Zend Building Blocks

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HG

Audience

- Are you looking to learn more about the what & how of PHP on IBM i?
- Have you done some PHP but new to IBM i?
- Are you already doing PHP but Looking for product refresh?
- Might you be looking to grow beyond PDM/RPG?

Make this a question, show of hands

Agenda

- Introduction to PHP and players
- Zend Server for IBM i
- Hello World
- Administrative Setup
- Zend Studio
- PHP Data Access
- Wrap it up, I'll take it…

Agenda

The Five Steps…

1. Understand the PHP universe
2. Understand the “stack” on IBM i
3. Install Zend Server
4. Install Zend Studio
5. Get productive!

PHP is a Scripting Language

- PHP Hypertext Pre-Processor
- Developed initially by Rasmus Lerdorf in 1994: PHP/FI
- Zeev Suraski and Andi Gutmans Contributing since1997+ (ZEev + aNDi = Zend)
- Interpreted, not compiled
- Forgiving and intuitive code structure (Short learning curve)
- Immediate feedback during development
- Operating model is similar to Net.Data, not as verbose
- PHP is to Java what RPG is to COBOL

Change slide to reflect benefits

Who is Zend?

- Guiding light for PHP
- Providers of stable, supported PHP distribution
- Providers of commercial tooling and support for PHP
  - Zend Server
  - Zend Studio

Remove guiding light and move diagram to previous slide

Zend and IBM

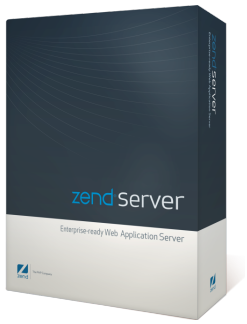
- Partnership began in 2005
- Renewed in 2008
- Zend selected by IBM to deliver PHP on IBM i
- Zend solutions pre-loaded with IBM i 6.1 and 7.1!
  - Just install the LP and go!
- You can still get products and updates at Zend.com
- IBM i7.1 includes Zend Server

Why Open Source?

- Tough economic times calls for innovation
  - Low cost of entry
  - Applications of high quality
  - Lower TCO
  - Runs natively on IBM i, no need for additional hardware / OS
  - You are probably already using it! (Apache, Eclipse, etc.)

The “Stack”

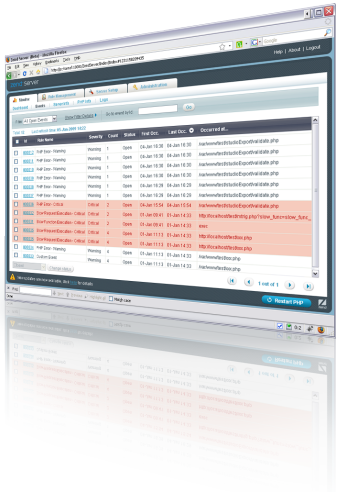
- Tested, business ready and supported distribution of PHP
- Runs Native Environment under PASE
- Home base for PHP modules like GD, PEAR, etc.
- Browser based admin console
- Accessible immediately after install
- Let’s look at the architecture of the stack
- And then installation on IBM i
- No charge LP Included with system maintenance



Move this later

What Is Zend Server?

- Production quality PHP stack
  - PHP, ZF, DB connectivity, debugging extension, and more
- Two Editions - Free “Community Edition” provided by IBM & Full commercial edition
  - Both are production ready
- Application monitoring and diagnostics (integrated with Zend Studio)
- Multi-level performance enhancement capabilities
- Software updates and security hot fixes
- Easy and quick installation
- Zend Framework Integration



