P.I. e C.F.: 03723210278



### When useful is nice

"It is not the strongest of the species that survives, or the most intelligent, it is the one most capable of change"

**Charles Darwin** 







#### Introduction

The **PHP** language is essential, simple and direct, this means that the paradigm "easy & fast" is his strength. In the **IBM i** environment, the presence of native **PHP LICPGM** inside the operating system is, for sure, a big success and an important starting point. (img\_01)

```
Visualizzazione programmi su licenza installati
Sis
Program. Stato
su lic. installaz. Descrizione
1ZCORE5 *INSTALLED Zend Core for IBM i5/0S (2.6.1)
2ZSVRPI *INSTALLED Zend Server for IBM i 5.0.1 ( PHP 5.3 )
```

Daily confirmations about this comes from many sources: colleagues, customers, users, enthusiasts or simply curious who speak about their experiences amazed at how easy it is developing with PHP.

Completed the initial step, the first experiments, the next goal would be "the organization of code" to try to develop something more than just a "test.*php*".

Trying to "replicate" the Applications organisation "**AS400 style**", we encountered essentially a couple of questions:

- a. code organisation
- b. smarty presentation layout

On the first question can be answered with "PHP", based on the experience.

But today users are confidential on usage about complex and smarty graphically applications, because every aspect of life use now new technologies: social-networks, applications on the smartphone, booking on line. The solution to the second question requires, of course, a different approach for developers **IBM i**, a depp knowledge on new web technologies:

- javascript
- ajax
- css
- flash
- web services

All "languages" listed above allow to have "smarty and sexy" graphical HTML application.

The learning curve to aquire experience on them should be too long for an IBMi developer to be reasonably competitive on new web software.

The "presentation" aspect of web applications is, strangely, the main problem for a **IBM i** developer, because until not long ago the only items used was a 5250 screen.

The **PHP** language hasn't specific tools to manage the "Presentation" aspects, it means that with **PHP** must develop the "Application Logic" and the **HTML** layout. (img\_03)

```
<?php
while ($row=db2 fetch assoc($result)) {
    print "<tr>";
    print "":rim($row['cdcli'])."";
    print "":trim($row['rascl'])."";
    print "":trim($row['loccl'])."";
    print "";
    print "";
}
```



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#### Wi400

This is the main reason of **Wi400**: the first and once (to date) **i-framework**, a tool created and designed by the union of multi-skills in a "**I**" environment and the professionalism and expertise on the modern web technologies. (img\_02)



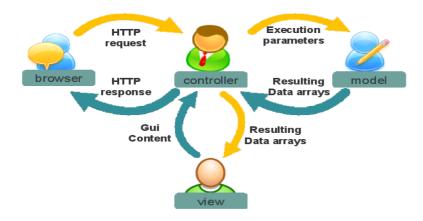
The idea was to create a tool that allow to develop new and modern **PHP** code without know any aspects and issues of "presentation" but focusing only on "Business logic", and meanwhile, "keep" familiarity with the **I** environment.

#### The Wi400 "mission":

- ✓ Obtain the best performance on DB2
- ✓ The usage of a PHP language that "looks like" something that sounds familiar (there is a Wi400\_Subfile() class to create a nice grid on HTML)
- ✓ Managing all users functionalities under Menu and Actions control. All these items will be stored on DB
- ✓ Monitoring all activities trough a "web-like" view, and also trough classic 5250 screen (DSPJOBLOG of my job to understand what's happened)
- ✓ Check "who does what"

#### Wi400 Architecture

Wi400 technology follows a known concept on developing code: the MVC (Model, View, Controller). The MVC paradigm isolates the "application logic" (Model), the data "presentation" (View) and the controllers (Controller). (img\_04)



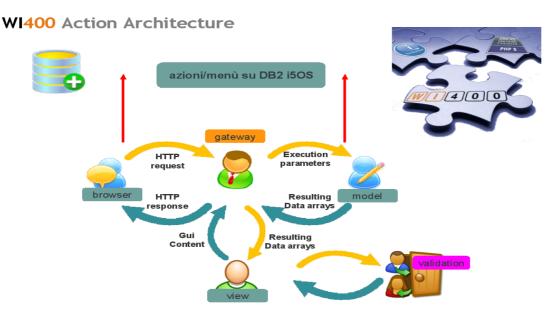




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#### Wi400

The news on **Wi400** is that the **MVC** methodology has been embedded on tipical applications concepts of **IBM i**, listing every action in tables in order to manage controlled access available to user. (img\_05)

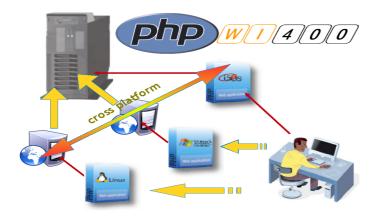


Most developing activities in **Wi400** consist in the "application logic", everything regarding "presentation aspect" will be delegated to the functions of the **i-framework Wi400**.

