ETSIM : SERIOUS GAME

V2.0 - Administration Guide

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Serious game is a game that mainly focuses on two aspects of the electricity market : the Spot market and long term investments.

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VERSION

Who ?	Date	Version	Action
Bryan.maisano@gmail.com	28/12/2015	V1.0	Beginning : Manager guide, admin guide, users guide
Bryan.maisano@gmail.com	06/01/2016	V2.0	Delete user and manager guide, (add on website) Add update files !
Bryan.maisano@gmail.com	09/01/2016	V2.0	Add comment existing files in web directory.
Bryan.maisano@gmail.com	13/01/2016	V2.0	Add game information

Introduction

The ETSIM Administrator Guide describes the following aspects:

- Installing the game on an Internet server or on a local network
- Administrating an ETSIM platform
- What are the different player profiles and how to assign them
- How to modify certain aspects of the games
- Navigate into the database
- Important: Please note that the Administrator also has the same rights as the Game Manager.
- To get a complete overview of the Game Manager, please refer to the corresponding guide.
- For further questions, please send us an email at:
    - <bryan.maisano@utbm.fr>
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1 ETSIM presentation

ETSIM provides two different games that allow players to get a better understanding on different

aspects of the Energy Market.

1.1 Market game

The Market game focuses on the SPOT Market where each player has to manage a panel of five different power plants with unique characteristics in terms of:

- Type,
- Capacity,
- Variable costs,
- Fixed costs.

This game simulates a day in a country where demand (in terms of MW) changes at each round.
Each round corresponds to an hour.
Players have to make different bids (volume and price) in order to respond to the demand of the market. The aim for the player is to meet market's demand in order to make profit.

1.2 Complete game

The Complete game focuses on long term investment and on combustible prices.
In this game, players have to build new power plants in order to meet demand.
Each round corresponds to a whole year.

1.3 User profiles

Three roles (or profiles) exist in ETSIM:

- Administrator: administrates ETSIM,
- Game Manager: creates game,
- Player: plays the different games.

Administrator also has a Game Manager status and a Player status and thus can also create games and play.

At registration, default profile is set to Player.

2 Installing ETSIM

2.1 Download ETSIM

The first step is to download the latest version of ETSIM that can be found on www.etsim.com in

the Download section.

The downloaded file contains:

- ETSIM,
- The three user guides,
- ETSIM website to provide the best playing experience.

Once the download is completed, two options are available, depending on the situation:

- Install ETSIM on an Internet server,
- Local installation.

2.2 Install ETSIM on an Internet server

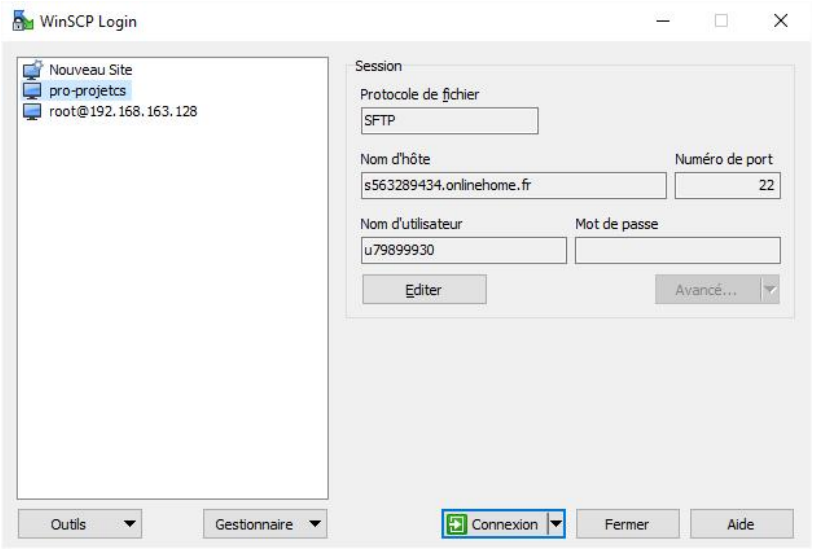
Upload the ETSIM folder in the desired folder on your Web server.

2.3 Installing ETSIM on a local network

This section presents how to install ETSIM on a Local Area Network (LAN).
We recommend the use of WampServer and we will describe how to configure it in order to install ETSIM.

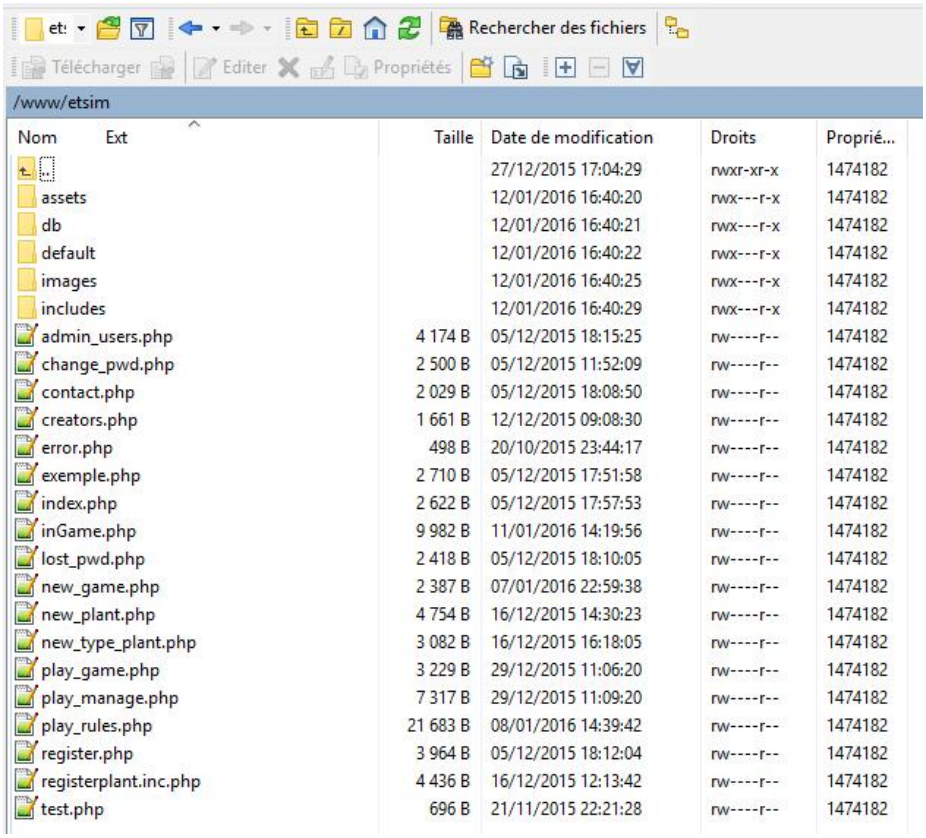
- Go to http://www.wampserver.com/ and download WampServer,
- Install WampServer. For further instructions, please refer to WampServer's website,
- We assume that WampServer will be installed in the following folder: C:\wamp\,
- Extract the content of the ETSIM folder that you have previously downloaded into C:\wamp\www. The result should be C:\wamp\www\ETSIM,
- Launch WampServer.