Zend Server for IBM i

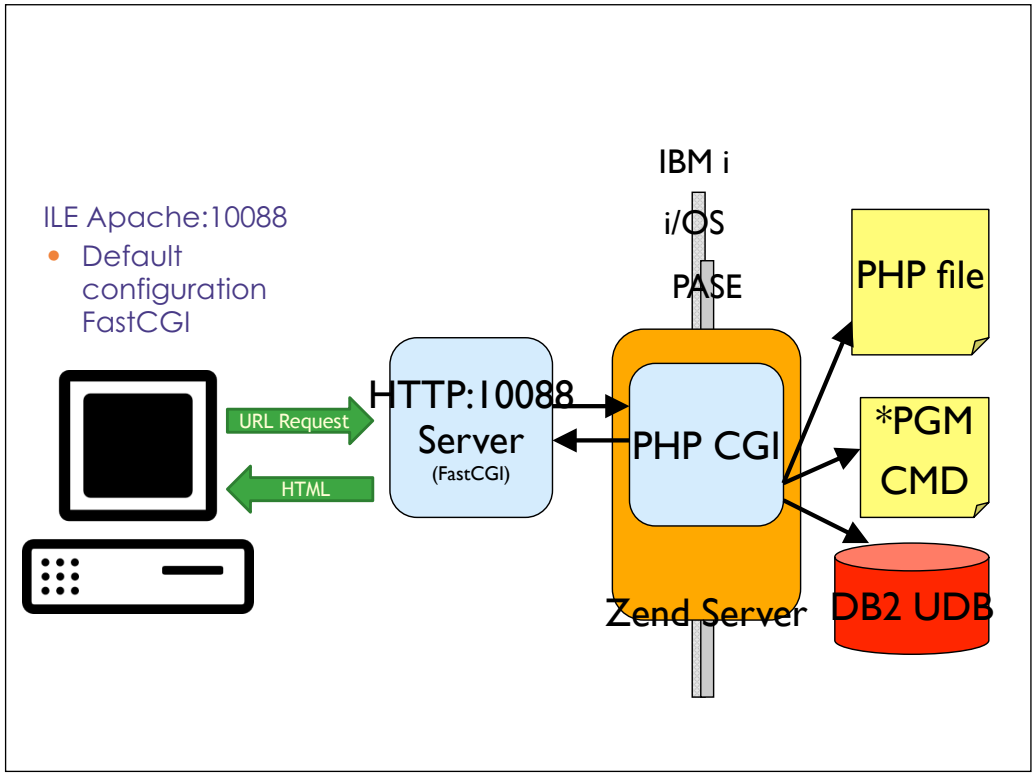
- **Next generation of PHP stack for IBM i**
- **Best of both Zend Core and Zend Platform**
- **Single Licensed Program Installation**
- **One installable acts like two products**
  - Zend Server for IBM i Community Edition
    - Available at no charge per IBM partnership
  - Zend Server for IBM i
    - Subscription available from Zend (License Key)
    - High value extra features
    - Higher Support SLAs

Remove this.

Why a new generation?

- **Based on feedback of key areas for Improvement**
- **Improved basic PHP Performance**
  - 30% to 600% depending on the application
- **New capabilities**
  - Application Monitoring
  - Code Tracing – Faster problem resolution
  - Job Queue – Performance and scalability
  - Multi-Level Caching – Performance and Scalability
  - Support for PHP 5.3
- **Easier installation, administration & maintenance**

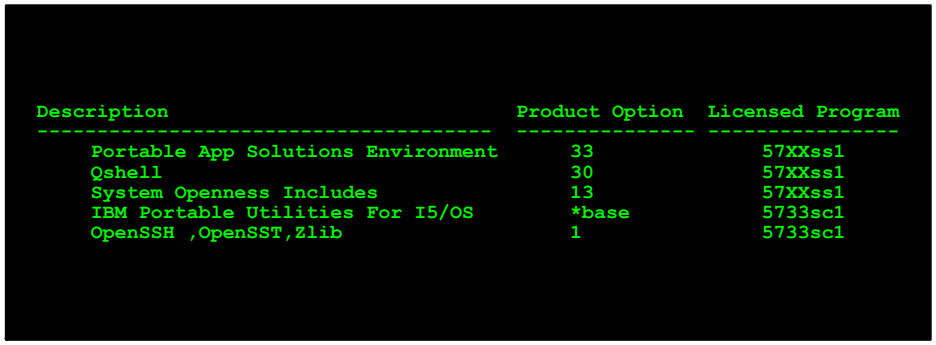
Eliminate slide? Highlight capabilities. Migrate performance features on previous slide.



Move to right after Zend server for Ibm i

Software Pre-reqs

Please read the Installation Guide !!!



Description	Product Option	Licensed Program
Portable App Solutions Environment	33	57XXss1
Qshell	30	57XXss1
System Openness Includes	13	57XXss1
IBM Portable Utilities For I5/OS	*base	5733sc1
OpenSSH ,OpenSST,Zlib	1	5733sc1

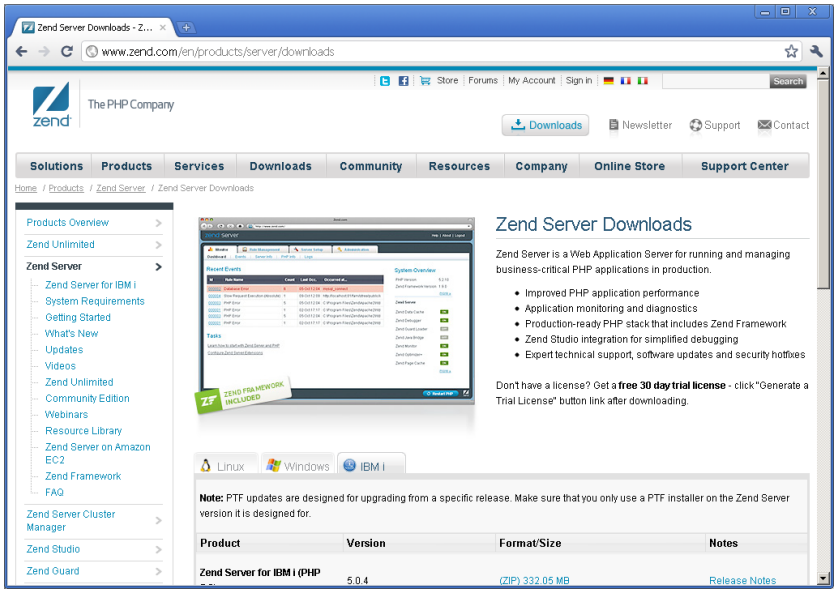
Make sure they match your release!

