



# MERMIG

The advanced collaboration software

## What is MERMIG?

**MERMIG** is a powerful, Web based collaboration platform addressing the needs of those who are:

- ◆ involved in working groups, committees, projects or any kind of team work,
- ◆ dealing with multilingual information and content,
- ◆ suffering from the speed and amount of paper exchange,
- ◆ struggling with budget and travel restrictions,
- ◆ dreaming of a common information resource,
- ◆ requested to re-engineer administrative processes,
- ◆ trying to automate complex workflow and improve efficiency,
- ◆ planning global knowledge management systems,
- ◆ managing complex international projects involving a wide spectrum of actors,
- ◆ working remotely with counter parts in different locations,
- ◆ training regularly employees and people,
- ◆ disseminating information to clients, users or the broad public, etc.

**MERMIG** allows the implementation of a wide spectrum of knowledge management applications for modern communities and organisations. It is an advanced extranet tool, developed by EUROPEAN DYNAMICS.

It offers various Libraries and Management Tools, addressing most of the working requirements of modern communities of users, sharing a common working space, libraries and procedures.

Organisations served by MERMIG include public administrations and government agencies, national, regional and local authorities, professional associations, NGOs, international institutions and multinational companies or even SMEs.

A **MERMIG** community is usually composed of the regular staff of entities such as the above ones. Different types of implementations may comprise

various categories of such parties. Some examples are:

- ◆ The staff of a multinational organisation with many branches worldwide. A variation may comprise a network of companies and individuals, acting as brokers and business partners in all these countries.
- ◆ The staff of a national or regional government. A variation may comprise the staff of all the related institutions and organisations, all related advisory boards and professional associations, and even citizens of the region.
- ◆ The staff of a City Hall administration of a given city. A variation may comprise all elected members of the City council, satellite organisations and the citizens themselves.
- ◆ The staff of the headquarters of an international organisation or NGO.

**MERMIG** offers a variety of tools that can empower the cooperation and knowledge management requirements of these entities and their human resources. Each one of the communities mentioned above is organised in various groups of people. These include permanent Directorates, Departments or Units, ad hoc Task Forces, horizontal competence centres, working groups, project groups, committees, users or clients, etc. Members of the same group can be physically located in the same place, or spread across the globe.

**MERMIG** also offers various vertical applications in the fields of **e-procurement, grants & loans management, e-justice, e-learning, e-cities, resources planning**, etc.

Members of the same group usually need to share information, access or disseminate documents and data, manage a private workspace on the Internet, participate in virtual meetings or discussion forums, organise events, implement various procedures and rules, etc.

**MERMIG** is the most advanced OSS collaboration environment.



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## Feel the power of Open Source

Welcome to the **MERMIG** platform where you will experience a new way of working more efficiently in a virtual community. **MERMIG** is an **Open Source** Collaboration tool based on the concept "*What you see is what you have access to*" utilising the power of J2EE technology.

The MERMIG Collaboration Platform was developed in order to provide organisations a "common ground" on which various teams composed by members of the organisation (e.g. staff, partners, clients, suppliers, etc.) can work. The whole platform divides its resources into logical groups (called Communities) and smaller sub-sets (called Workgroups). Each Workgroup constitutes effectively a mini Web-site where its Members can use various services in order to enhance their teamwork, coordination and collaboration. A Member needs to be authenticated by providing a username and password combination, before entering one of the Workgroups of the MERMIG Collaboration Platform. Furthermore, each Member has a User Profile, which defines his access rights for each service, including access to specific actions, sections and/or services.

This brochure will guide you through the basics of the **MERMIG platform** version 1.56.

### What do I need to access MERMIG?

(a **MERMIG demo** site is available 24/7 on the URL: <http://www.mermig.com/edos/>)

A standard Web browser.  
An e-mail address.

UserID and password to sign in the application (the whole authentication mechanism will take place over 128-bit SSL encryption) and access your Work Group. UserID and password may either be provided by MERMIG support ([support@mermig.com](mailto:support@mermig.com)).