If you use a web deliver like OVH, 1&1, …, you could connect in FTP for add the files for my example i use WinSCP (free) :



In the main directory www :

- Create « ETSIM »,
- Add all files,
- You can lauch : https://you.site.com/ETSIM.



Nom	Ext	Taille	Date de modification	Droits	Proprié...
..			27/12/2015 17:04:29	rwxr-xr-x	1474182
assets			12/01/2016 16:40:20	rwx---r-x	1474182
db			12/01/2016 16:40:21	rwx---r-x	1474182
default			12/01/2016 16:40:22	rwx---r-x	1474182
images			12/01/2016 16:40:25	rwx---r-x	1474182
includes			12/01/2016 16:40:29	rwx---r-x	1474182
admin_users.php		4 174 B	05/12/2015 18:15:25	rw----r--	1474182
change_pwd.php		2 500 B	05/12/2015 11:52:09	rw----r--	1474182
contact.php		2 029 B	05/12/2015 18:08:50	rw----r--	1474182
creators.php		1 661 B	12/12/2015 09:08:30	rw----r--	1474182
error.php		498 B	20/10/2015 23:44:17	rw----r--	1474182
exemple.php		2 710 B	05/12/2015 17:51:58	rw----r--	1474182
index.php		2 622 B	05/12/2015 17:57:53	rw----r--	1474182
inGame.php		9 982 B	11/01/2016 14:19:56	rw----r--	1474182
lost_pwd.php		2 418 B	05/12/2015 18:10:05	rw----r--	1474182
new_game.php		2 387 B	07/01/2016 22:59:38	rw----r--	1474182
new_plant.php		4 754 B	16/12/2015 14:30:23	rw----r--	1474182
new_type_plant.php		3 082 B	16/12/2015 16:18:05	rw----r--	1474182
play_game.php		3 229 B	29/12/2015 11:06:20	rw----r--	1474182
play_manage.php		7 317 B	29/12/2015 11:09:20	rw----r--	1474182
play_rules.php		21 683 B	08/01/2016 14:39:42	rw----r--	1474182
register.php		3 964 B	05/12/2015 18:12:04	rw----r--	1474182
registerplant.inc.php		4 436 B	16/12/2015 12:13:42	rw----r--	1474182
test.php		696 B	21/11/2015 22:21:28	rw----r--	1474182

Now we need edit the file who contains acces of database /ETSIM/includes/pls-config.php

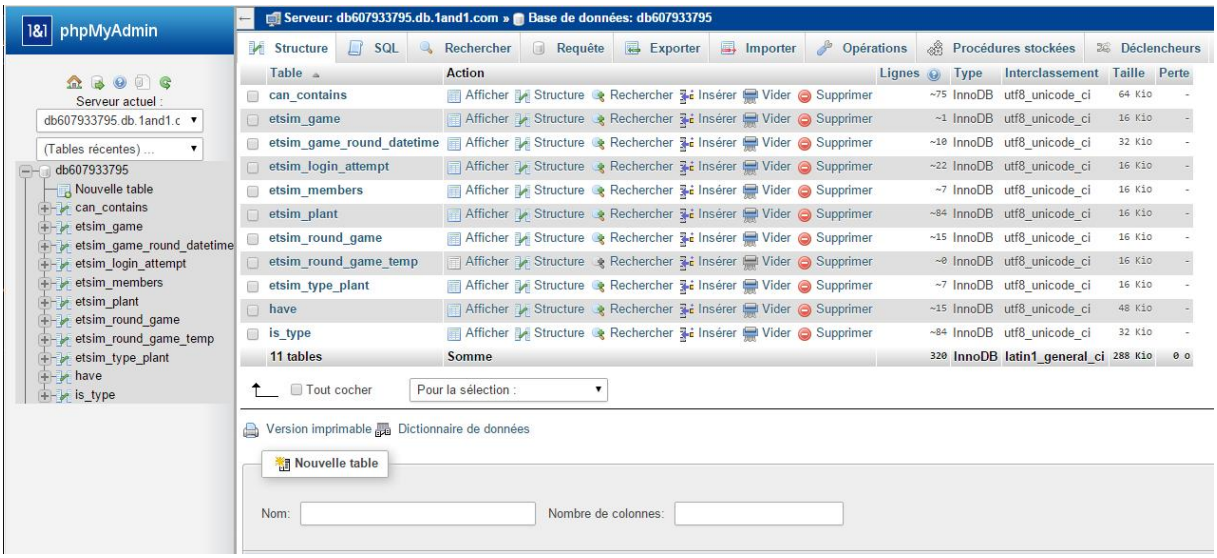
```
define("HOST", "HOST IP/ NAME");
define("USER", "USER WITH GRANTS
define("PASSWORD", "PASSWORD FOR USER");
define("DATABASE", "NAME DATABASE (ETSIM)");
```

2.4 Import the database

To be able to use ETSIM, a database has to be imported first:

- Go to your phpmyadmin page,
- Click on Import,
- Click on Choose a file,
- Go to \ETSIM\db,
- Choose etsim.sql and click on Open,
- Click on Go.