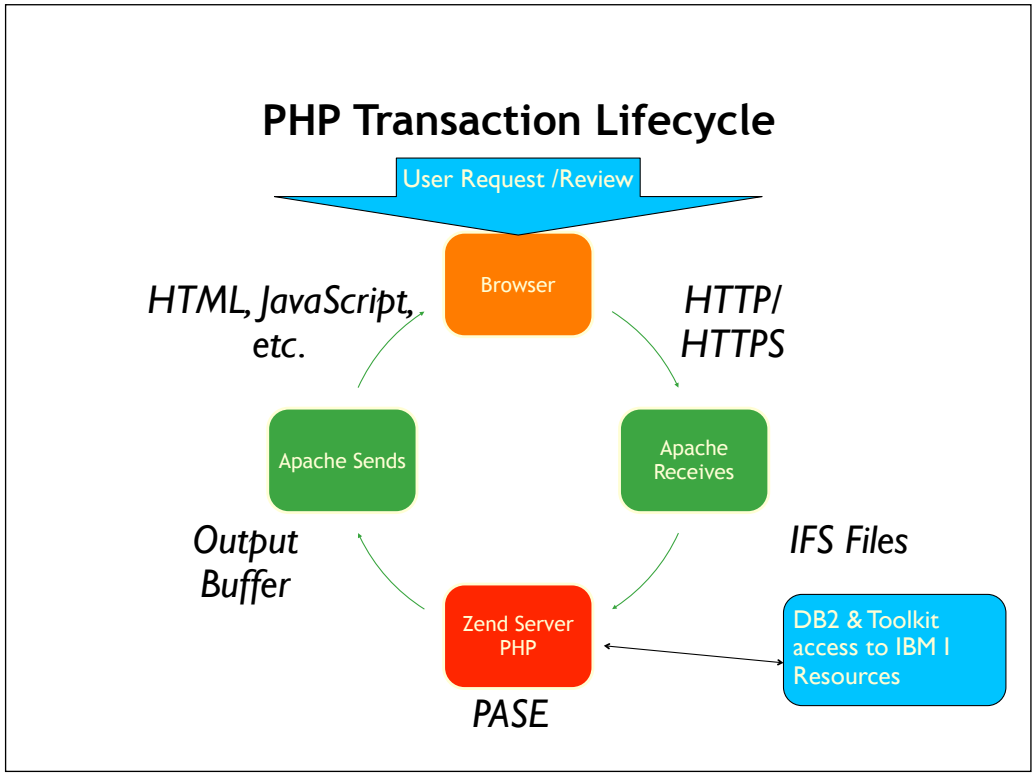
Move to hello world

Install Zend Server

- Prerequisites:
  - See Zend Server installation documentation!!!
  - i5/OS V5R3 Core is still available, Server will not load!
  - V5R4, i6.1, i7.1 (all interim releases, too)
  - Recent Cumulative PTF package, PASE, Qshell, Group for HTTP
- Software installation
  - Windows Installation or...
  - Upload *SAVF, Restore, and start coding!
  - Clean installation can start the stack automatically
- Bonus!
  - MySQL can be installed at the same time

Move to hello world


Zend Server Downloads - Z...
www.zend.com/en/products/server/downloads
Store | Forums | My Account | Sign in
Search
The PHP Company
Downloads
Newsletter
Support
Contact
Solutions
Products
Services
Downloads
Community
Resources
Company
Online Store
Support Center
Home / Products / Zend Server / Zend Server Downloads
Products Overview
Zend Unlimited
Zend Server
Zend Server for IBM i
System Requirements
Getting Started
What's New
Updates
Videos
Zend Unlimited
Community Edition
Webinars
Resource Library
Zend Server on Amazon EC2
Zend Framework
FAQ
Zend Server Cluster Manager
Zend Studio
Zend Guard
ZEND FRAMEWORK INCLUDED
Zend Server Downloads
Zend Server is a Web Application Server for running and managing business-critical PHP applications in production.
Improved PHP application performance
Application monitoring and diagnostics
Production-ready PHP stack that includes Zend Framework
Zend Studio integration for simplified debugging
Expert technical support, software updates and security hotfixes
Don't have a license? Get a free 30 day trial license - click "Generate a Trial License" button link after downloading.
Linux
Windows
IBM i
Note: PTF updates are designed for upgrading from a specific release. Make sure that you only use a PTF installer on the Zend Server version it is designed for.
Product
Version
Format/Size
Notes
Zend Server for IBM i (PHP
5.0.4
(ZIP) 332.05 MB
Release Notes

