows offers "helpful" hints when it sees you doing the same operation repeatedly (for instance, typing the same duration value manually on several tasks in a row) to explain how to use a power-user editing feature. Unfortunately, the synchronization cannot differentiate these dialogs from error messages, and this behavior will therefore halt the synchronization.

Most users will not encounter this problem, because the dialogs have a "don't tell me about this again" checkbox. Once checked, the dialog will not pop up again, and thus the synchronization can succeed. Users are most likely to encounter this problem when they get a new copy of MS Project (on a new computer, for instance) and are again presented with these help dialogs.

3.4.14. How is task duration recalculated when a Microsoft Project plan is imported?

The Duration displayed in an imported Mercury ITG project depends on the synchronization mode chosen during the import.

In the two synchronization modes where Microsoft Project controls the schedule ('Microsoft Project controlled' and 'Project Management controls actuals') the task duration shown in Project Management is identical to the duration in Microsoft Project.

In the 'Project Management controlled' synchronization mode, the interface needs to recalculate the durations during import to reconcile the dates to the Project Management resource calendars. This prepares the project to be scheduled using the Project Management duration-based scheduling algorithm.

You will see two types of changes to the durations. First, if the non-working days indicated in the Microsoft Project calendars and Project Management calendars are different, the duration can change either up or down. The start and finish dates will not change.

The second type of change is a side effect of the Project Management 10 hour/day work schedule. Since most Microsoft Project plans are built using an 8 hour/day work schedule, this means that in general Project Management will consider a task to have ended two hours before the end of the work day. (Although the Microsoft Project interface does not display the start and finish times, this information is tracked in order to allow tasks with durations less than one whole day.) The effect of this difference is that tasks that in Microsoft Project have an even number of days of duration will be shown in Project Management as .2 days shorter.

When later rescheduling the project in Project Management, this difference can have an impact. The Project Management scheduling algorithm will attempt to compact your plan to

use up all available time, including these apparently unused 2 hours at the end of tasks. To prevent this, the Project Manager will want to make the durations whole numbers only, for the portions on the project plan that will be rescheduled using Project Management.

3.4.15. Does it matter which browser I use to run the integration?

No. The integration can be run in any browser configuration supported by Mercury ITG.

4. Tracking Project Actuals through the Integration

This section discusses detailed strategies and issues involved in collecting task actuals in Project Management for projects planned in Microsoft Project. The information in this section is most relevant to projects operating in the 'Project Management controls actuals' synchronization mode.

4.1. Factors in Tracking Actuals

When tracking actuals through the integration of Project Management and Microsoft Project, take the following factors into consideration.

Progress Reporting

Few resources will initially be accustomed to reporting their progress in a timely fashion. Hopefully resources contact the Project Manager in a timely fashion when work is not proceeding according to plan (late starts, etc.), but they probably have never been directly responsible for updating the project.

Understanding the Metrics

Some of the actual metrics are difficult to understand. Although a Project Manager is used to thinking about tasks in terms of the time or duration worked, percent complete, remaining work, and so forth, most resources will not be as familiar with these concepts. These metrics have nuances with which the Project Manager is familiar (for instance, is percent complete a duration or effort metric? Does actual duration include non-working days?)

Partial Actuals Information

The Microsoft Project application makes lots of inferences about the meaning of partial actuals information. For instance, entering an actual finish date when the actual start date is blank will automatically fill in the actual duration, based on to the assumption that the task started on time. Entering the percent complete will default the actual and remaining durations of the task, based on to the assumption that the task will complete in only the planned duration. Few Project Managers are familiar with all of the automatic calculations Microsoft Project is performing, but have become accustomed to "correcting" Microsoft Project as they enter actuals.

Interpreting Actuals Information

Microsoft Project can make different and conflicting inferences from different items of actuals information entered. As an example, suppose a resource is assigned a one-day task. Unfortunately, the resource reports that after working for two days, the task is only 75% complete. When the percent complete is entered, Microsoft Project will assume that 6 hours (75% of a day) of actual duration have been spent. But when the two-day actual duration is entered, Microsoft Project will assume that the task is 100% complete, because it has run longer than scheduled. As a Project Manager directly enters this information into Microsoft Project, he or she will see the mistaken inferences that Microsoft Project has made and will correct them. The integration has rules that help it do the same thing, according to priorities explained here. For the Project Manager to clearly understand how these updates are occurring, however, a familiarity with these rules is needed.