The **DB2** access through **Wi400** is optimized according to the desired results:

- through ibm\_db2 extension (high performance)
- through i5\_toolkit Easycom (in cases of poorly systems or not so updated to the latest release).
   This feature allows a developer to "switch" between configuration depending on the final desired goal.

**Wi400** grant access to DB not only on DB2, but also to **MySQL**, **Oracle** and **SqlServer**, there is also the possibility to install all web environment outside **IBM i**.





#### S.I.R.I. S.r.I.

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#### Developing code on Wi400(img\_07).

```
1 <?php
 2
 3
       // anag<mark>raphic customers list</mark>
       $ myList = new wi400List("EXAMPLE1 LIST", true);
 4
 5
       $_myList->setFrom("ZWIDEMO".$settings['i5_sep']."ANCL200F");
       // show all columns from tabel
 6
 7
       $cols = getColumnListFromTable("ANCL200F", "ZWIDEM0");
 8
       $ myList->setCols($cols);
 9
       // data rendering on HTML
10
       $ myList->dispose();
```

- line **4.** "instance" of **Wi400List** class to create the "subfile" object on web, this object will display **HTML** code to view a scrollable grid elments.
  - line 5. select the DB2 table to extract informations
  - line 7. retrieve all columns from DB2 table
  - line 8. assign to the instanced object the table columns
  - line 10. render data on HTML.

with only 5 lines of code, this will be the result (img\_08).



Every "subfile" built from Wi400 has a series of embedded widgets:

- paging
- export on pdf, excel, csv, xml
- customization form user the "subfile" properties (number of rows per page, columns sortable, hide/show columns)
- on line documentation

#### Script implementaion

Implementing the above script by adding a few lines of code, we can insert some search "filters". Filters can be "fast" or "advanced".

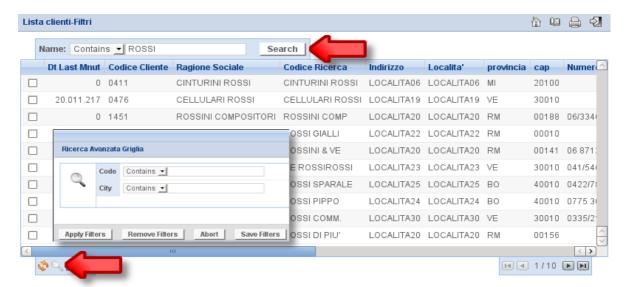
The "fast" filter will be showed immediately on the header of grid (it will be probabely the most usage search by the user)

The "advanced" filter will be showed on demand by user, with specific function. (img\_o9)

```
1
   <?php
       // anagraphic customers list with search filter
 3
       $_myList = new wi400List("EXAMPLE1_LIST", true);
 4
       $_myList->setFrom("ZWIDEMO".$settings['i5_sep']."ANCL200F");
 5
 6
       // show all columns from tabel
 7
       $cols = getColumnListFromTable("ANCL200F", "ZWIDEM0");
 8
       $_myList->setCols($cols);
 9
10
       // Add fast filter
       $_myFilter = new wi400Filter("RASCL_","Name","STRING");
1.1
       $ myFilter->setFast(true);
12
13
       $_myList->addFilter($_myFilter);
14
       // Add advanced filter
15
       $ myFilter = new wi400Filter("CDCLI", "Code", "STRING");
       $ myList->addFilter($ myFilter);
16
       $ myFilter= new wi400Filter("LOCCL", "City", "STRING");
17
18
       $_myList->addFilter($_myFilter);
19
20
       // data rendering on HTML
21
       $ myList->dispose();
```

The result of the additional filters, will display fields for research, managing by user (img\_10)

With other 7 lines of code, this will be the final result.





