FORAN v8.0
The right shipbuilding CAD/CAM System

1. Initial Design
2. Basic Design
3. Hull Structure
4. Machinery & Outfitting
5. Electrical Design
6. Drafting & Mechanical CAD
7. FORAN-PLM Advanced Integration
8. Virtual Reality

9. Change & Access Control

Strong solution to be used in complex ship projects with high security and control demands

FORAN Change and Access Control provides the customer with a powerful single application to manage ship design and production. Shipbuilding is demanding more security to develop the projects in complex and distributed environments with many agents working concurrently, but keeping the necessary security restrictions. This issue is particularly crucial in the naval field, where the integrity of the information and the security makes impossible to work without powerful change and access control to all engineering data.

The access control in FORAN enables each user to access to particular data as a result of predefined criteria. In addition, FORAN introduces several simple change control tasks, including the registry of changes made on units, freezing and unfreezing of units and generation of reports. One of the main tasks is to avoid the modification of project elements that have reached a certain level of maturity.

Additionally, this tool can be used as a **standalone version** just as a viewer for visualization purposes and without access to the FORAN database, and also for importing/exporting tasks.

For more demanding security and control environments, as well as for solving matter as configuration management, FORAN offers a strong and **bidirectional integration with the major PLM tools** existing in the market.

Application

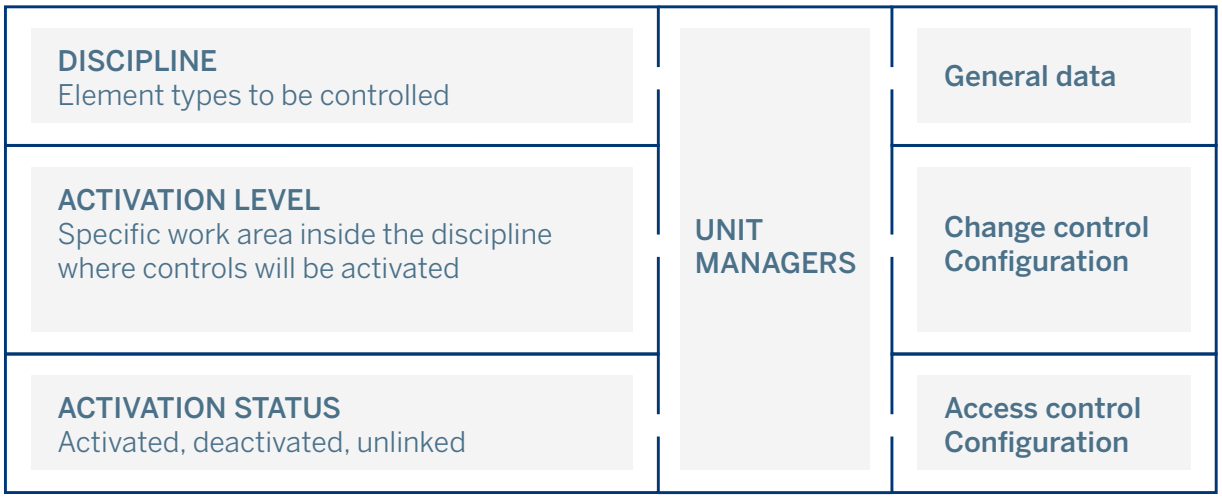
Change and Access Control in FORAN has been introduced as a response to the increasing needs of managing confidential data, as well as outsourcing the design but retaining the administration of the project.

Parallel to the distributed design scenario, new demands for access and change control arise. From a shipyard perspective, the access control to parts of the project becomes a key issue, due to several reasons:

- Critical areas for which access must be restricted
- Distribution of the work among the users
- Restrict undesired modifications according to maturity
- Subcontracting policies for certain parts of the ship
- Protect proprietary intellectual property

Functionality

As FORAN stores all information in a single database, Oracle provides a **first level of control** that is based in i) the role of the user (designer, viewer) and ii) the specific task or discipline in which the user is authorized, therefore database access is fully controlled at all times. This functionality allows, for instance, to prevent one structural designer to modify piping items. In addition, FORAN allows the use of Corporate Authentication Systems (LDAP, Active Directory).



The **distributed design**, may be based on distribution by disciplines (functional), by zones (geographical) or by design stages (sequential) what creates the need of additional control. The second level of access management is provided to allow or reject the access either by functional concepts (system), by geographical concepts (zones) or both. This functionality is based in the concept of **Control Unit** that represents the area subject to either access or change control.

Each unit is defined by a discipline and an activation level, it is managed by one or several unit managers, and it contains the configuration to be applied for access and change control as shown in the table.

The activation level defines what level of the FORAN hierarchy is to be controlled and often coincides with a working area (e.g. Zone & System). An activation level can belong to more than one discipline and it may be used to define different control units such as:

- Hull Structure – Materials – Table of standard gross plates
- Hull Structure 3D Model – Deck and Zone
- Outfitting standards – Components – Model library tree
- Outfitting 3D Model – Equipment - Zone & System
- Electrical – Cables – 'From' or 'to' device – Zone & System

For the purpose to allow access control and change control, three different types of **user roles** can be defined:

- The Administrator defines the areas to be controlled, creates units and assigns unit managers to the already defined units
- Unit Manager responsibility includes the configuration of their units access as well as the definition of the settings related to change control
- Designers will be allowed to read/modify only the units for which has permissions enough

The **Unit Managers** can at any time decide to activate the access control to a unit. Then, a designer running any FORAN module will be allowed to read or modify the corresponding unit only if the Unit Manager has previously authorized him.

The solution includes advanced tools to allow **unit multi-selection**, possibility to share settings between units and management of user roles by groups, which are of special relevance in the case of large organizations working in complex projects with several hundreds of users. Through LDAP, authentication of groups can be reused/shared with other enterprise applications.

Change Control

FORAN introduces several simple but efficient **change control** tasks, including the registry of changes made on units, freezing and unfreezing of units and generation of reports. One of the main tasks of the change control system is to avoid the modification of project elements that have reached a **certain level of maturity** and, consequently, the unit manager has marked as '**frozen**'. A change viewer is provided and it makes very easy the tracking of changes by means of a set of filtering mechanisms.

Courtesy of Babcock International Group

The concept of external freezing (or locking) has been developed in order to facilitate the integration with external applications like **PLM or ERP systems**. The use of flags to be externally updated is provided to indicate if a modification of an element would be acceptable to the corresponding external applications. Other flags might also be used to allow changes over a unit, but only after a warning message has been shown to the user.

Combined with PLM Integration modules, FORAN provides a proven technology with more sophisticated access controls at any level of the project.

Courtesy of Navantia

FORAN Access & Change Control Benefits

- Single application for change and access control to be used in complex environments with security restrictions
- Different and powerful administration of the different users accessing to the information, considering the role of the designer, discipline, task or even functional, geographical or sequential stages
- Advanced tools to manage access control with hundreds of users
- Efficient change control tasks with registration of changes
- Control of maturity level with “frozen capability” and generation of reports
- Standalone version for visualization purposes to read any FORAN model
- Strong and bidirectional integration with the major PLM (Product Lifecycle Management) tools for a highly demanding project control management