Your database has been successfully imported. If you have a web administration browser like phpmyadmin, you should have :



2.5 Update the contact form

To make sure to receive emails from Users, it is necessary to add the Administrator email to the contact form.

- Open the send_form_email.php file located in \ETSIM\includes\,
- At line 21, copy this line and add your email adress $email_to = "your.email@email.com";,
- Save file.

If all previous steps have been followed, ETSIM is now ready for use.

2.6 Update register

To make sure to receive emails from a new resgiter of Users, it is necessary to add the Administrator email to the register script.

- Open the register.inc.php file located in \ETSIM\includes\,
- At line 92, copy this line and add your email adress $header = "From: your.email@email.com";
- Save file,
- If all previous steps have been followed, ETSIM is now ready for use.

2.7 Update enable/disabled/delete user

To make sure to receive emails from after delete, enable, disable a member, it is necessary to add the Administrator email to the register script.

- Open the update_user_data.php file located in \ETSIM\includes\,
- At line 35, copy this line and add your email adress $header = "From: your.email@email.com";
- At line 40, copy this line and add your email adress $header = "From: your.email@email.com";
- At line 63, copy this line and add your email adress $header = "From: your.email@email.com";
- Save file,
- If all previous steps have been followed, ETSIM is now ready for use.

2.8 Brute force of user

To make sure to receive emails after that web site detected a attack brute force of user :.

- Open the function.php file located in \ETSIM\includes\,
- At line 77, copy this line and add your email adress $email_to = "your.email@email.com";

2.9 First connect :

- User : Admin,
- Password : AdminUTBM90,
- Rôle : Admin,
- Institution : UTBM.

3 Administration panel

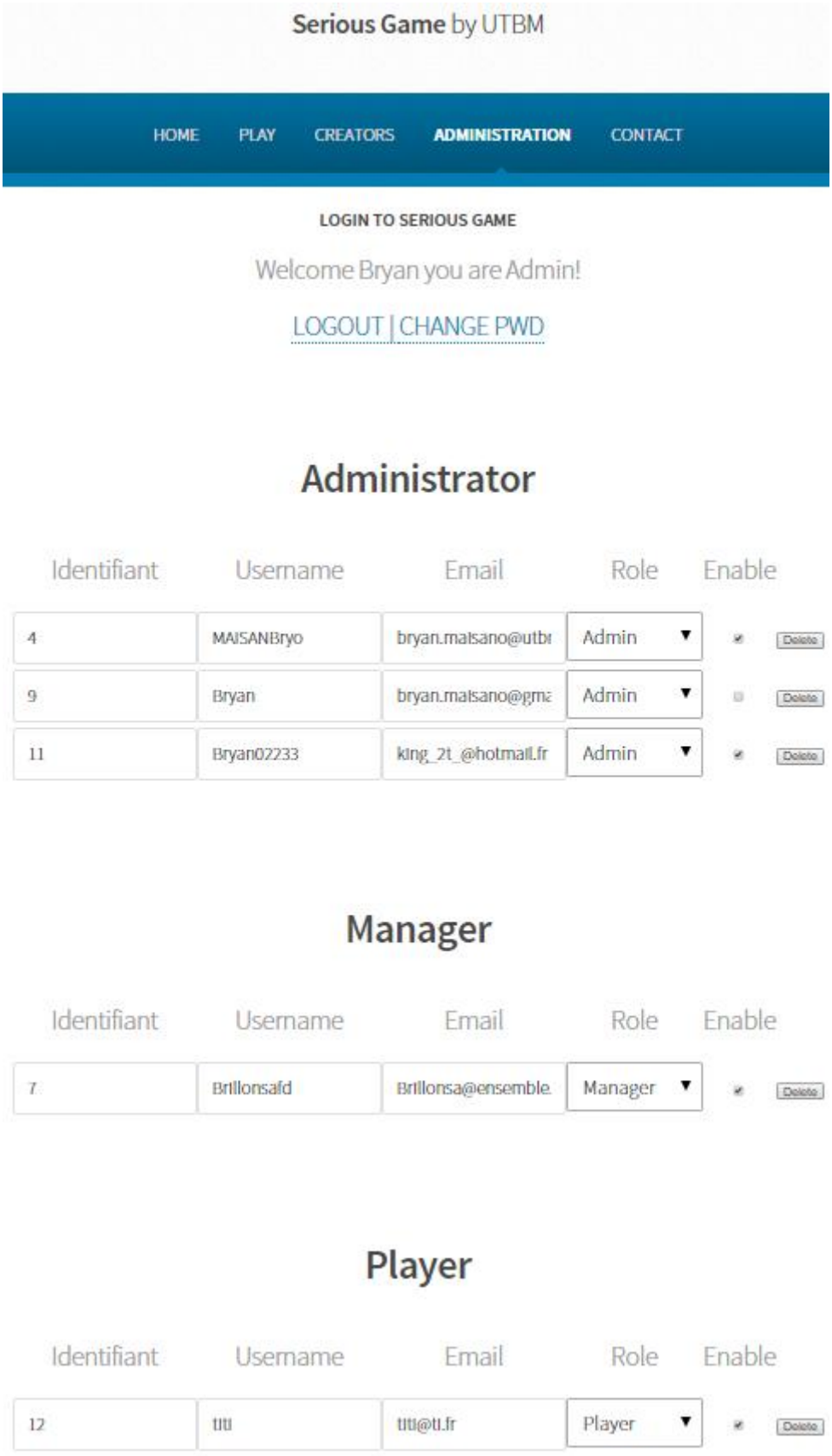


Figure 8: Administration panel

The administration allows many possibility :

- Modify user information (Username, Email, Rôle),
- Enable or disable an user (allows or not access on the site with authentification),
- Change rôle of user,
- Delete an user.