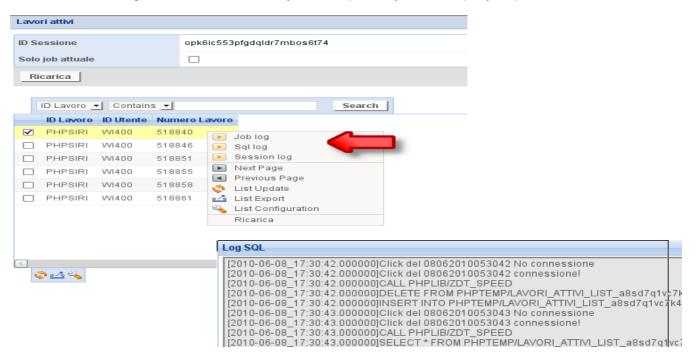
#### Wi400 and i5/OS integration

Particular attention was reserved in **Wi400** to implement the **DB PHP** classes in order to ensure a complete and "transparent" integration between the "JOB" of **PHP** connection and the related **i5/OS** "JOB".

Each **PHP Wi400** JOB, through **API** system, sychronize the related **5250** JOB, so it's possible to check every connection to the system, also via 5250 screen, and see the "status of art" of application.

This strong integration is performed not only for finding status of activity user, but for each DB query executed through **SQL**.

The advantage is to have a consistently and deep analisys of each query response time. (img\_11, img\_12)



#### (img\_13)

```
X () siri
                                  Visualizzazione di tutti i messaggi
                                                                                                          SIRI01
                                                                                         Sistema:
                                                                                Numero . . . : 513208
 Lavoro . .: PHPSIRI
                                        Utente . . : WI400
       L'oggetto sostituito USPC1 tipo *USRSPC è stato trasferito nella QRPLOBJ.
       E' stata modificata la lista delle librerie.
E' stata modificata la lista delle librerie.
       Azione:JOB_LOG USER:PHPMAN-a8sd7q1vc7k453hpscrpk4p496 /WI400/
L'oggetto sostituito USPC1 tipo *USRSPC è stato trasferito nella QRPLOBJ.
       E' stata modificata la lista delle librerie.

Azione:JOB_LOG USER:PHPMAN-a8sd7q1vc7k453hpsc /WI400/
L'oggetto sostituito USPC1 tipo *USRSPC è stato trasferito nella QRPLOBJ.
L'oggetto sostituito USPC1 tipo *USRSPC è stato trasferito nella QRPLOBJ.
       E' stata modificata la lista delle librerie.
E' stata modificata la lista delle librerie.
        Azione:JOB_LOG USER:PHPMAN-a8sd7q1vc7k453hpscrpk4p496 /WI400/
       L'oggetto sostituito USPC1 tipo *USRSPC è stato trasferito nella QRPLOBJ.
 Premere Invio per continuare.
               F5=Rivisual. F12=Cancellazione F17=Inizio dati F18=Fine dati
                                                                                                               11/1
```

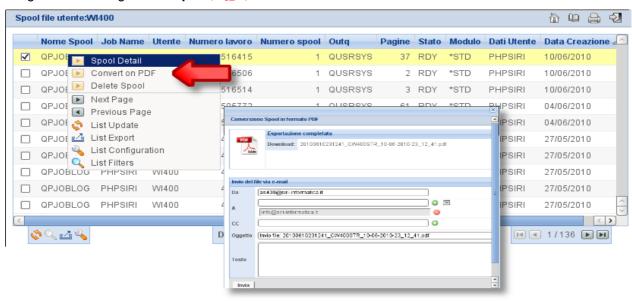


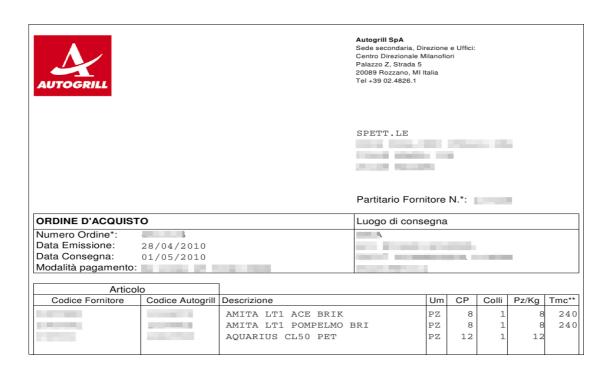
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#### spool with Wi400

Another feature included in the i-framework Wi400 is a spool management.