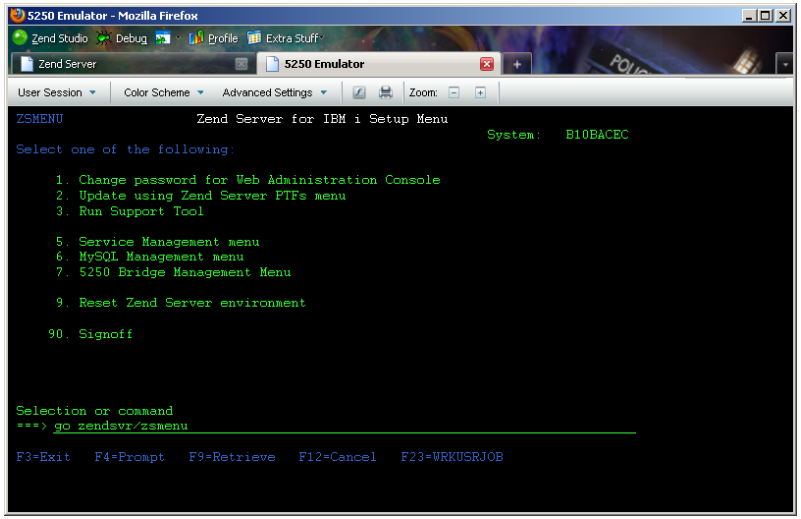


Move to before the slide of Zend Server under covers

DB2 move to under Zend Server.

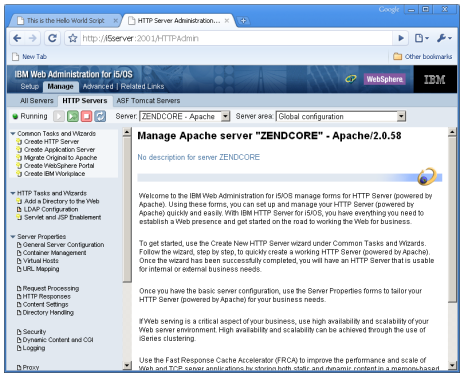
Start/stop Zend Server, MySQL, etc...

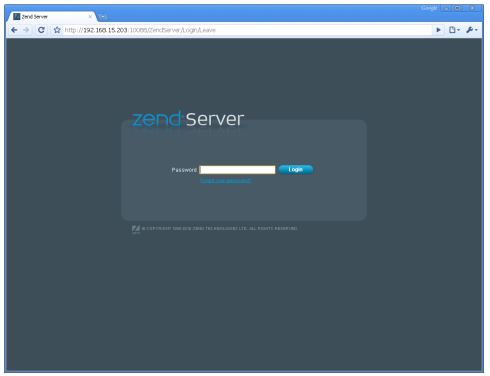
- Type GO ZENDSVR/ZSMENU, Option 5 then 1



Zend Server Configuration

- Only two screens!
  - Use http://ibmiserver:2001 to administer IBM HTTP server
  - Use Zend Admin to administer Zend/PHP options

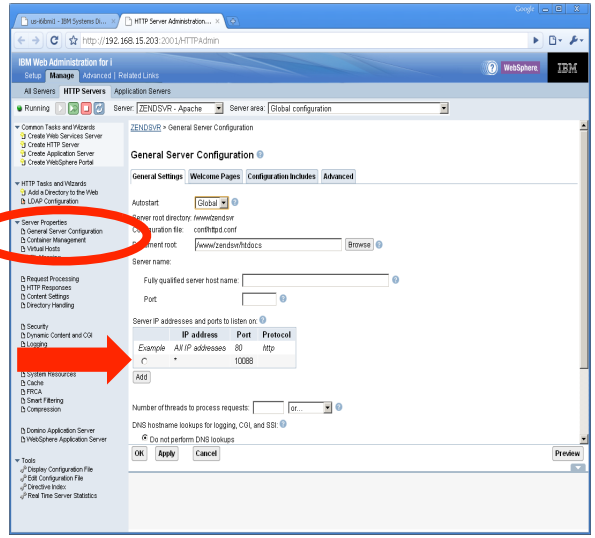




Changes necessary for the reverse proxy server are made in the

Zend Server Port Change?

- Default proxy points to Port 10088
  - Log in to IBM Admin Server and open up ZENDSVR
  - Go to General Server Configuration
  - Click Apply & restart the server



Sample Scripts!

