

MasterCraft: the Lifecycle Development Tool

The computing platform of today is complex, involving multiple hardware and operating systems, databases, GUIs and middleware components. This requires the analyst and designer to know a great deal about the details of each of these technologies. Since technologies evolve, a technology-specific design has to keep up with changes. It is therefore critical to separate concerns to do with functionality from those that are based on technology.

MasterCraft achieves this by using powerful modeling tools and a set of generators. MasterCraft's modeling tools, in MDA™ like approach, allow the designer to keep the logical application independent of the underlying technology. Platform-specific generators deliver code for the required platform, using the models.

MasterCraft supports the standard Unified Modeling Language (UML) for analysis. It supports a process for transforming the analysis model into design and construction models which, in turn, drive the code generators.

Models, and the abstractions they represent, are key to addressing productivity and quality issues in a project. This is because:

- models aid in understanding and provide a handle on complexity,
- models are precise and help to reduce the communication gap,
- models and abstractions are easier to validate,
- models can be extended to capture design choices, and
- code (and other deliverables) can be generated from models, thus improving quality and productivity

A good and effective modeling tool must take account of two critical issues in model-based software development.

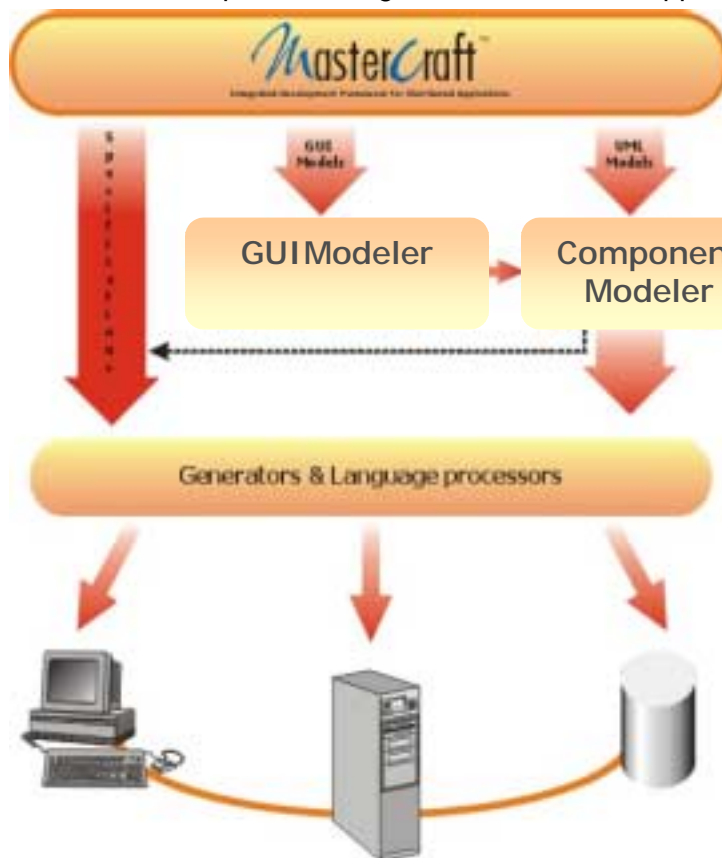
1. Models evolve over a period of time -- this evolution often represents the learning process.
2. Implementation strategies used by code generators may need to change due to either planned improvements or the evolution of the underlying platforms.

MasterCraft uses the meta-modeling tool which allows the project to take full control of what is modelled in the repository. The project defines and refines the meta-model (i.e. creates its own UML™ profile), thus enabling it to:

- choose the models it will use, incorporating its own variations and adaptations,
- incorporate experience and learning,
- integrate different models and tools, and
- write its own code generators and other generative tools.

The MasterCraft development environment is an integrated suite of software tools for the development of medium to large-scale multi-tier applications. MasterCraft helps to organize and manage software development systematically, addressing the needs of developing generic as well as custom products.

MasterCraft provides an integrated, object-oriented suite of tools for building distributed components of an application. MasterCraft supports a component-based repository-driven development process and has a visual modeling tool, a GUI modeler and an object-oriented specification language. A set of application generators and class libraries aid in the development of large scale, distributed applications.



MasterCraft supports development of applications, which use geographically distributed resources and allow geographically distributed end users. MasterCraft uses component methodology to provide plug-and-play software generation for heterogeneous networked environments that define a modern enterprise computing infrastructure.

MasterCraft generates code to support data handling, business services and middleware interfaces as well as to implement user interfaces. It has a separate rule-based engine for the specification of business rules. A

MasterCraft generated implementation is an object-oriented, component-based solution to a business problem.

MasterCraft uses a central repository, to manage all information. It also integrates with and processes information stored outside the repository database. The meta-model integrates meta data across the various phases of the life cycle.

MasterCraft provides modeling constructs for defining process configurability. This enables an organisation to customise business processes in terms of the workflow, process steps and process options. The user can select the points in the business life cycle at which the relevant processing is to be done.