ENTERPRISE ARCHITECT

User Guide Series

Case Management Model and Notation (CMMN)

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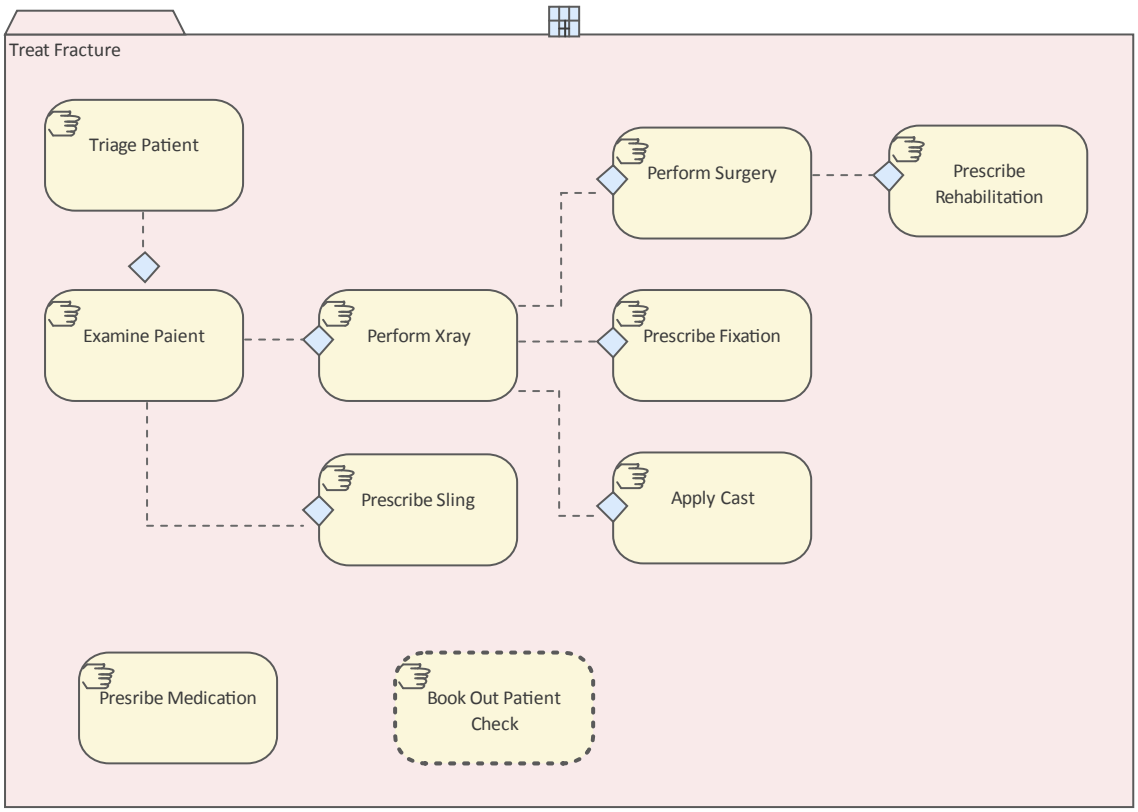
Case Management Model and Notation (CMMN)

Model and Visualize Evolving Circumstances and Exchange Case Models

Organizations strive to realize their Mission and Vision by executing their strategies to reach their goals. Much of this relies on carrying out repeatable processes to deliver value to their customers while all the time endeavoring to improve these processes to make them more efficient and meet new business conditions. Some industries and domains don't lend themselves to creating structured sequential descriptions of the way an activity is carried out. For example in the medical profession the resolution of a patient's situation does not follow any predicable path and varies from patient to patient and case to case in the context of a medical history and the current medical problem.

Using Case Management Model and Notation you can model these unpredictable situations where there is not a predefined order of tasks, but rather the actions that a case worker performs depend on a given situation and evolving circumstances. Even though there is not a defined sequence of tasks using CMMN you can model the possibilities by defining a case using planned and discretionary items that a case worker can choose.



Example CMMN diagram showing a Case Plan Model that contains a number of connected Tasks.

Getting Started

Defining existing case models or creating new Case Management diagrams is easy using Enterprise Architect's built-in support for the Case Management Model and Notation features. These include a CMMN diagram with an accompanying toolbox that contains all the elements and connectors needed to create robust and expressive models. These indeterminate models can be connected to other determinate processes described in Business Process Model and Notation and more broadly to a range of other business, technology and engineering models. Having all these disparate but interlocking models in a single tool provides countless advantages and results in profound productivity gains. Workers from all disciplines, including Case Management, can seamlessly communicate and collaborate resulting in well specified and designed systems.

In this topic you will learn how to work with the CMMN facilities in Enterprise Architect including the following sub topics.