WORK GROUP	GO	Site maintenance workgroup	<< OCT 2004 >>						
			Mon	Tue	Wed	Thu	Fri	Sat	Sun
Site maintenance workgroup						1	2	3	
MERMIG Community		Site maintenance workgroup	4	5	6	7	8	9	10
e-PPS			11	12	13	14	15	16	17
MERMIG download			18	19	20	21	22	23	24
MERMIG demo workgroup			25	26	27	28	29	30	31



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## Main features

**MERMIG The Advanced Collaboration Software**, is an Open Source, Web-based secure collaboration environment developed by **EUROPEAN DYNAMICS**. It provides on-line services supporting the collection and dissemination of data exchanged by users. Further more MERMIG is fully equipped with process and knowledge management features.

MERMIG fulfils the increasing need for a powerful, flexible, reliable and user-friendly Web-based collaboration environment. It enables a given community (committee, working group, project group, etc.), geographically dispersed across the globe, to maintain a private space on the Internet, for sharing information, archiving documents, organising online discussions and benefiting from all its other functionality.

Such a private space is called '**Work group**'. Access and navigation in this virtual space is possible via any Internet browser (Netscape, Internet Explorer, Opera), assuming one has been given a **UserID** (user identifier) and **Password** to enter his/her Work Group(s) (for even higher security, your Work Group might also **encrypt** data or use **Certificates**). Like in any working group, committee or project team, one member plays the role of chairman or moderator. He is the '**Coordinator**' in MERMIG.

A MERMIG virtual community is an abstraction of Work Groups having common members or sharing the same areas of interest. MERMIG can support multiple virtual communities, all of them sharing a centralised Members Directory (**MERMIG Application Directory**).

The platform supports different access rights models, enabling customised user views and providing several different levels of data protection. The type of access to an Interest Group as much as the usability of the MERMIG Services is based on predefined and customised user profiles called **Classes**.

### MAIN CONCEPTS

- ◆ **Workgroup** is a private virtual workspace accessed by users that need to collaborate in order to achieve common objectives and tasks;
- ◆ **MERMIG Collaboration Platform** Services are on-line services (Document Manager, Forum, Email, etc.), supplying a wide spectrum of collaborative functionality to the MERMIG users;
- ◆ **User Profile** is defined as a set of access rights that can be assigned to a user. The type of access to a Workgroup and the usability of MERMIG services are based on predefined, as well as, customised User Profiles.

### HIERARCHICAL ORGANIZATION

- ◆ **Site level** represents the physical installation of a MERMIG. Furthermore, it hosts the Site Directory (common pool of users and contacts).
- ◆ **Community level** abstracts the collection of individuals sharing the same areas of interest. Multiple Communities can be hosted by a MERMIG Server, all of them sharing the centralised users' directory (Site Directory).
- ◆ **Workgroup level** abstracts the collection of individuals sharing the same tasks. Multiple Workgroups can be hosted by a single Community.
- ◆ **Workgroup User** level abstracts an individual who uses assigned MERMIG services in order to collaborate with other users in accomplishing certain tasks.



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## MERMIG offers the following services

- ◆ **Web Manager:** a service providing a mini-Web space for the Workgroup presentation. This service can include useful links to other Internet areas or documents and can be customised in order to display any other piece of information useful for a Workgroup.
- ◆ **Group Manager:** a service that provides tools for the management of user accounts, the Workgroup membership and maintenance of members' personal information.
- ◆ **Document Manager:** a service which provides a multi-function repository, holding documents organised in a folder tree structure. Both multilingual and versioned documents are supported. This service, together with the **ERMS** feature, covers most of the popular known **Document Management** functionality available in the market.