Recommendation

These observations add up to a recommendation: try to keep it simple. When deciding which actuals to collect in the Mercury ITG Dashboard, the Project Manager should consider whether each actual is an important metric for this project, and whether the resources will be able to assess and report that actual correctly and on time.

4.2. Overall Rules and Priorities Used to Synchronize Actuals

This section describes the overall method used to synchronize Project Management actuals into a Microsoft Project controlled project.

4.2.1. Only enabled fields are synchronized

During synchronization, information is only synchronized for the enabled actuals fields in Project Management. Actuals fields are enabled or disabled using the Project Settings dialog in the Project Management interface. This gives the Project Manager the ability to specify exactly the pieces of information that should be exchanged.

The concept of enabled tracking fields in Project Management is slightly different from the concept of displayed fields in Microsoft Project. In Microsoft Project, hiding a field does not turn off the various defaulting rules that can update that field. As information is entered into other fields, Microsoft Project will be updating the hidden fields behind the scenes. A field that is disabled in Project Management, on the other hand, will not receive automatic defaults. It will simply be omitted (or shown as blank in certain Project Manager drill-down displays).

4.2.2. Actual fields are synchronized in a prioritized order

As discussed previously, Microsoft Project has a large number of automatic defaulting rules that are applied as actuals are entered. Sometimes these defaulting rules mean that Microsoft Project cannot present the same set of actuals as Project Management. If the information reported by the resource does not satisfy Microsoft Project's rules, it must be modified to fit.

In many cases, however, Microsoft Project can represent the same actuals information, if the actuals are entered in the correct order so that later entries do not trigger defaulting rules that overwrite earlier entries. This is essentially the data entry process that Project Managers go through as they enter actuals and correct mistaken defaults in Microsoft Project.

To deal with this complexity, the integration has a standard prioritization of the various actuals metrics. The prioritization is the same in all projects. This prioritization means that the integration will place more value on representing the actuals with a higher priority identically in the two applications. When the Microsoft Project defaulting rules cause a conflict between identically representing a higher priority actual and a lower priority actual, the lower priority actual values will be different in the two applications. The higher priority actual values will be identical.

The actuals fields, in order from highest to lowest priority, are:

- Percent complete

- Actual start date

- Actual finish date

- Actual duration

- Actual effort

- Estimated finish date

- Estimated remaining duration

- Estimated remaining effort

The fields are prioritized in this order based on the following observations. Resources are generally most accurate are reporting what has actually happened. Estimates about how much work remains and when it will be complete are less accurate. The percent complete field is also an estimate, but it is treated as an exception. Percent complete has a high priority because this metric is often tracked by external stakeholders.

4.2.3. Rules for consistent sets of actual fields

The following rules are based both on analysis of the Microsoft Project defaulting rules and on testing of the integration.

- Collect at most two of the three calendar actuals: start, finish, and duration. Resources are most likely to misreport actual duration, because this metric is also affected by resource calendars and task splits.

- Collect at most two of the three calendar estimates: percent complete, estimated finish date, and estimated remaining duration. Microsoft Project's defaulting rules link these fields together tightly. Resources are unlikely to consistently enter values that agree with Microsoft Project's arithmetic.

- If actual duration is collected, also collect either percent complete or remaining duration. Microsoft Project assumes that any actual duration greater than the scheduled duration means the task is complete. (This is a byproduct of the assumption that actuals are entered into Microsoft Project after the fact, rather than in real-time.) You can counteract this defaulting behavior by also collecting an estimate of how much work remains.

- Do not collect all three duration actuals: percent complete, actual duration, estimated remaining duration. Similarly, these fields are tightly linked in Microsoft Project. Resources are unlikely to consistently enter values that agree with Microsoft Project's arithmetic.

4.3. Actual Metric Fields

In each of the following descriptions, statements to the effect that the values of a field in Microsoft Project will be the same as in Project Management apply **only** when the field is enabled in Project Management.

4.3.1. Percent complete

Task percent complete values for tasks in the two applications will be identical. Percent complete values for task groups are rolled up by Microsoft Project, instead of being set directly by the integration. The calculation is similar in the two applications. Therefore, the rolled up values are generally identical.

There is an exception for tasks that are complete, but are pending the completion of a Demand Management Request linked with a finish-to-finish predecessor relationship, will be exported as 99% complete. This slight reduction prevents Microsoft Project milestones following the task from incorrectly displaying as completed.

4.3.2. Actual start date

Actual start dates for tasks in the two applications will be identical.