Selecting the Perspective

Enterprise Architect partitions the tools extensive features into perspectives this ensures that you can focus on a specific task and work with the tools you need without the distraction of other features. To work with the Case Management Model and Notation features you first need to select the following perspective:

Analysis > CMMN

Setting the perspective ensures that the Case Management Model and Notation diagrams and their tool boxes and other features of the perspective will be available by default.

Example Diagram

An example diagram provides a visual introduction to the topic and allows you to see some of the important elements and connectors that are created in specifying or describing the way a case is defined including: a Case Management Plan and Case File Items, Stages, Milestones, Fixed and Discretionary tasks.

Language Overview

This topic introduces you to the main concepts of the language including its structure, architecture and the elements and connectors that are used to create Case Management Model and Notation (CMMN) models.

Modeling with CMMN

This topic introduces the Case Management Model and Notation profile which covers the diagrams, toolboxes and elements that you will work with including Case Plans, File Items and a range of Tasks such as Human, Case and Process tasks. You are able to select the CMMN perspective from the Analysis group which will set the tool up for modeling the Case Management such as are prevalent in the Legal, Medical, Financial, Rescue and other disciplines.

CMMN and BPMN

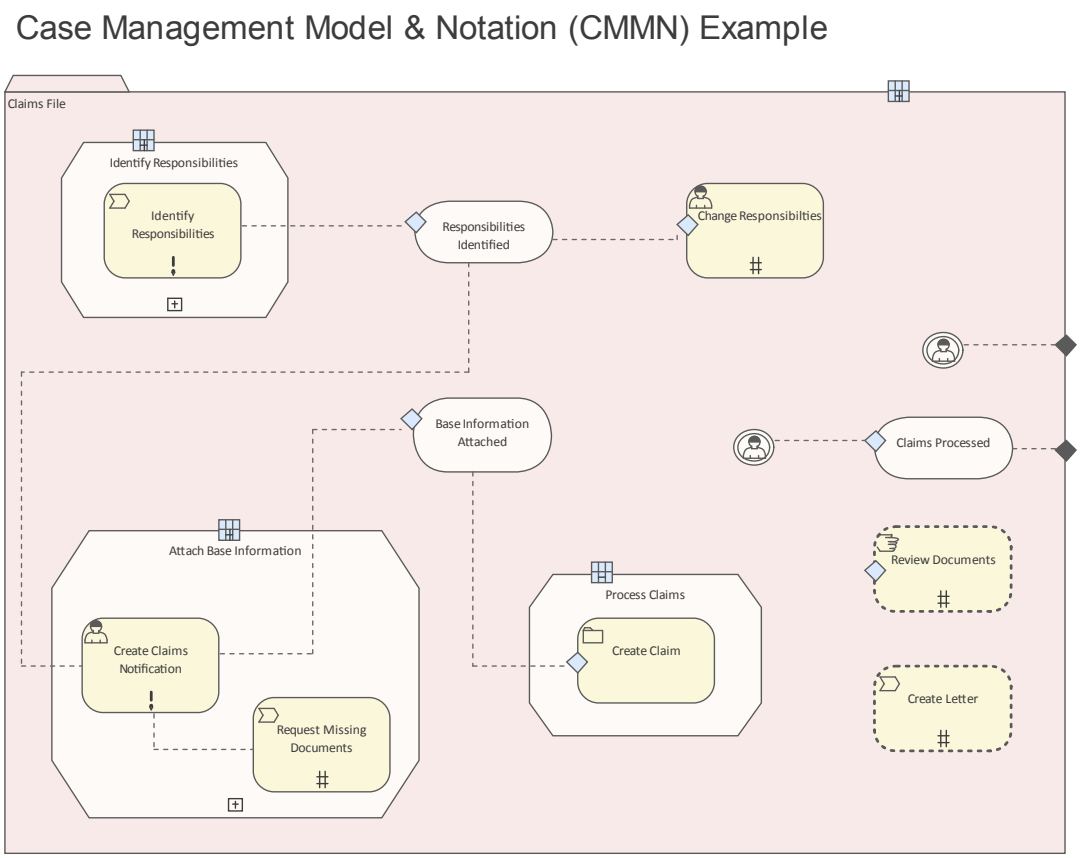
In this topic the Case Management Model and Notation with its ad-hoc activities and non-sequential tasks is compared and contrasted with the Business Procee Model and Notation which is the defacto language for modeling sequential, predictable and repeatable processes.

More Information

This section provides useful links to other topics and resources that you might find useful when working with the Case Management Model and Notation tool features.

Example Diagram

Using CMMN diagrams you can model the non sequential tasks that make up a Case Management model. You can add new elements to the diagram from the CMMN toolbox or existing ones dragged from the Browser. In this example a Case Plan Model is defined with a Planning Table and Case Workers can add discretionary items at run-time. In this example Stages have also been modeled with a planning table. Case workers plan a case when they add “discretionary such as Review Documents and Create Letter. A number of Milestones have also been included to show important points in the plan.