All changes set, are automatically update in real time.

4 Database management

4.1 Import a new database

- To be able to use ETSIM, a database has to be first imported:
    - Go to your phpmyadmin page,
    - Click on Import,
    - Click on Choose a file,
    - Go to,
    - Choose etsim.sql and click on Open,
    - Click on Go.

Your database has been successfully imported.

4.2 Delete a database

To delete the database:

- Go to your phpmyadmin page,
- Click on Databases,
- Click on the box next to the etsim,
- Click on Drop.

Your database has been successfully deleted.

Warning: ETSIM can not work whithout a database

4.3 Explore ETSIM database

This section will show you the different tables created by ETSIM.

4.3.1 Etsim_games

This table contains the list of the game that are currently played.

It contains the following fields:

- id_etsim_game : Id of the game
- date_etsim_game : date of creation of the game
- description_etsim_game : comments from the Game Manager
- password_etsim_game : password for resgistration game
- salt_etsim_game : salt encrypt password
- status_etsim_game : status of game (Open/Play/Completed/Close)
- maxplayer_etsim_game : Max player for a game « if necessary »

4.3.2 Etsim_login_attemps

This table contains every login attempts.

It contains the following fields:

- user_id_login_attempt : user enter bad information to access
- time_login_attempt: time of the attempt

4.3.3 Etsim_members

This table contains information on every user.

It contains the following fields:

- id_etsim_members : unique id for user
- username_etsim_members : username
- email_etsim_members : email of the user
- password_etsim_members : passwords are encrypted and thus can not be viewed or retrieved
- salt_etsim_members : passwords are encrypted and thus can not be viewed or retrieved
- role_etsim_members : Role of the user (Administrator/Manager/Player)
- enable_etsim_members : If this user can be use currently or not
- group_etsim_members : For watch if user is in UTBM or NOT !

4.3.4 Etsim_plant

This table contains plants characteristics.

It contains the following fields:

- id_etsim_plant
- nb_unit_etsim_plant : number of unit for this plant
- power_unit_etsim_plant : Capacity in MW power unit
- cost_mw_etsim_plant €
- om_mw_etsim_plant €/h
- rdt_etsim_plant
- construction_etsim_plant
- operation_etsim_plant
- fixed_costs_etsim_plant
- description_etsim_plant

4.3.5 Etsim_type_plant

This table contains the type plant.

It contains the following fields:

- id_etsim_type_plant
- name_etsim_type_plant : Coal subcritical/ Coal supercritical/ Coal ultra-supercritical/ Coal IGCC/ Gas CCGT/Gas turbine/Nuclear
- description_etsim_type_plant
- minv_costs_etsim_type_plant : min cost for this type

- maxv_costs_etsim_type_plant : max cost for this type

4.3.6 Etsim_round_game

This table contains the data from every bids made by the players in a particular game.

It contains the following fields:

- id_etsim_round_game : generate, id game, id member, round number
- number_etsim_round_game : round number
- bid_volume_etsim_round_game : volume of the bid
- bid_price_etsim_round_game : price of the bid
- demand_volume_etsim_round_game : volume of demand for the corresponding round
- market_price_etsim_round_game : market for the corresponding round
- income_etsim_round_game : generated by the bid
- cost_etsim_round_game : generated by the bid
- benefit_etsim_round_game : generated by the bid
- capital_etsim_round_game : capital of the player during the game

4.3.7 Etsim_round_game_temp

This table contains the data from every bids made by the players in a particular game before insertion in etsim_round_game. (max 10 round by game)

It contains the following fields:

- idetsimgame_etsim_round_game_temp : id game
- idetsimmember_etsim_round_game_temp : id member of the bid
- number_etsim_round_game_temp : round number
- line_etsim_round_game_temp : number line (multi proposition)
- bid_volume_etsim_round_game_temp : volume of the bid
- bid_price_etsim_round_game_temp : price of the bid
- demand_voume_etsim_round_game_temp : demand of the round
- idplant_etsim_round_game_temp :id of the plant for propostion
- finnish_etsim_round_game_temp : state of the round (1) completed by user (0) in use

4.3.8 etsim_game_round_datetime

This table contains the time for each round by game. (max 10 round by game)

It contains the following fields:

- round_number_etsim_game_round_datetime : round number
- currentdate_etsim_game_round_datetime : current date of beginning round
- datetime_round_etsim_game_round_datetime : current date of endding round
- id_etsim_game : id game link
- demand_power_per_round : demand round automatically create with random

4.3.9 is_type

This table contains the id plant and id type plant for connected a plant with a type.

It contains the following fields:

- Id_etsim_plant
- Id_etsim_type_plant

4.3.10 have

This table contains the id plant, id_etsim_game and id_etsim_members_have for linked a variable costs on the plant linked for each user per game.