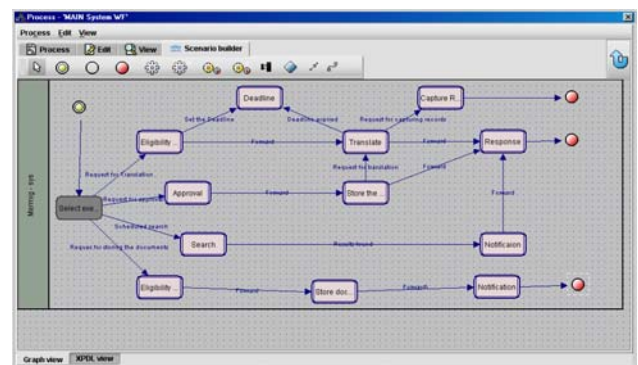
- ◆ **Calendar:** a service that manages the meetings and events schedule of the Workgroup. It supports the preparation, announcement and administration of meetings and events and moreover including the functionality for Virtual Meetings (chat rooms).
- ◆ **Forum:** a service that provides the area for discussions among Workgroup members for various subjects of interest. A user can read and/or participate in a Forum discussion. Furthermore, Forums can be moderated, such that all information that is displayed has been "approved" by an appointed Member.
- ◆ **Email & SMS:** a service that provides access to email. Furthermore, the service has ability to send

SMS messages too. This particular functionality is integrated automatically with the user lists within the system.

- ◆ **Workflow:** a service offered in order to boost the team-working and cooperation between the team Members of the Workgroup. It supports the execution of Workflow Processing, thus automating complicated procedures performed by team Members, ensuring better communication and control of the team. As an integrated part of MERMIG, Workflow system facilitates the delivery of tasks in user email. The particular set of MERMIG Workflow components is able to accept completion of the task directly from user mail reader, after task reception.



- ◆ **Workflow designer:** a service for supporting on-line design of business process and their dissemination. The whole design process is tightly integrated with MERMIG core (access rights, services, resource, etc).





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- ◆ **Web Content Management:** The service enables the management of an integrated website, with a multitude of content thematic areas. It also offers advanced publishing procedures including separate production and dissemination environments. It enables flexible content authoring workflow, versioning and archiving. Multilingual content pages are edited through a WYSIWYG powerful editor, structured in predefined templates, and organised with various content formatting and structuring components.
- ◆ **Knowledge Management:** Using the Semantic Web paradigm, MERMIG delivers to its users content/data defined in the standard Web manner and linked in a way which can allow more effective discovery, integration and reuse across various applications. The use of the Semantic Web philosophy, allows the content uploaded on MERMIG to contain resources corresponding to ordinary Web pages, images, audio clips, etc. as in the current Web. In addition, it allows the introduction of objects such as people, places, organisations and events. This approach makes possible the definition and use of many types of different relations between resources, instead of the

single type of relation used today (i.e. hyperlink). These different types of relations are defined in the ontology in use.

- ◆ **ERMS:** the service automatically captures records and maintains them following rules defined by the users. This functionality is especially powered by an advanced synergy with the Workflow engine.
- ◆ **Search:** a service which can search through the Workgroup and locate pieces of information that conform to specific criteria set by a user.
- ◆ **On-line help:** it provides detailed information for the activities supported by each service.

MERMIG provides multilingual support and personalisation for the stored data and for all services. Data stored in the application can be in any one of the existing ISO languages. Users can select their preferred data language, order their preferred content and view the available items per service, according to that order or other selections.



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## Document version and document amendments management with MERMIG

An author of the system can draft a document in MS Word format and request to publish it on the system. The system will transform this document into HTML format and deliver it to all the interested users for consultation/reviewing. Such users can browse through this HTML document (on line or off-line) and attach comments to particular paragraphs or sections within the document. In each comment they can attach a text or even new reference files. Once they have finished the reviewing, they submit their comments to the system (on line or off line). The system consolidates these comments within the HTML format and makes them available to the author for acceptance or rejection. The author may also start revising the MS Word format, taking into consideration all submitted comments (accessible online). As an example, the author can use the MS Word application to modify a paragraph and explicitly request to annotate it, i.e. associate such a modification to one or more comments submitted by the users on the previous release. Such a revised version of a document, is transformed again into HTML format and disseminated

as before to all interested users along with the consolidated comments from the previous release and their acceptance status. This new release allows users to be informed on the changes done on the document, with the associated justification of the actions taken, in relation to the collected comments on the previous release. As an example, the user can spot particular paragraphs in the HTML format that are annotated by the author, view the rationale of the modification, get all associated comments or even “jump” to the exact paragraph in the previous released HTML format where this comment has been attached to. The Users have thus the possibility to check the new changes and their rationale in comparison with other changes proposed by other Users and proceed with new proposals for amendments. This cycle of “authoring > release > reviewing > consolidation > authoring > etc.”, may be repeated as many times as needed in order to finalise the document. This procedure can also be associated with specific workflow rules and collaboration concepts (e.g. document management systems, forums, etc.).