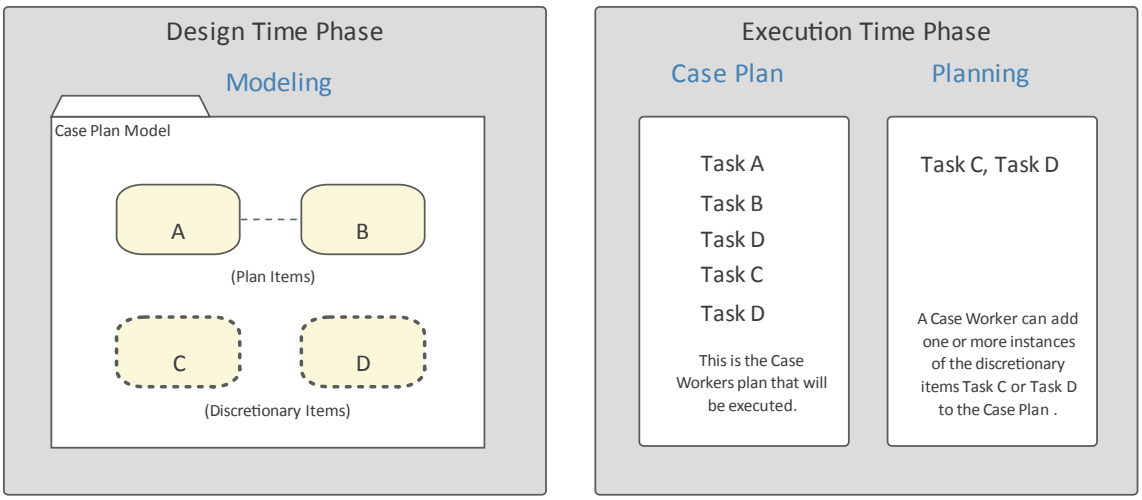
CMMN diagram showing the Case Plan Model, Stages and Tasks and Discretionary items

Language Overview

The Case Management Model and Notation evolved out of the need to help case managers and workers to define patterns and repeatable tasks in ad-hoc processes and to be able to develop plans that relied on past experience in the context of individual and highly variable situations such as treating a patient or preparing a legal case.

A Case is a proceeding that endeavors to reach a desired outcome and involves actions that are performed with respect to a subject. Case management is common in a number of industries and disciplines including legal, medical and financial. The key element of a case is that the proceeding do not follow a rigid and predetermined plan but rather a plan is developed for each individual case. For example the treatment plan for patient, who has sustained injuries and presents to the emergency department of a hospital, would depend on the both the current problems, medical history and treatment constraints. There are many other situations where cases are used such as search and rescue, prospecting, scientific investigation and more.

The subject of a Case may be a person, a legal action, a business transaction, or a focal point around which actions are taken to achieve an outcome. When work begins on any individual Case the proceeding may be carried out in a completely ad-hoc manner. As experience grows and similar cases are resolved over time patterns emerge and a set of common practices and responses can be defined for managing Cases in a more rigorous and repeatable manner. This becomes the practice of Case management, and this knowledge can be enshrined in Enterprise Architect in a way that will help case managers and case workers to complete their cases with positive outcomes.



Design and Execution (run time) phases showing a plan with fixed and discretionary tasks.

A Case has two distinct phases, the design-time phase which results in a model and the run-time phase which represent the planning and execution of the model. The model is relatively static but the execution of the model to create a plan happens many times as each individual case is completed. During the design-time phase, business analysts engage in modeling, which includes defining fixed Tasks that are always part of pre-defined segments in the Case model, and "discretionary" Tasks that a case worker may apply at their discretion. In the run-time phase, Case workers execute the plan as defined in the model but the plan will typically continuously evolve, due to a particular situation, event or context and discretionary items will be added to deal with these circumstances .

Modeling with CMMN

The MDG Technology for CMMN is built in to the Enterprise Architect installer. A key component of the technology is the UML Profile for CMMN with its custom CMMN diagram and a toolbox that you can use to create expressive and compliant case management models.

Access

Click on the 'Perspective' icon (top right corner of the display) and select Perspective > Analysis > CMMN; ; the **Model Wizard** displays.