It contains the following fields:

- id_have : auto create
- id_etsim_members_have : id member
- v_costs_etsim_members_have : variable costs for
- id_etsim_plant : id plant apply to user
- id_etsim_game : id game apply to user

4.3.11 can_contains

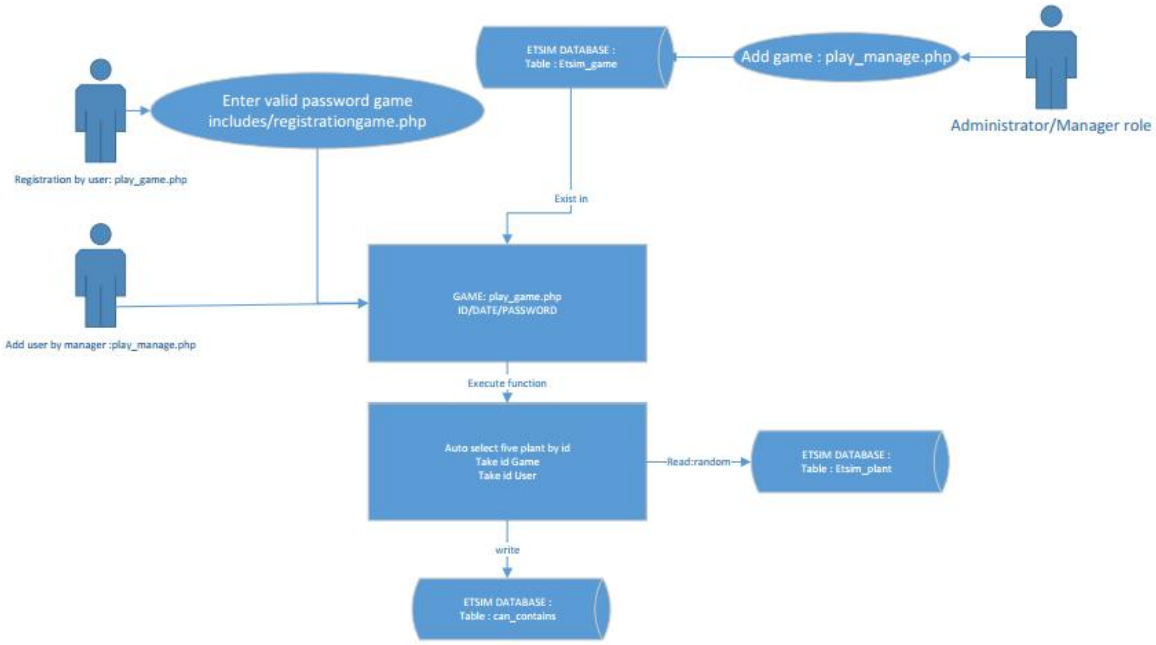
This table contains the id plant, id game, id members, id round and id can contains for linked all information for create a round game for each user with their plant. It is the more important table for the games. Because all relation beetween elements are create here.

It contains the following fields:

- id_etsim_cc :id auto generate
- id_etsim_plant_game_contains : id apply for a user
- id_etsim_game : id game for the user
- id_etsim_members : id member
- id_etsim_round_game` : round apply of this user

5 Game information :

5.1 Process register or add player by manager/admin:



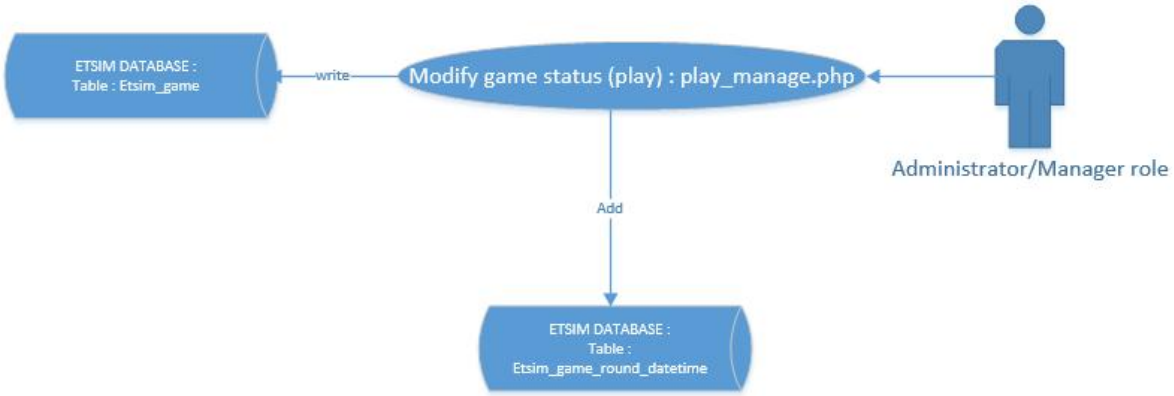
Exemple in can_contains :

This table contains the id plant, id game, id members, id round and id can contains for linked all information for create a round game for each user with their plant. It is the more important table for the games. Because all relation beetween elements are create here.

Each register create 5 rows that include :

- Id : auto incremented,
- Id_plant : random in etsim_plant table,
- Id_game : id selected for register,
- Id_members : who registered,
- Id_etsim_round_game : round linked in user (0 = register in game)

5.2 Process status game in play :



The game beggining and each round have a time specified !

```
SELECT * FROM `etsim_game_round_datetime`
```

Profilage [En ligne] [Modifier] [Expliquer SQL] [Créer source PHP]