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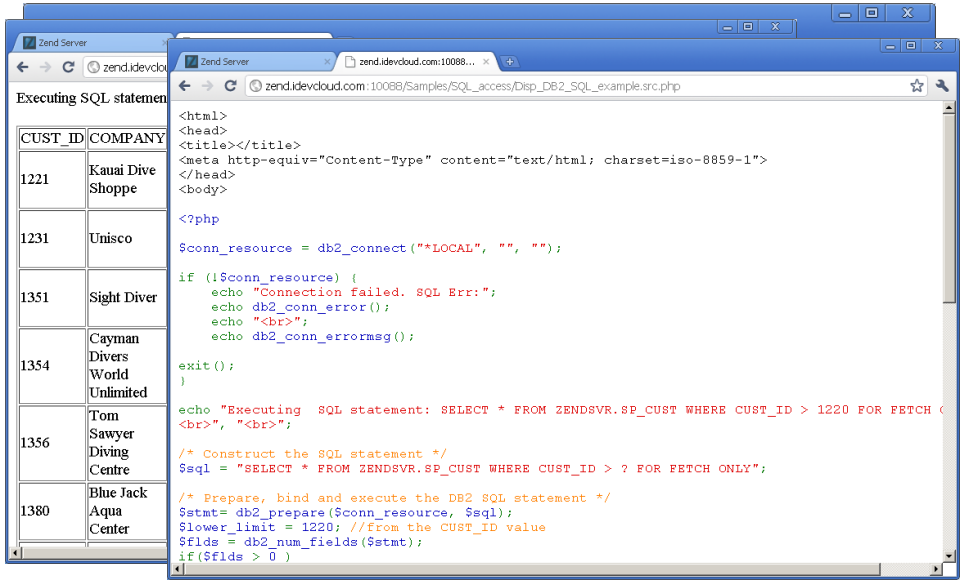
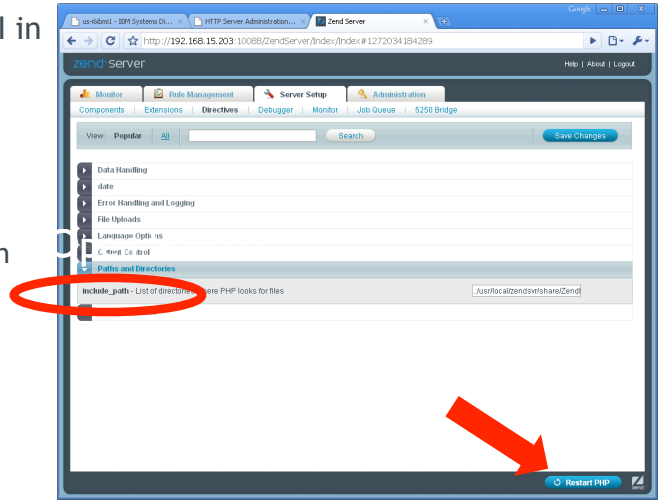


Zend Server php.ini changes

- Manage php.ini via GUI in Zend Server
  - Log in with initial password, can reset in green screen →Server Setup → Directives
  - Administer all values in php.ini
  - Include path is one of many options
  - Must restart PHP using new blue button!



Zend Studio 8 for IBM i

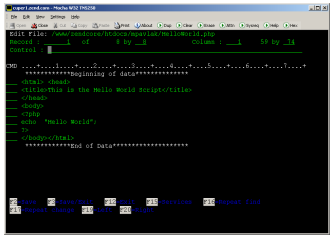
- Included for IBM i customers w/1 year support & upgrades
- Essential IDE for PHP on IBM i
- Syntax checker & code Completion
- JavaScript Library Support
- Debugger
- Built on Eclipse framework
- Function directory
- Templates
- Much, much, more

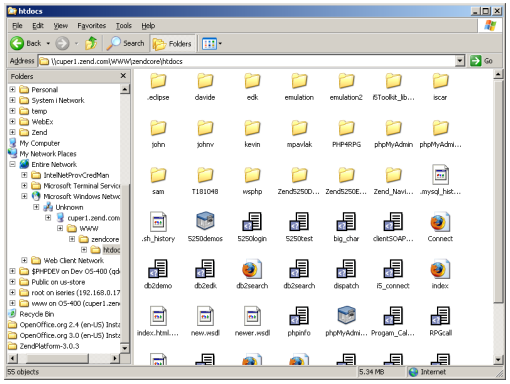
Zend Studio 8 for IBM i - Installation

- Download program from Zend.com/en/downloads (IBM i Edition!)
- Install to workstation (Mac, Windows, Linux)
- Follow the prompts for licensing the product
- Zend.com with QSRLNBR to license product
- Start the IDE and begin coding PHP immediately

How do I access IFS files?

- Three methods I use
  - Netserver file associations (or a mapped local drive)
    - Can be sluggish
  - Remote server configuration
    - Best for all purposes
  - WRKLNK
    - Only for emergencies!



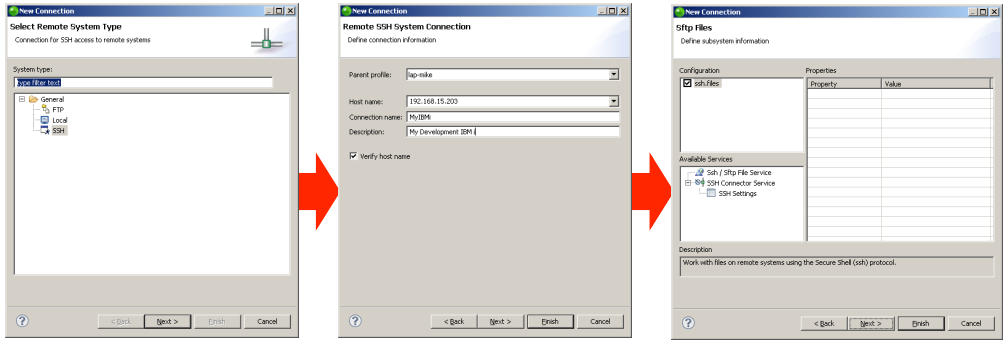


Remote Server Options

- **FTP**
  - Familiar
  - Sluggish
  - Most systems support this
- **SSH**
  - More secure
  - More powerful
  - Easy to setup
  - Easier to setup on i6.1+