## The MERMIG Knowledge Management Module

The knowledge management module of MERMIG offers two basic features:

- ◆ Annotation and hyperlink (references to) Name Entities in the text documents,
- ◆ Index and retrieval of documents with respect to the referred entities.
- ◆ The first feature can be seen as an advanced combination of a basic press-clipping process, typical Information Extraction task, and an automatic hyper-linking (terms from extracted text ->

classes in the ontology and instances in Knowledge Base). The resulting annotations represent basically a document enrichment and presentation method, which can further be used to enable other access methods. This task is performed automatically. The second feature is just a modification of the classical Information Retrieval task, where documents are retrieved on the basis of their relevance to Name Entities instead of words. The MERMIG Knowledge Management Module (MKM) core components make an optimum use of some well-known OSS frameworks.

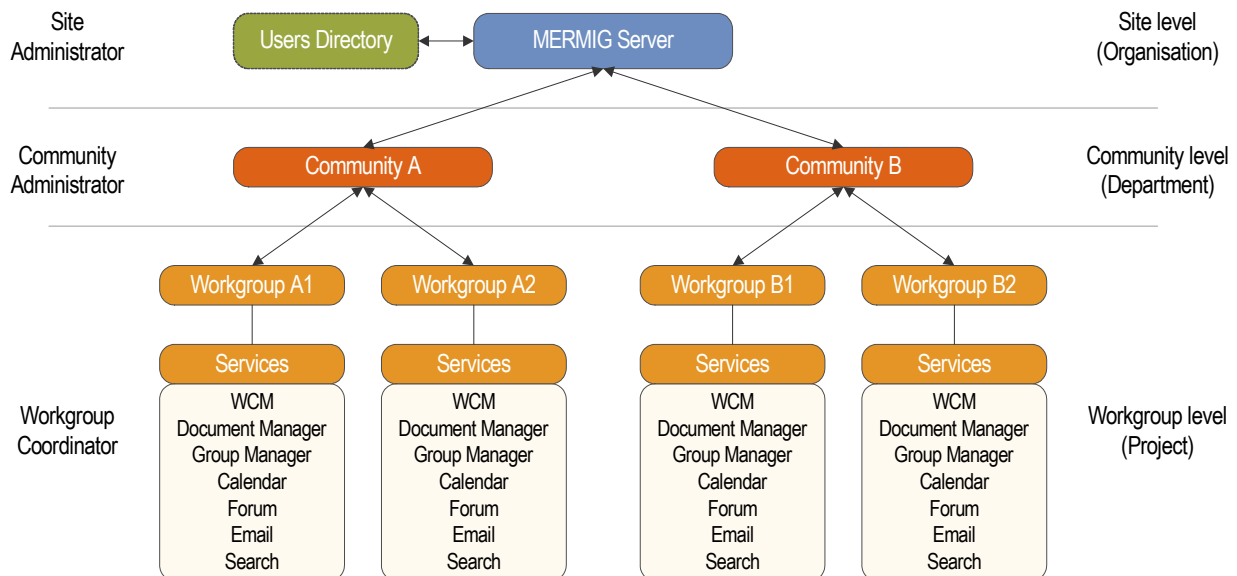


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## MERMIG Users organisation and roles

MERMIG Collaboration Platform users are organised according to the following hierarchy:



