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# HGSM Web Application

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This is a web application that serves as a front-end to the database that keeps information about the grid sites (clusters), their admins, email and phone contacts, other contact people, site nodes and resources, downtimes etc. These sites are organized by country and countries are organized by regions. The admins of each site can also update the information about the site.

## Summary

**Hierarchical Grid Site Managment Application**

This is a web application that serves as a front-end to the database that keeps information about the grid sites (clusters), their admins, email and phone contacts, other contact people, site nodes and resources, downtimes etc. These sites are organized by country and countries are organized by regions. The admins of each site can also update the information about the site.

To summarize the design, the applications supports only one GOC (Grid Operation Center), assuming that it is used for only one grid. It can have several ROCs (Regional Operation Centers), each ROC can have several countries, and each country can have several sites. Each ROC, country and site can have one (or more) admins, which are able to modify the data of the structure (record) which they admin (ROC, country or site), and to manage substructures as well. Managing substructures means that they can also validate/appoint the admins of the substructures, e.g. a country admin can validate/appoint the site admins. The admins are recognized automatically by their certificate (without the need to use passwords).

For each structure (ROC, country, site), contact info about it are stored, including email and phone. For the sites, general info about it are stored, contact info, info about its resources and capacities, site contacts, site downtimes, and info about its nodes. For more details see the DB design: hgsm_design.sql.

In the pages where a user has edit rights (in the node where he is admin and in all the subnodes), an Edit button is displayed. Clicking in this button, the page will be displayed in the edit mode, where the fields of information can be modified, the rows of the lists can be edited or deleted, new rows can be added in the lists, etc. The id and the admins of a node can be modified only by an admin of the parent node.

The features of HGSM can be summarized like this:

- Has a database with information about a hierarchical structure (GOC−>ROCs−>Countries−>Sites−>Nodes).
- This information is published to the www by a web application.
- Each node of the tree has also one or more admins, which can modify the data of the node which they admin, and also the data of the subnodes.
- The admins of a node can appoint (set/modify/delete) the admins of the subnodes and leave up to them the modification/update of the subnode information (to make their job easier and for decentralization).
- Authentication (recognizing that somebody is admin of a node and has the rights to modify it) is done automatically by the application, using personal certificates, which are issued and verified by a certain certification authority. This means that everybody that is an admin, must have a valid certificate installed in his browser.
- The application also supports i18n and l10n (is multilingual, can be translated into several languages).

This web application can also be modified/generalized/improved easily in order to be used for any similar kind of problems, where information about a hierarchical (tree) structure has to be stored, displayed and maintained (updated/modified). E.g. it can be adopted for an eGovernment problem, where each level of the hierarchy maintains its own info/data, and the hier levels of hierarchy have access and control over the lower levels.

For more information about the application see its webpage at:
http://hgsm.sourceforge.net/

This web application is similar to:
https://goc.grid-support.ac.uk/gridsite/gocdb2/

and is intended to have the same purpose and functionality,
but it is going to be used for the SEE-GRID test sites,
and it is intended to have a cleaner design and implementation,
so that if possible, it can replace it later.

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