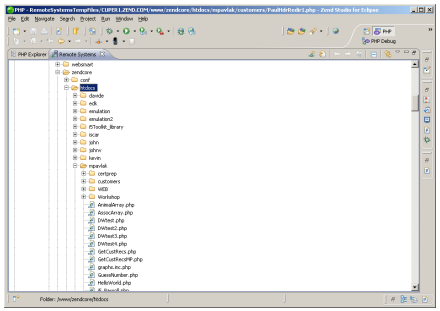
Configuring a remote server

- Start Zend Studio for IBM i
- Click the new connection button and select SSH
- Enter system name or IP address



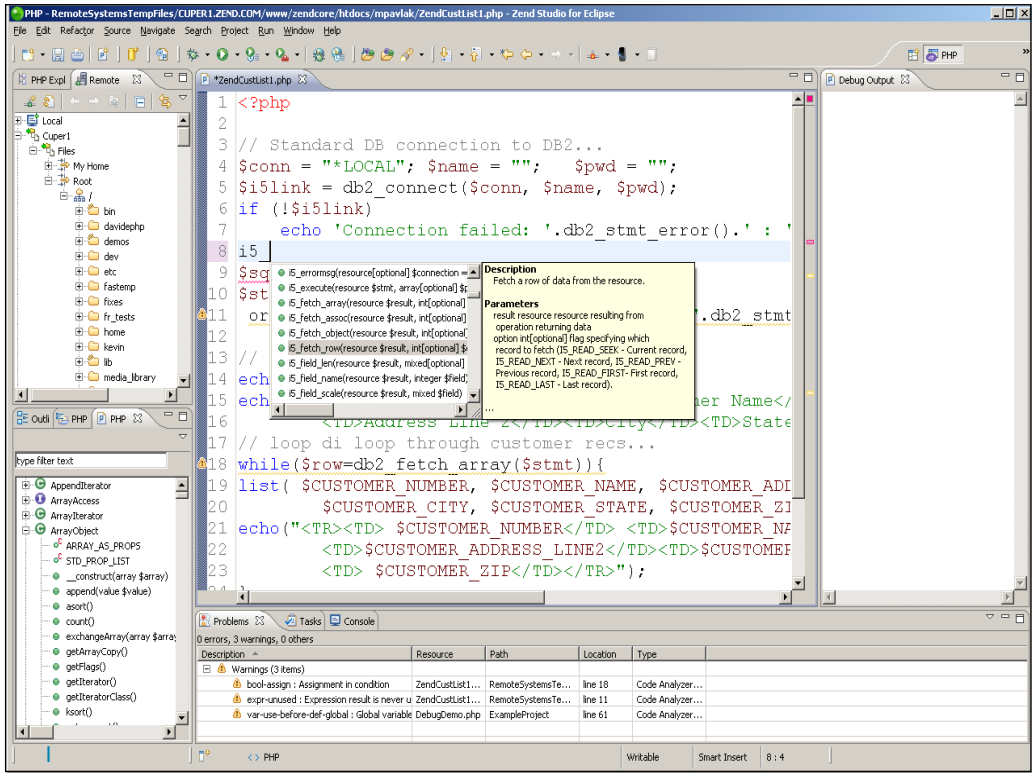
Navigate to files

- Expand the tree for your system
- Navigate to the directory /www/zendsvr/htdocs
- Enter user credentials and your in!



Host side change

- **CHGFTPA NAMEFMT(*PATH) CURDIR(*HOMEDIR) LISTFMT (*UNIX)**
- **Bounce FTP servers**
  - ENDTCPSVR SERVER(*FTP)
  - STRTCPSVR SERVER(*FTP)
- **If you have concerns about the host side FTP change consider the SSH method.**
  - V5R4 - Will need to configure and start SSH.
  - i6.1+ uses STRTCPSVR command for SSHD
  - See http://wiki.midrange.com/index.php/SSH