Besides the usual options about spool, **management**, **visualization** and **export** on **pdf** format, it's possible integrate "custom" **PHP** Classes associated to "user data" of each spool, to build a layout and match a personal "background" on the generated **pdf**. (img\_14)







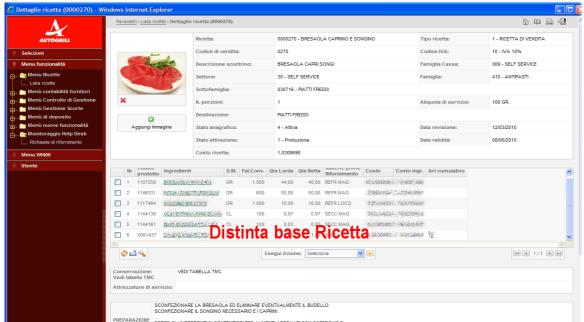
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#### **Success Stories**

The **Wi400** framework is currently also used in big companies really believe on a perfect integration between **PHP** technology and **IBM i** platform. (img\_15)



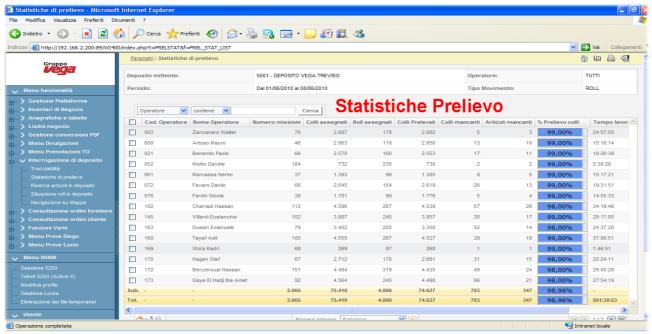
(img\_16)



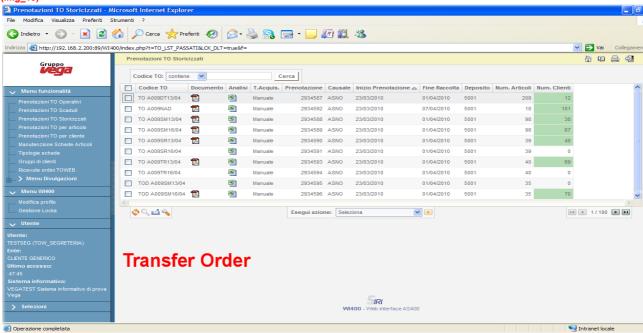


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#### (img\_17)

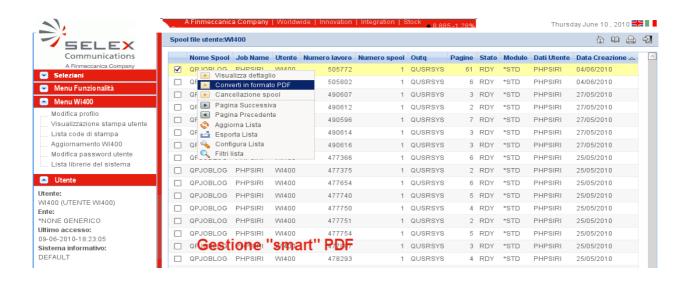


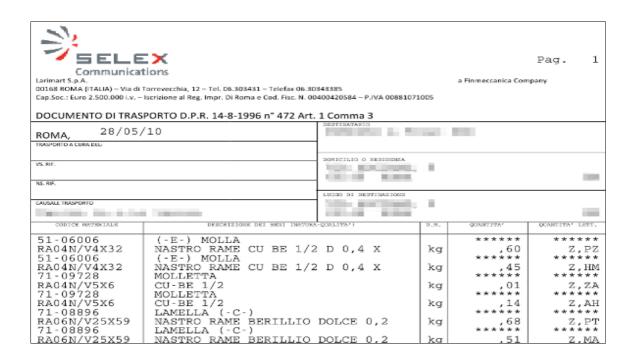






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#### how to find us:

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http://www.linkedin.com/groups?gid=2896949	Linkedin discussion group
Wi400 is realized and supported by Siri Informatica	http://www.siri-informatica.it info@siri-informatica.it