Select either the:

- 'Model Patterns' tab and one of the Patterns to add a template CMMN model to the selected Package, or
- The 'Diagram' tab and select 'CMMN > CMMN' to add an empty CMMN diagram to the selected Package; the CMMN page displays in the **Diagram Toolbox**

Ribbon	Design > Diagram > Toolbox

CMMN Modeling

Facility	Description
CMMN in Enterprise Architect	Developing CMMN diagrams is quick and simple, using the MDG Technology for CMMN. The CMMN facilities are provided in the form of: • A CMMN diagram type, created through the 'New Diagram' dialog • A 'CMMN' page in the **Diagram Toolbox**, providing CMMN elements (stereotyped UML elements) • CMMN element and relationship entries in the 'Toolbox Shortcut Menu' and Quick Linker

CMMN Toolbox Page

CMMN Toolbox Page

Case Plan Model	The complete behavior model of a Case is captured in a *Case Plan Model* and is depicted using a Package shape that consists of a rectangle with an upper left smaller rectangle attached to it. The name of the Case can be enclosed into the upper left rectangle. The Case Plan Model is the outermost stage defined for a case.
Case File Item	*Case File Items* can be used to represent arbitrary content, for example, documents, Images, text files.
Stage	A *Stage* can be considered an 'episode' of a Case, though Case models also allow for defining Stages that can be planned in parallel. They can be considered as phases and contain groups of case items, they can be run simultaneously with other stages and provide a way of partitioning the overall case.
Entry Criteria	An *Entry Criterion* represents the condition for a Plan Item to become available. It inherits from Criterion and doesn't add any attributes.
Exit Criteria	An Exit Criterion represents the condition for a Plan Item to terminate. It inherits from Criterion and doesn't add any attributes.
Plan Fragment	A Plan Fragment is depicted by a rectangle shape with dashed lines and softly rounded corners and a marker in the form of a "+" sign in small box at its bottom center.
Task	A Task is something that a Case Worker can perform and is depicted by a rectangle shape with rounded corners. A Task may be discretionary if it is depicted by a rectangle shape with dashed lines and rounded corners.
Human Task	A Human Task has two possible depictions. If the Human Task is non-blocking (i.e., isBlocking set to FALSE), it is depicted by a rectangle with rounded corners and a "Hand" symbol in the upper left corner. If the Human Task is blocking (i.e., isBlocking set to TRUE), it is depicted by a rectangle with rounded corners and a "User" symbol in the upper left corner.
Case Task	A Case Task is depicted by rectangle shape with rounded corners with a "Folder" symbol in the upper left corner. A Case Task may be discretionary if it is depicted by a rectangle shape with dashed lines and rounded corners.
Process Task	A Process Task is depicted by rectangle shape with rounded corners with a "Cevron" symbol in the upper left corner. A Process Task may be discretionary if it is depicted by a rectangle shape with dashed lines and rounded corners.
Milestone	A *Milestone* represents an achievable target, defined to enable evaluation of progress of the Case. No work is directly associated with a Milestone, but completion of set of tasks or the availability of key deliverables (information in the Case File) typically leads to achieving a Milestone.
	In CMMN an event is something that "happens" during the course of a Case.

Timer Event Listener	Events may trigger, for example, the enabling, activation, and termination of Stages and Tasks, or the achievement of Milestones. Timer Event Listener instances are used to catch predefined elapses of time.
User Event Listener	In CMMN an event is something that “happens” during the course of a Case. Events may trigger, for example, the enabling, activation, and termination of Stages and Tasks, or the achievement of Milestones. User Event Listener instances are used to catch events that are raised by a user.
Planning Table	A Planning Table defines the scope of planning, in terms of identifying a sub-set of Plan Item Definitions that can be considered for planning in a certain context. The context for planning might be a Stage or a Human Task.
Connector	Connectors are optional visual elements only and do not have associated execution semantics. They show dependencies between plan items.

CMMN and BPMN

Case Management Model and Notation (CMMN) was designed to be consistent with and complementary to Business Process Model and Notation (BPMN). Analysts use CMMN to describe and prescribe the activities and items that represent mostly non sequential and unpredictable situations whereas BPMN is used to represent activities that are predictable and sequential. Early in this millennium analysts realized that there was an opportunity to model these activities that didn't fit neatly into a repeatable sequence and CMMN was devised that included the definition of discretionary tasks. The language can be used in conjunction with BPMN in an organization as some activities can be defined by BPMN processes such as payroll or personnel management and other such as medical services may be more ad-hoc.

Applications of Case management include licensing and permitting in government, patient care and medical diagnosis in healthcare, application and claim processing in insurance, mortgage processing in banking, problem resolution in call centers, search and rescue, sales and operations planning, invoice discrepancy handling, maintenance and repair of machines and equipment, and engineering of made-to-order products. All of these situations can be modeled with CMMN. Situations that allow for repeatable and sequential processes include, payroll, on-boarding personnel, passenger check-in at an airport or train terminal, electricity or gas meter reading, selling merchandise. All of these situations can be modeled using BPMN. An organization will typically use a combination of the two languages and in practice the languages could also be used together to model overall activities.

More Information