

**PHP and System i
Gateway/400 User Group
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Tripp Lite

Three Parts

- Presentation
- Installation
- Startup and First Script

Presentation Agenda

- Introduction to PHP
- Why is PHP attractive?
- Example PHP scripts
- What is Zendcore?
- Connection to DB2 on i5/OS with sample

What is PHP?



What is PHP?

- PHP Hypertext Pre-Processor
- Developed initially by Rasmus Lerdorf in 1994
- Andi Gutmans and Zeev Suraski in 1997
- Thousands of contributors worldwide
- 4-5 million developers
- 20-25 million web sites over 5+ million IPs?



PHP is a Scripting Language

- Not compiled, interpreted
- Easy way to get database info to Web
- Short learning curve as OO is optional
- Forgiving and intuitive code structure
- Similar in nature to Net.Data, not as verbose

Who is Using PHP?



Who uses PHP?

- Yahoo, Google, Fiat, Mazda, Disney
- Kids coming out of school (low \$)
- Open source developers – 10,000 projects
- Community - strong in knowledge and support

Why use PHP?



Why use PHP?

- Easy to code
- Short learning curve
- Immediate productivity
- Zendcore – PHP Runtime engine
- PHP is to Java what RPG is to COBOL!

Why did Tripp Lite choose PHP?

■ Applications!

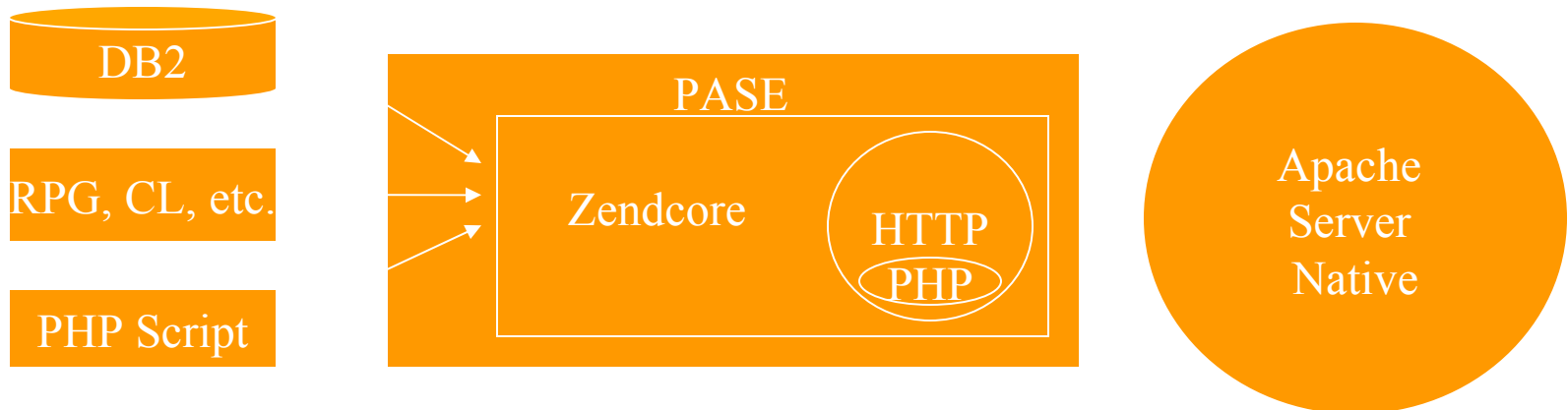
- Dot.Project – Project Management & Helpdesk
- OWL – Procedure and Document Management
- V-Bulletin – Online Forum (Vendor relations)
- Mambo – Content Management System

■ Cost

- Total for all applications: one \$99 support license

What is Zendcore?

- The PHP runtime engine, free download
- Created & supported by Zend
- Observe and manage performance of PHP
- System i V5R4 PHP runtime released July '06



Advantages of PHP on System i

- Zendcore for System i
- Modern platform for app consolidation
- Wide selection of PHP applications
- Scalability from 1-64 processors with no application code changes
- Outperforms Net.Data

Sample Script – PHP Info

- PHPInfo() is a great when starting out
- Confirms correct setup of PHP
- Shows a LOT of info about environment
- Sample code: (Shortest PHP Macro around!)

```
<?php
    echo phpinfo();
?>
```

PHP Version 5.1.6



System	OS400 ACE6 4 5 0010000B791C
Build Date	Sep 14 2006 18:15:25
Configure Command	'./configure' '--prefix=/usr/local/Zend/Core' '--with-config-file-path=/etc' '--enable-force-cgi-redirect' '--enable-fastcgi' '--disable-debug' '--enable-inline-optimization' '--enable-memory-limit' '--disable-all' '--enable-ctype' '--enable-dom' '--enable-libxml' '--with-libxml-dir=/usr/local/Zend/Core' '--with-openssl=/usr' '--with-pcre-regex' '--enable-session' '--enable-simplexml' '--enable-spl' '--enable-wddx' '--enable-xml' '--with-zlib=/usr' '--with-pear' '--with-apxs2=/usr/local/Zend/apache2/bin/apxs' '--with-layout=GNU' '--enable-zmail'
Server API	Apache 2.0 Handler
Virtual Directory Support	disabled
Configuration File (php.ini) Path	/usr/local/Zend/core/etc/php.ini
PHP API	20041225
PHP Extension	20050922
Zend Extension	220051025
Debug Build	no
Thread Safety	disabled
Zend Memory Manager	enabled
IPv6 Support	enabled
Registered PHP Streams	php, file, http, ftp, compress.zlib, https, ftps
Registered Stream Socket Transports	tcp, udp, unix, udg, ssl, sslv3, sshv2, tls
Registered Stream Filters	string.rot13, string.toupper, string.tolower, string.strip_tags, convert.*, consumed, zlib.*