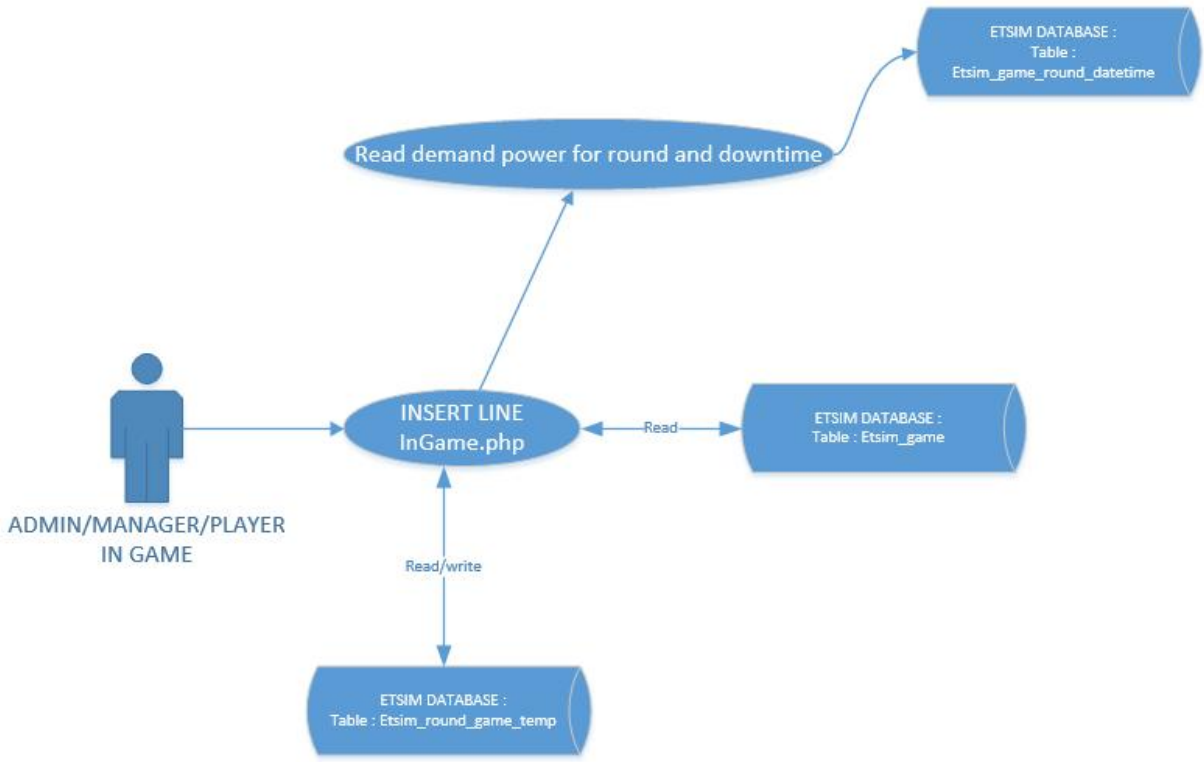
Nombre de lignes : 25

Trier sur l'index : Aucune

Options

	round_number_etsim_game_round_datetime	currentdate_etsim_game_round_datetime	datetime_round_etsim_game_round_datetime	id_etsim_game	demand_power_per_round
Modifier Copier Effacer	1	2016-01-12 16:42:14	2016-01-12 16:57:14	1	3500
Modifier Copier Effacer	2	2016-01-12 16:57:14	2016-01-12 17:12:14	1	3500
Modifier Copier Effacer	3	2016-01-12 17:12:14	2016-01-12 17:27:14	1	1750
Modifier Copier Effacer	4	2016-01-12 17:27:14	2016-01-12 17:42:14	1	1750
Modifier Copier Effacer	5	2016-01-12 17:42:14	2016-01-12 17:57:14	1	2000
Modifier Copier Effacer	6	2016-01-12 17:57:14	2016-01-12 18:12:14	1	3500
Modifier Copier Effacer	7	2016-01-12 18:12:14	2016-01-12 18:27:14	1	1750
Modifier Copier Effacer	8	2016-01-12 18:27:14	2016-01-12 18:42:14	1	3150
Modifier Copier Effacer	9	2016-01-12 18:42:14	2016-01-12 18:57:14	1	3500
Modifier Copier Effacer	10	2016-01-12 18:57:14	2016-01-12 19:12:14	1	3000

5.3 Play process for a round



During the round the player can add some line for answering a the power demand. Each line are update directly in the table : etsim_round_game_temp

FormValidation.js it used for control all data insert for prevent :

- higher response to the power demand,
- higher response for max produce volume of selected plant,
- specified price smaller than variable cost of selected plant,
- specified price greater than 180€/M.

In table etsim_game_round_temp , we have for a round :

- Id_Game,
- Id_Player,
- Current round_number,
- Line added for response a the demand,
- And all date : bid price, bid volume, demand power, income,…

idetsimgame_etsim_round_game_temp	idetsimmember_etsim_round_game_temp	number_etsim_round_game_temp	line_etsim_round_game_temp
1	9	1	1
1	9	1	2
1	9	1	3

5.4 Process for past in the next round :

All data in the round for each player are added in temporary table : etsim_round_game_temp, it's just for prevent that player couldn't see, his results .

For past a the next round, we have two possibilities :

- Downtime (15 minutes),
- All player have apply his responses (script to control if all player have apply their responses).

InGame.php :