- ◆ **Workgroup Contact:** the group does not have access to any Workgroup, but serves as common contact list of Workgroup members and can be used in the communication (sending mails or SMS) from inside the Workgroup (the contact information are available).
- ◆ **Workgroup Member:** has access to a Workgroup. The Workgroup Member access rights are determined by the assigned User Profile, and may vary from read-only permissions in one service to administrative privileges in another.
- ◆ **Workgroup Coordinator:** has access to administrative services of a Workgroup. Basically, the Workgroup Coordinator is responsible for Workgroup customisation (title, description, icon, keywords, etc.), adding users to the Workgroup, creating and modifying User Profiles, assigning User Profiles to the Workgroup users, etc.
- ◆ **Community Directory:** Administrator has privileges to administer the Community Directory. The Community Directory is a centralised user's directory that contains data of users from all Workgroups inside the Community, accompanied with access rights. The Community Directory Administrator can edit user data for one Community and has read-only access to user data from other Communities.
- ◆ **Community Administrator:** has access to administrative services of a Community. Basically, the Community Administrator is responsible for the creation of Workgroups, assigning of services to Workgroups, configuration of external services which represent other Web applications, portal configuration, etc. The Community Administrator has also access to Community Directory Administrator functionalities.
- ◆ **Site Administrator:** has access to administrative services of a Site. Basically, the Site Administrator is responsible for the creation of the Communities and for delegating administrative users to them (Site Administrators, Community Administrators, and Community Directory Administrators). The Site Administrator belongs to the highest rank of the MERMIG organisation structure, having administrative access to all Communities.



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## MERMIG Advanced Access Rights Model

The access control mechanism implemented in MERMIG impacts the scope of services and features which users are able to access. Key points of Access Control Mechanism are:

- ◆ Access control mechanism is implemented in the manner of 'What You See Is What You Can Access'.
- ◆ Basic building points of mechanism are user profiles, user privileges and operations.
  - ◆ User profiles are sets of user privileges.
  - ◆ User privileges define operations that can be performed by user profile that has particular privileges.
  - ◆ Operations are actual actions users perform in order to achieve their goals.
- ◆ A Work group Coordinator or a user with similar rights can edit (allow/disallow) system operations and user privileges.
- ◆ System has its default User Profiles and User Privileges. A Coordinator can create new/custom User Profiles and User Privileges.
- ◆ Mechanism uses in-memory cache (performance reasons) that is with special algorithms kept updated with changed information.
- ◆ Mechanism provides Explicit Access Control – In addition to the concept of User Profiles, an Administrator can assign specific Access Privileges to a single particular user or to a User Profile for specific Service items.

In MERMIG, the Administrative role is fine grained, supporting several types of Administrators, with different roles and tasks.

The basic organisational item in MERMIG is the Work Group. Work Group is composed of content and member users that can view Group's content and user Group's services. Access Control Mechanism enables customised user views and provides several different levels of data protection.

- ◆ **Public Access:** Information and documents contained in a Work Group can be rendered publicly available, i.e. there is no need for a User ID and password to access them, if user rights are set so.
- ◆ **Registered Access:** Users registered to MERMIG domain can access Work Groups that are not explicitly members of, if user rights are set so.
- ◆ **Member access:** As a member of a Work Group, a user is assigned a Profile that defines the access privileges (or access mode) to the various services of the Work Group.

An Example of Explicit Access Control applied per resource (folder, file, etc.): A Coordinator can grant a specific user with "Access-only" privileges using WG administration tools ("Access-only" is mapped in not allowed upload of documents in the Documents Manager service). New privileges "Full Edit" can be set for the same user in the specific sub-section in the Documents Manager using settings per resource in the service. Consequently, the user can ONLY perform the upload document operation in this sub-section, even his profile does not have sufficient privileges for Document Manager upload.



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## System Architecture and Technical Requirements

The MERMIG application is built on pure Java and J2EE technology that provide core platform services, application business logic, as MERMIG connectivity, and integration with external systems.

As back-end MERMIG version 1.5, uses a set of Open Source Software (OSS) servers<sup>1</sup>. Namely:

- ◆ **JBOSS** with integrated Tomcat: Provides HTTP and HTTPS services,
- ◆ **MySQL Server**: Provides storage place for all data used in MERMIG,
- ◆ **OpenLDAP Server**: Hosts the Members Centralised Directory<sup>2</sup>.