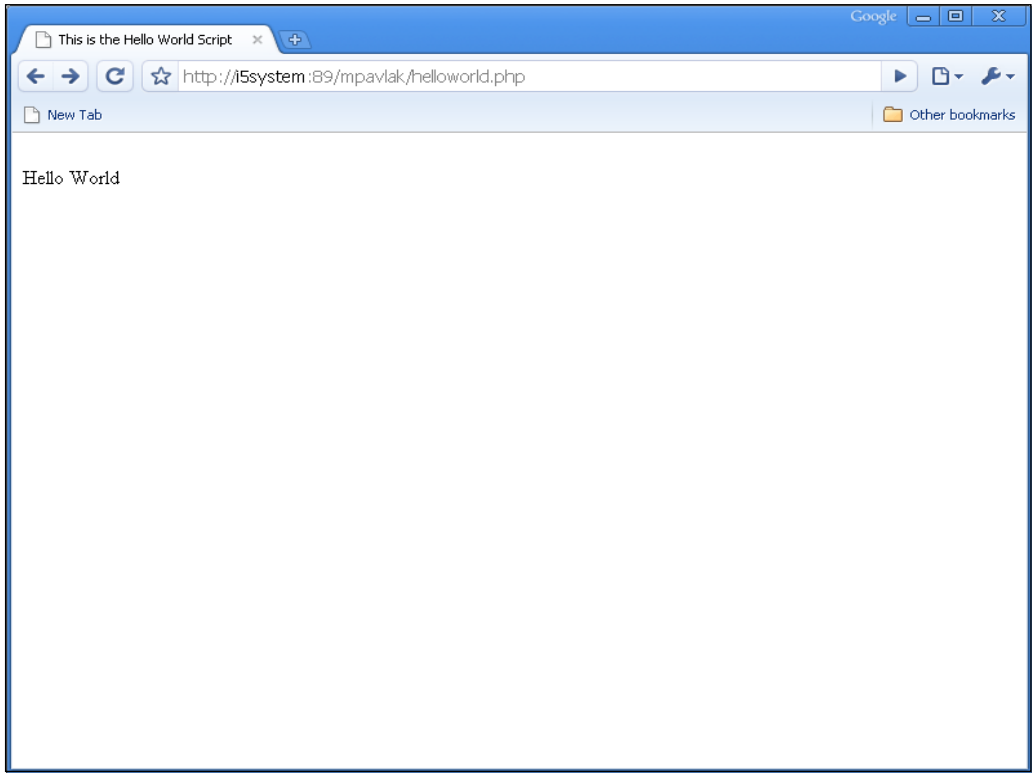


Move to after slide installation

Sample Script – Hello World

- Obligatory program when starting out
- Confirms correct setup of PHP
- Sample code: (Shortest PHP Macro around!)
- Save script in IFS /www/zendsvr/htdocs/helloworld.php
- Browser URL: http://ibmisystem:10088/helloworld.php

```
<?php

echo "Hello World";

?>
```


Google
This is the Hello World Script
http://i5system:89/mpavlak/helloworld.php
New Tab
Other bookmarks
Hello World

i5 Toolkit APIs

- System values
  - i5_get_system_value
- Data areas
  - i5_data_area_prepare
  - i5_data_area_receive
  - i5_data_area_send
  - i5_data_area_close
- Print/Get spooled file
  - i5_spool_list
  - i5_spool_list_read
  - i5_spool_list_close
  - i5_spool_get_data
  - i5_spool_from_file??
- Job logs
  - i5_jobLog_list
  - i5_jobLog_list_read
  - i5_jobLog_list_close
- Active jobs
  - i5_job_list
  - i5_job_list_read
  - i5_job_list_close
- Objects list
  - i5_object_list
  - i5_object_list_read
  - i5_object_list_close
- User space
  - i5_userspace_create
  - i5_userspace_prepare
  - i5_userspace_get
  - i5_userspace_put
- Programs
  - i5_program_prepare
  - I5_program_call

Along with Zend Core for i5 OS is a whole slew of functions not available on any other platform. These functions a accessed using the i5_connect function in your PHP script and enable, not only access to the database, but also access to many operating system resources like Data Area's, User Spaces and Spooled Files. These functions and many more will only work on Zend Core for i5 OS and are available only in the IDE for ZSEi5 Edition.

Open Source Toolkit

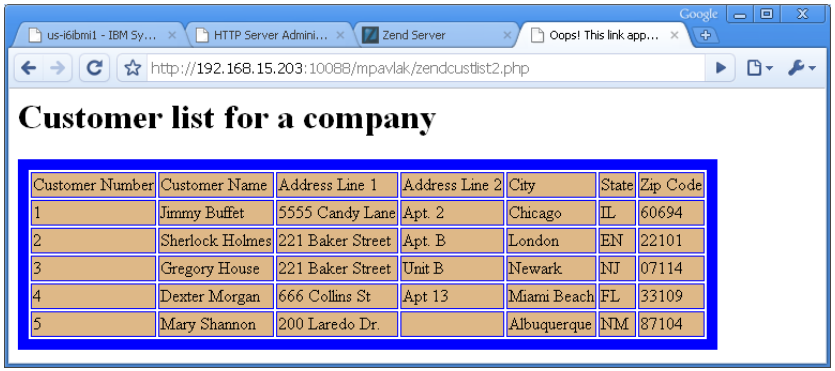
- Collaboration with IBM and Zend
- Built on ILE RPG, Stored Procedures & pure PHP
- Up to 10 times faster
- Object Oriented, but not too much!
- Old toolkit not going away, but support may be chargeable