It is important to note that when an actual start date is entered into Microsoft Project, the scheduled start date (the Start field) will immediately take on the same value as the actual start date and cannot be changed. If the start date has changed, Microsoft Project will generally respond by changing the finish date also, and cascading that change to all successor tasks.

Project Management defaults the actual start date to the current date at the time the resource moves the task to an 'In Progress' state. The Project Manager may need to work with resources that habitually update their tasks late and do not correct the actual start date, to explain the intent of this field.

4.3.3. Actual finish date

Actual finish dates for tasks in the two applications will be identical, except for tasks that are less than 100% complete yet already have an actual finish date. The actual finish date is disregarded in this case.

As with the actual start date, it is important to note that when an actual finish date is entered into Microsoft Project, the scheduled finish date will immediately take on the same value, potentially causing a cascading schedule adjustment.

Project Management defaults the actual finish date to the current date at the time the resource moves the task into a 'Complete' state. The Project Manager may need to work with resources that habitually update their tasks late and do not correct the actual finish date, to explain the intent of this field.

4.3.4. Actual duration

Actual durations for incomplete tasks will generally be the same in both applications. Since percent complete is the ratio of actual duration to remaining duration in Microsoft Project, synchronizing both of these fields will cause Microsoft Project to revise the schedule duration (Duration) of the task to match the two actuals. This can potentially cause a cascading schedule adjustment.

Actual durations for completed tasks may not have the same value in the two applications. Microsoft Project calculates actual duration as the difference between actual start and finish, and may not arrive at the same value. For instance, differences in resource calendars can cause the two applications to show different actual durations.

Collecting actual duration without collecting actual finish date is not advisable, since reported actual durations that are different from the scheduled durations will cause Microsoft Project to change the scheduled finish dates of tasks, causing a cascading schedule adjustment.

If you are synchronizing actual start date and actual finish date, then Microsoft Project will calculate actual duration as the difference of these two dates. That value does not necessarily equal the actual duration entered in Project Management.

4.3.5. Actual effort

Synchronizing an actual effort value that is larger than scheduled, or a value that is less than scheduled on a completed task without an accompanying actual finish date, can cause a cascading schedule adjustment. Depending on the task scheduling settings, Microsoft Project may react to the actual work value by altering resource units or by altering the scheduled finish date.

Actual effort in Project Management is reported at the task level, not at the resource level. (Microsoft Project allows work to be tracked at the more detailed level, if desired.) As in Project Management, Microsoft Project automatically apportions actual work among the assigned resources, in proportion to the resource assignment units.

4.3.6. Estimated finish date

Unlike most Project Management actuals, there is no corresponding Microsoft Project field for the estimated finish date. The closest match available is the scheduled finish date, since in Microsoft Project the start and finish dates are automatically updated to reflect actual dates and estimates as these become available.

When a specific value is entered as the finish date in Microsoft Project, the application assumes that the task should also be constrained to finish exactly on that date. When the integration updates the finish date of a Microsoft Project task to match a Project Management estimated finish date, Microsoft Project implicitly creates a finish-no-earlier-than constraint with this same date.

The integration detects these new constraints and reports them in the Synchronization Report. When these dates are on time or early, the constraint should not cause a problem. When the estimated finish date is late, the Project Manager will want to remove this constraint when revising the plan in Microsoft Project, or the constrained task will not reschedule forward.

4.3.7. Estimated remaining duration

Estimated remaining duration is applicable only to incomplete tasks. Complete tasks always have zero remaining duration.

For incomplete tasks, remaining duration will generally be the same in both applications. A cascade schedule adjustment can be triggered either by synchronizing a value for remaining duration that is greater than the scheduled duration (Duration), or by synchronizing a combination of remaining duration and either actual duration or percent complete that predicts a longer duration than scheduled.

Percent complete is the ratio of actual duration to remaining duration in Microsoft Project. Both of these actual fields have a higher priority than remaining duration, and would take precedence.

Estimated remaining duration can be synchronized, although there are some secondary requirements that make this tricky. You also need to synchronize actual start and finish dates, or actual start and actual duration. Resources will need to correctly report intermediate values of actual duration and remaining duration, or Microsoft Project may make inappropriate inferences about task status after synchronization. You are probably best advised not to synchronize this value with Microsoft Project except in the mode "Project Management controlled."

4.3.8. Estimated remaining effort

Synchronizing a remaining effort value that is larger than scheduled, or that along with actual effort adds up to a larger than scheduled total estimate, can cause a cascading schedule adjustment. Depending on the task scheduling settings, Microsoft Project may react to the change in scheduled work by altering resource units or by altering the scheduled finish date.

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