### Operating Systems<sup>3</sup> supported:

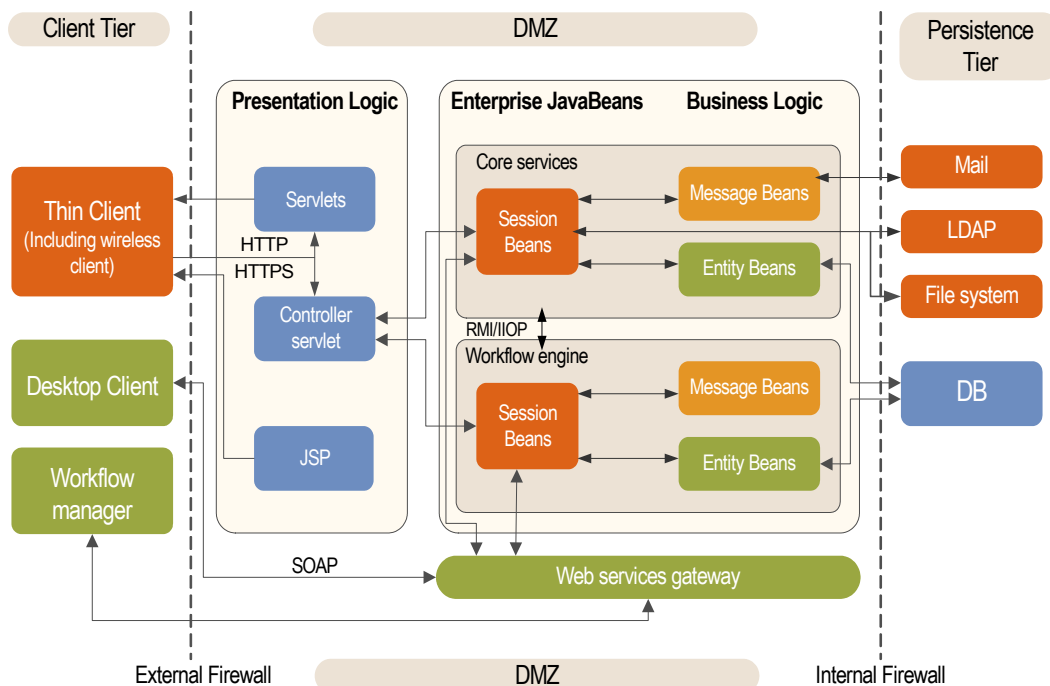
- ◆ Solaris from 2.6 till 2.9.
- ◆ Linux distributions SuSe, Redhat and Mandrake.
- ◆ Windows NT/2000.
- ◆ HP-UX 11.0.

### System Requirements:

- ◆ 512 MB RAM (minimum).
- ◆ Depending on the size of the system, the recommended hard disk space for the data storage is different. A suggestion for an initial configuration would be 8-12 GB for sites with relatively high traffic volume.

The recommended configuration involves a 2-CPU server and 2 GB RAM, so that the system can have a sufficient response.

The adjacent diagram depicts a view of the system architecture



<sup>1</sup> The application and database servers mentioned above are the servers supported by default. Depending on the requested configuration it is possible to replace backend servers (e.g. JBOSS can be replaced with BEA).

<sup>2</sup> In addition MERMIG can be configured not to use LDAP. In such a case, the database is used as the MERMIG user repository.