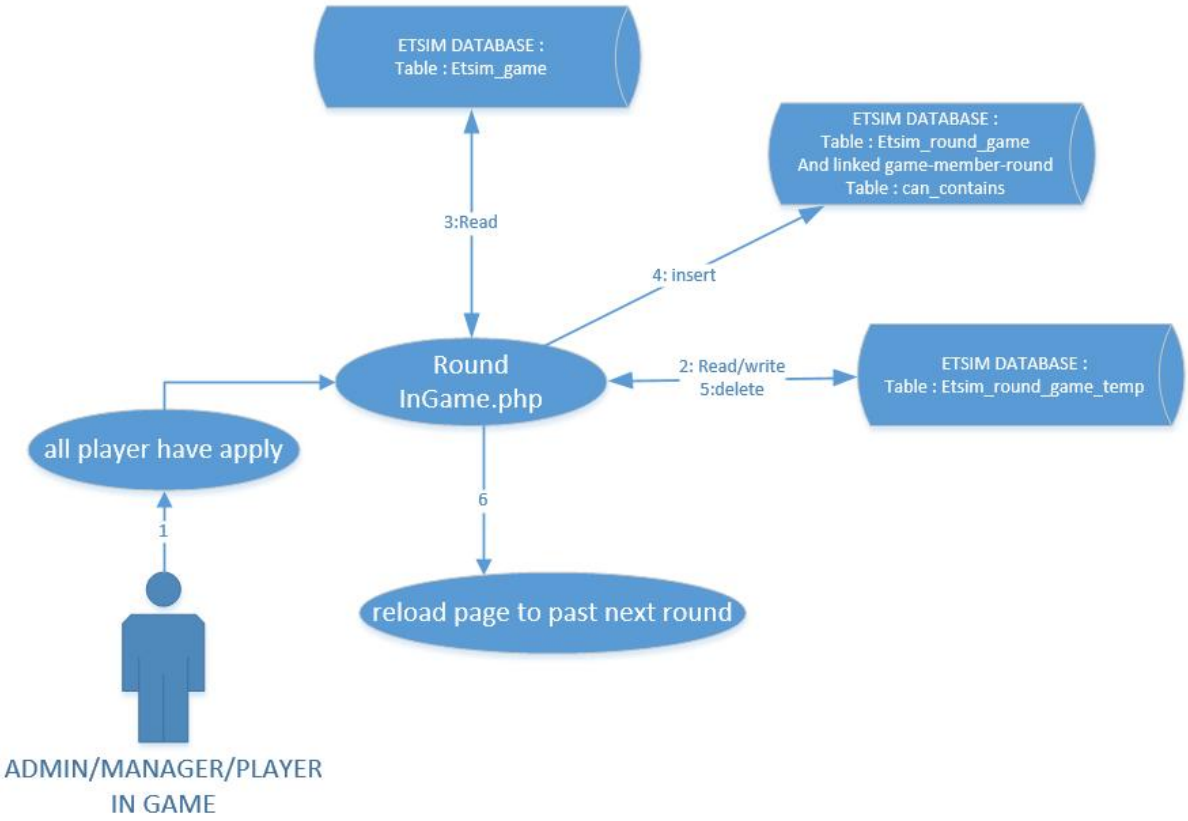
If a user apply by « Register » button, his responses is up to be apply in table etsim_round_game. To say that round for user is up a listener is apply one the button that called by POST on includes/update_InGame_data.php . This function switch statut 0 to 1 line of my round :

- 0 : don't up (in modification/game),
- 1 : up to be apply in etsim_round_game.

Exemple : for a line round

finnish_etsim_round_game_temp
0
0
0

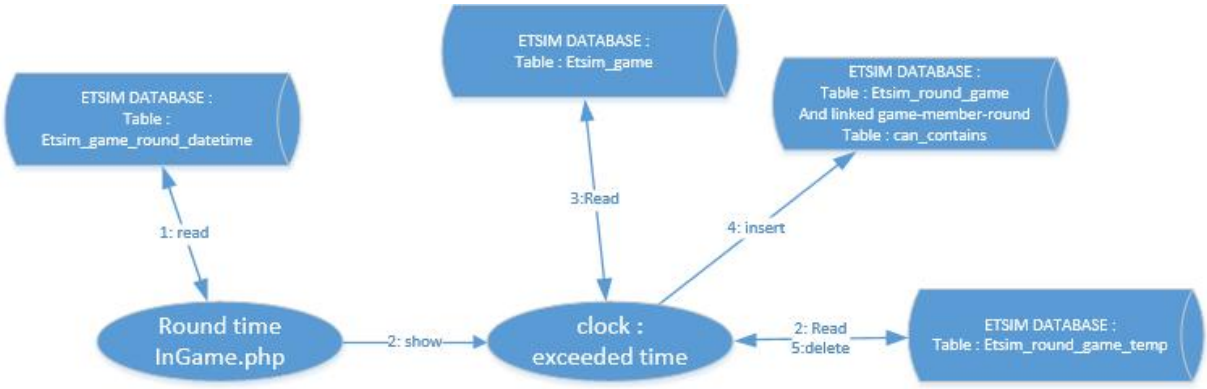
After if all player have apply their responses,



the functions are called in InGame.php :

```
$totalU = countUserTotalInGame($mysqli, $idGame);
$totalUF = countUserTotalInGameFinnishRound($mysqli, $idGame, $roundGame);
if ( $totalU == $totalUF ) {
        applyRoundGame($mysqli, $idGame, $roundGame);
        echo '<script type="text/javascript">location.reload(true);</script>';
}
```

Or, the time is completed for a round :



For first possibility the function ApplyRoundGame() is called otherwise if it is the clock who apply the round so the page update_InGame_data.php is called for take all line from etsim_round_game_temp and create the id round with this id :

idetsimgame_etsim_round_game_temp	idetsimmember_etsim_round_game_temp	number_etsim_round_game_temp	line_etsim_round_game_temp
1	9	1	1
1	9	1	2
1	9	1	3

Ex : Id_round_game to insert is in this example :

- 1-9-1-1,
- 1-9-1-2,
- 1-9-1-3.