Example: Usage of all toolkit functions Part 1

```
ToolkitObj = new  ToolkitService();
ToolkitObj->setToolkitServiceParams(array('ControlKey'=>'*here',  'Internal key'=>'/tmp/QAUser') );

ToolkitObj->CLCommand("addlible test", 'b');
/* Call a program without parameters */
ToolkitObj->PgmCall('TESTPGM', 'TESTLIB', array(0), NULL, NULL);

/* Call service program function "sum" which has 3 parms: 2 int input parms and 1 output parm */
$params[] = array('type'=>'10i0', 'io'=>'in', 'parm_name'=>'first',  100); /*first input parameter */
$params[] = AddParameterInt ('in', 10, 'second", 200); /*second input parameter */
$params[] = AddParameterInt ('out', 10, 'third',  0); /*third output parameter*/

$Result = ToolkitObj->PgmCall('TESTSRVPGM', NULL, $Params, NULL, array('func', 'sum'));

Var_dump($result );//$result[0]

/*execute function again with a new data */
ToolkitObj->SetParamValue($Params, 'first', 20); /* reset value of first parameter*/

ToolkitObj->SetParamValue($Params, 'second', 30); /* reset value of second parameter*/

ToolkitObj->PgmCall('TESTSRVPGM', NULL, $Params, NULL, array('func', 'sum'));

ToolkitObj->disconnect();
```

Basic file listing script

- Connect to DB2 i
- Select records from a DB2 table
- Load the records in an HTML table
- Display the output.



Connection to DB2 for i

- Need three things:
  - System
  - User ID
  - Password

Note: If your data sets have *PUBLIC access, no user or password is required

```
// Standard DB connection to DB2...
$conn = "*LOCAL"; $name = "";$pwd = "";

$i5link = db2_connect($conn, $name, $pwd);
if (!$i5link)
echo 'Connection failed: '.db2_stmt_error().' :
'.db2_stmt_errormsg();
```

Reading data...

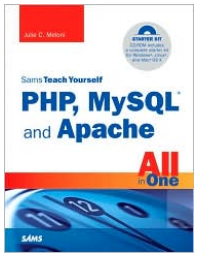
Loop through record set

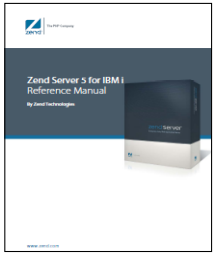
```
<h1> Customer list for a company</h1>
<TABLE BORDER="10" BORDERCOLOR="blue"><TBODY BGCOLOR="DEB887">
<TR><TD>Customer Number</TD><TD>Customer Name</TD><TD>Address Line 1</TD>
<TD>Address Line 2</TD><TD>City</TD><TD>State</TD><TD>Zip Code</TD></TR>

<?php

while($row=db2_fetch_array($stmt)){
list( $CUSTOMER_NUMBER, $CUSTOMER_NAME, $CUSTOMER_ADDRESS_LINE1,
$CUSTOMER_ADDRESS_LINE2, $CUSTOMER_CITY, $CUSTOMER_STATE,
$CUSTOMER_ZIP)= $row;

echo(" <TR><TD> $CUSTOMER_NUMBER </TD><TD> $CUSTOMER_NAME </TD>
<TD> $CUSTOMER_ADDRESS_LINE1 </TD><TD>$CUSTOMER_ADDRESS_LINE2 </TD>
<TD> $CUSTOMER_CITY</TD><TD> $CUSTOMER_STATE </TD>
<TD> $CUSTOMER_ZIP </TD></TR> ");
}
echo ' </table> ';
db2_close($i5link);
```

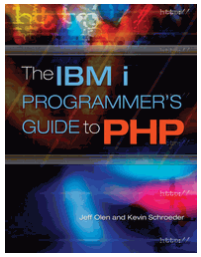
Where do I go next?

- Get some HTML training
  - Remember, HTML is to PHP what DDS is to RPG
- JavaScript won't hurt
  - Can add pizzazz to web pages, but not required
- Download free code – see online resource slide
- Play, have fun, discover
- Education, training more See zend.com
- Practice, practice, practice!

PHP Resources…







- **Books**
  - Sam's teach yourself PHP, MySQL and Apache All in One (4th edition) ISBN:067232976X
  - Head First HTML with CSS and XHTML ISBN:059610197X
  - Zend Server Doc at Zend Website
  - IBM i Programmer's Guide to PHP on IBM i – MC Press

Online Resources…

- Support?
  - Zend.com/forums
  - Zend.com/support-center
  - Zend.com/products
  - php.net – on-line PHP manual
  - Midrange.com WEB400 forum
- Free code!
  - Sourceforge.net – free applications
  - phpclasses.org – free PHP code samples
  - hotscripts.com – free PHP code

Questions?

Thank you!!

jromeh@gmail.com