<sup>3</sup> All the above mentioned operating system are tested



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## Software Architecture

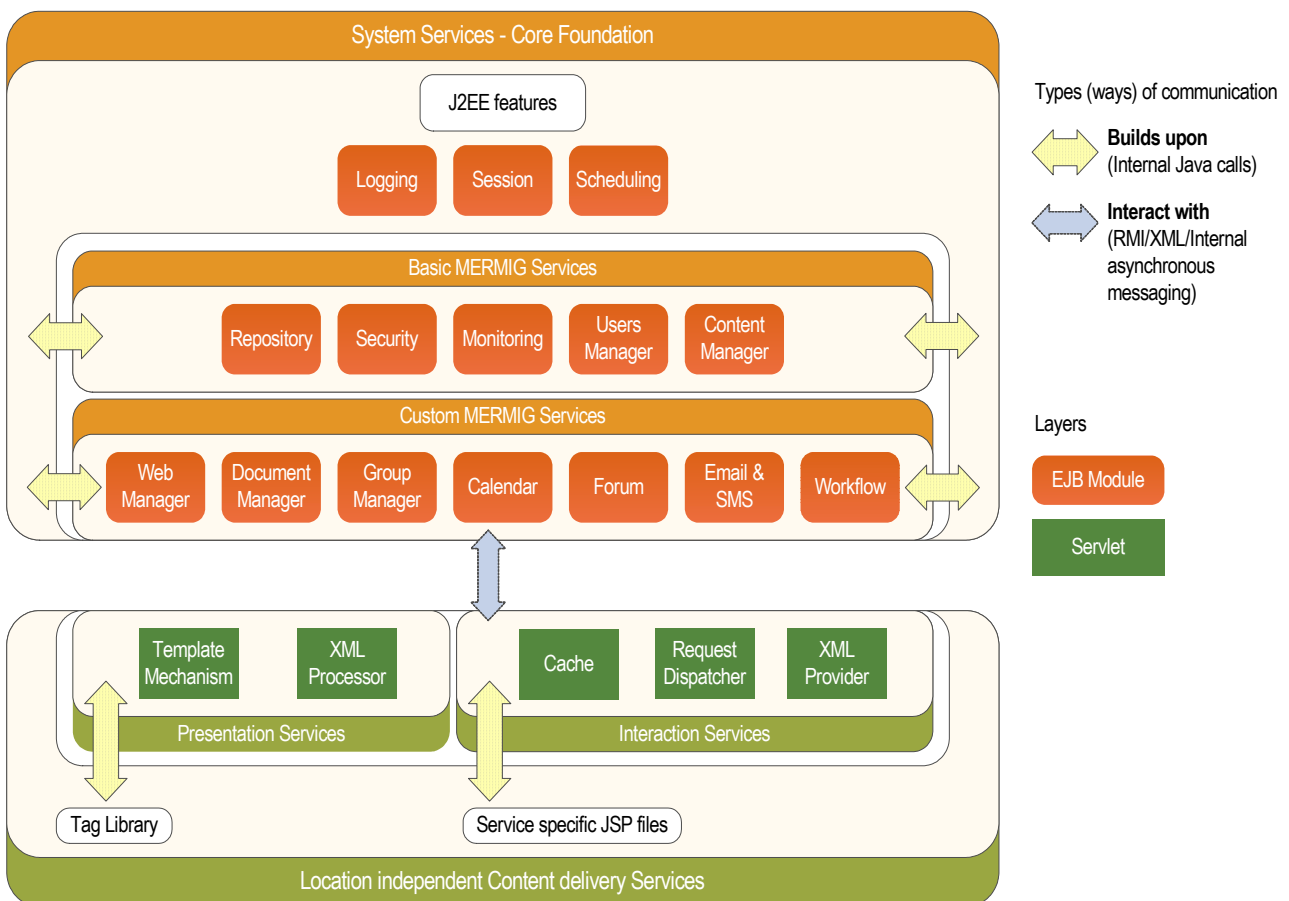
MERMIG is a system using latest technologies and tools. It offers the ability to provide information to all the known clients (thin client, third party applications, wireless clients, etc.).

Furthermore, as a distributed-oriented system, MERMIG includes features which enable the system to communicate with its own remote instances, as well as, with third party systems, using RSS, XML or SOAP.

All user requests, including communication, are intercepted and served by the application front-end part.

The whole system business logic relies on the J2EE Application server, using the strength of enterprise Java beans. The application server secures and delivers the requested data to users or third party applications.

Furthermore, the strength and power of EJB's facilitate system location transparency. Using very well known software patterns, MERMIG is capable of managing remote instances of its front-end parts, as well as, data exchanges between several instances of business logic parts.