My table is :

	id_etsim_round_game	number_etsim_round_game	bid_volume_etsim_round_game	bid_price_etsim_round_game	demand_voume_etsim_round_game
Modifier Copier Effacer	1-9-1-1	1	145	0	1875
Modifier Copier Effacer	1-9-1-2	1	10	0	1875
Modifier Copier Effacer	1-9-1-3	1	0	123	1875

And we must linked this line with user and game in table : can_contains :

	id_etsim_cc	id_etsim_plant_game_contains	id_etsim_game	id_etsim_members	id_etsim_round_game
Modifier Copier Effacer	51	57	1	9	0
Modifier Copier Effacer	52	51	1	9	0
Modifier Copier Effacer	53	5	1	9	0
Modifier Copier Effacer	54	9	1	9	0
Modifier Copier Effacer	55	75	1	9	0
Modifier Copier Effacer	71	5	1	9	1-9-1-1
Modifier Copier Effacer	72	9	1	9	1-9-1-1
Modifier Copier Effacer	73	51	1	9	1-9-1-1
Modifier Copier Effacer	74	57	1	9	1-9-1-1
Modifier Copier Effacer	75	75	1	9	1-9-1-1
Modifier Copier Effacer	76	5	1	9	1-9-1-2
Modifier Copier Effacer	77	9	1	9	1-9-1-2
Modifier Copier Effacer	78	51	1	9	1-9-1-2
Modifier Copier Effacer	79	57	1	9	1-9-1-2
Modifier Copier Effacer	80	75	1	9	1-9-1-2
Modifier Copier Effacer	81	5	1	9	1-9-1-3
Modifier Copier Effacer	82	9	1	9	1-9-1-3
Modifier Copier Effacer	83	51	1	9	1-9-1-3
Modifier Copier Effacer	84	57	1	9	1-9-1-3
Modifier Copier Effacer	85	75	1	9	1-9-1-3

For game 1 you have 5 rows for each round line insert in tables from the InGame.php. The results is added in Game and the next round begin.

5 List of files

v1.0 Bryan MAISANO – Baptiste MOUTERDE

The following folders exist in the root folder of ETSIM:

- Assets : CSS, JavaScript,Fonts,Sass
- Db (info)
- Includes : all files necessary for the functionalities of the game
- images : contains pictures

In the root folder, you will find the following files:

- admin_users.php : call the by admin panel (ADMIN)
- play_game.php : call the complete game base page (ADMIN, MANAGER, PLAYER)
- index.php : own page (ALL)
- play_manage.php : call the management game page (ADMIN, MANAGER)
- change_pwd.php : call for change password (ADMIN, MANAGER, PLAYER)
- lost_pwd.php : call for lost password (ALL)
- play_rules.php : call for watch le play rules (ADMIN, MANAGER, PLAYER)
- contact.php : call for contact admin of the game (ALL)
- new_game.php : call for create new game (ADMIN, MANAGER)
- register.php : call for register new player (ALL)
- creators.php : call for watch the devellopers
- new_plant.php : call for create new plant (ADMIN, MANAGER)
- inGame.php : call when a player is in game currently (ADMIN, MANAGER, PLAYER)
- new_type_plant.php : call for create new type plant (ADMIN, MANAGER)
- admin_download.php : call for access of all information about use game (ADMIN)
- result_game.php : show result for a game (ADMIN, MANAGER, PLAYER)

In directory : ./assets:

- ./assets/css: Style of pages (main => main.css)
    - flipclock.css
    - font-awesome.min.css
    - ie8.css
    - ie9.css
    - images
    - main.css
- ./assets/css/images: Layout images
    - bg01.png
    - bg02.png
    - bg03.png
- ./assets/fonts: Fonts pages
    - FontAwesome.otf
    - fontawesome-webfont.svg
    - fontawesome-webfont.woff
    - fontawesome-webfont.eot
    - fontawesome-webfont.ttf fontawesome-webfont.woff2
- ./assets/js: Each function Java Script
    - jquery.js (librairie for functions)
    - main.js (librairie for functions)
    - skel.min.js (librairie for functions)
    - forms.js (librairie for functions)
    - formsValidation.js (Validation input in InGame.php)
    - jquery.dropotron.min.js (librairie for functions)
    - jquery.min.js (librairie for functions)
    - sha512.js (librairie for functions)
    - util.js (librairie for functions)
- ./assets/js/flipclock: (clock view for game)
    - flipclock.min.js (librairie for use clock)

In directory : ./db: Files for install serious game

In directory : ./images: All ressources

In directory : ./includes: All include for pages

- add_plant.php (new_plant.php)
- lostpwd.php (lost_pwd.php)
- registerplant.inc.php(new_plant.php)
- modifypwd.php (change_pwd.php)
- registertypeplant.inc.php (new_type_plant.php)
- db_connect.php (all includes file for connect to DB)

- new_Rows_InGame.php (InGame.php)
- functions.php (All main files)
- process_login.php (Login process for connect to etsim)
- send_form_email.php (send mail by contact page)
- functions_game.php (all file for play :)
- psl-config.php (Database accès information)
- update_InGame_data.php (update for InGame.php)
- inGame.inc.php (Include specifically for InGame.php)
- register.inc.php (register.php add user)
- update_game_data.php (play_manage.php)
- registerRoundGame.inc.php (InGame.php for validation of round by user)
- update_plant_data.php (play_manage.php : update data of plan)
- leavegame.inc.php (play_game.php : enter in game)
- registergame.inc.php (play_game.php : leave game)
- update_type_plant_data.php (play_manage.php : update data of type plan)
- logout.php : (all page for logout)
- registeringame.inc.php (play_game.php : add new game)
- update_user_data.php (admin_users.php for adminstrated users)

In directory : ./includes/layout: Each element or script repeated for all pages. If you want add new script jquery its in this page !

- CopyrightBar.php (End pages copyright)
- HeadBarAdminUsers.php (head :admin_users.php)
- HeadBarPlayGame.php (head play_game.php)
- LoginDiv.php (Login div for each file)
- HeadBar.php (All php file)
- HeadBarInGame.php (head InGame.php)
- HeadBarPlayManage.php (head : play_manage.php)
- NavigBar.php (Navigation bar each file)