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## System services – Core Foundation

This MERMIG tier comprises basic system components and core libraries that are shared by the rest of the application components. Furthermore, the tier is providing and securing APIs for the pre-built components. It contains helper classes for common tasks in a J2EE environment. Tier APIs can be reused in the future for new functionality and can lighten the load of code to be written by the developer.

## Basic MERMIG services

This tier represents the business components that constitute the heart of the suite and where most of the attention is focused. It can be considered as the connection between the Core tier and the rest of the services.

## Interaction services

This set of services constitutes a collection of tools that allow web-based applications to interact with system components quickly, easily and elegantly. As the “entry point” to the back part of the system, first level security checking is performed here.

Specific caching techniques are used to overcome possible system bottlenecks.

## Custom MERMIG services

This set of services is the place where application components reside.

## Presentation services

The presentation services tier, are securing the way of presenting the data. The tier “takes care” of the impressive look of websites and the invocation of a proper presentation templating mechanism (depending of the request and device). Furthermore tier securing the support for particular devices (hand-held, mobile phone, third party system etc.) is incorporated in this tier. Therefore, after receiving a request, MERMIG exactly knows how and to whom it will replay.

## Content delivery services

Web based components responsible for content delivery, as transferring user requests to Interaction services. The tier is tightly cooperating with Interaction services because of rendering the pages correctly (depending on user device type).



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## Used Patterns and Open Source Frameworks

MERMIG is an up-to-date application, using mature and well-known J2EE design patterns and frameworks. Furthermore, a new feature in the EJB 2.0 specification, Local EJB interfaces, is utilised to secure good system performance. Local EJB interfaces are improving the efficiency of intra-container entity relationships. Local objects are programmed using a home and a local (instead of remote) interface.

Apart from these facts, local interfaces cannot be accessed outside the EJB container. This organisation covers a set of security issues too.

MERMIG supports EJB Remote interfaces too. This J2EE feature is implemented in particular in MERMIG Session beans. Implementation of these methods is securing the MERMIG location transparency feature, allowing the distributed installation of MERMIG components.

### Used patterns:

- ◆ Client-side EJB interaction – it facilitates the good performance of the application and enhances its maintainability:
  - ◆ EJB Home Factory - lookup code into a reusable pool of EJBHome interfaces, which can cache EJBHomes for the lifetime of a client application.
  - ◆ Business Delegate - plain Java classes that hide EJB API complexity by encapsulating the code required to discover, delegate to and recover from invocations on the session and message façade of EJB layers.
- ◆ EJB architectural layer – provides strategies for the clean separation of the application business logic, in order to minimise dependencies between client and

server, while forcing operations to execute in one network call and in one transaction:

- ◆ Session Façade - wraps the entity bean layer in a layer of session beans called the Session Façade. Clients should have access only to session beans and not to entity beans.
- ◆ Primary Key Generation Strategies:
  - ◆ Sequence Block – a session bean that grabs blocks of integers at a time and caches them locally. All primary keys are provided by this session bean, regardless of the underlying storage primary key field.
- ◆ Model-View-Controller paradigm – provides clear separation of the presentation, domain and the business logic.

As an Open Source platform, MERMIG itself is based on mature Open Source frameworks that are well known and widely used. These include:

- ◆ JBOSS – MERMIG default J2EE application server
- ◆ Tomcat – MERMIG default JSP/Servlet container
- ◆ Jakarta Struts – MERMIG basic Web application framework
- ◆ Jakarta Lucene – MERMIG search engine
- ◆ Jakarta Struts Tiles – MERMIG presentation logic
- ◆ Jakarta Log4J – MERMIG user activities and system events logging mechanism
- ◆ Netscape LDAP JDK – MERMIG LDAP server connectors
- ◆ Set of Jakarta XML frameworks: Xerces, Xalan Xerces and XPath
- ◆ Axis – MERMIG Web services
- ◆ Jakarta Ant – MERMIG building and distribution tool

### FEEL THE POWER OF OPEN SOURCE

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