This program makes use of the Zend Scripting Language Engine:
 Zend Engine v2.1.0, Copyright (c) 1998-2006 Zend Technologies
 with Zend Core v1.5.0, Copyright (c) 1998-2006, by Zend Technologies
 with Zend Extension Manager v1.0.10, Copyright (c) 2003-2006, by Zend Technologies
 with Zend Optimizer v3.0.1, Copyright (c) 1998-2006, by Zend Technologies
 with Zend Debugger v5.2.0-i5, Copyright (c) 1999-2006, by Zend Technologies

Powered By



Install Zendcore

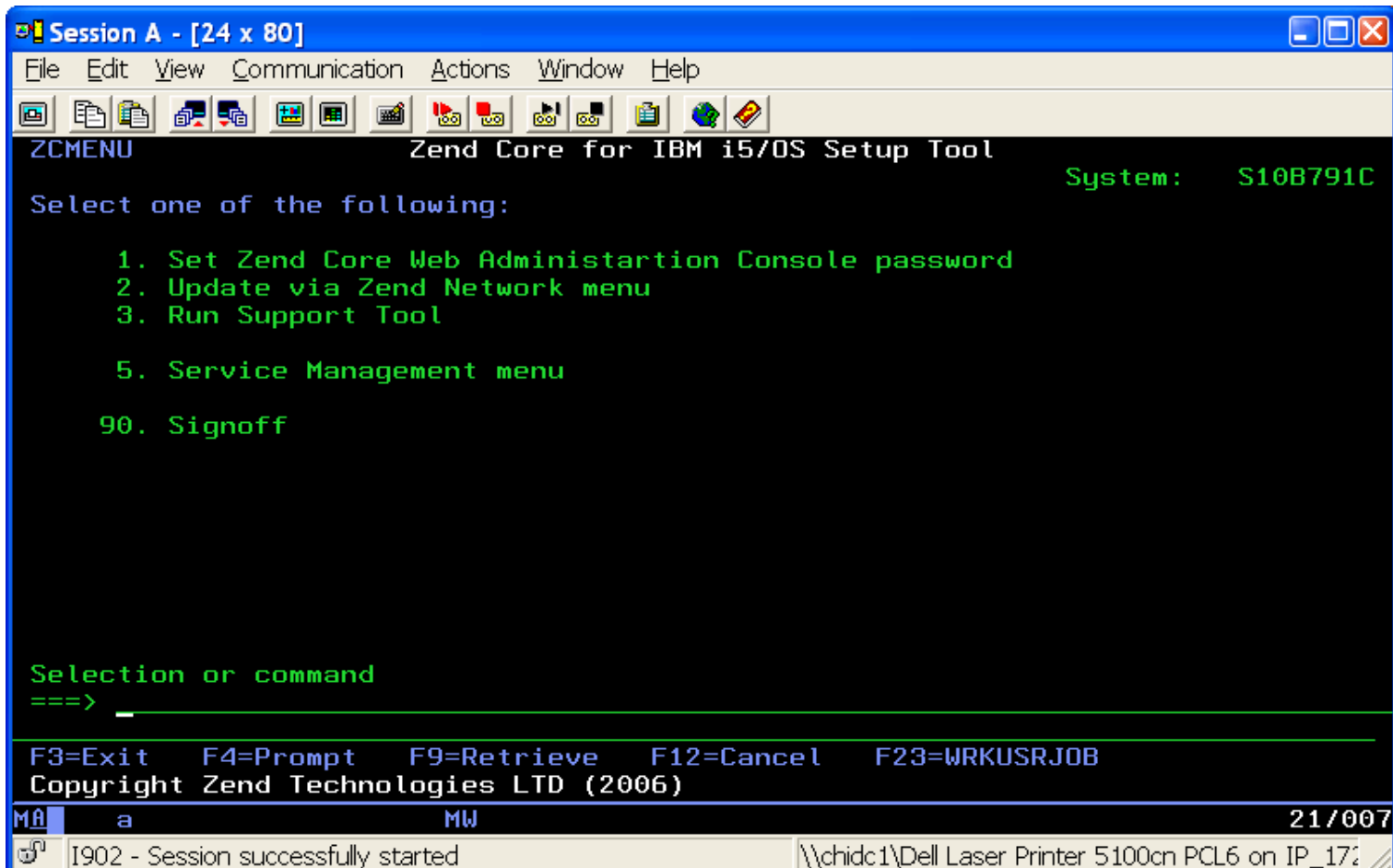
- Prerequisites:
 - See Zendcore installation documentation!!!
 - i5/OS V5R3, V5R4, V6R1
 - Recent Cumulative PTF package, PASE, QShell
- Software installation
 - Upload *SAVF, Restore, or use .exe and...
 - Type GO ZCMENU

Software Pre-req's

Description	Product Option	Licensed Program
Portable App Solutions Environment	33	5722ss1
Qshell	30	5722ss1
System Openness Includes	13	5722ss1
IBM Portable Utilities For I5/OS	*base	5733sc1
OpenSSH ,OpenSST,Zlib	1	5733sc1

Start Zendcore

- ...and select option 5



The screenshot shows a terminal window titled "Session A - [24 x 80]". The window has a menu bar with "File", "Edit", "View", "Communication", "Actions", "Window", and "Help". Below the menu bar is a toolbar with various icons. The main content area displays the "ZCMENU" for the "Zend Core for IBM i5/OS Setup Tool". The system ID is "S10B791C". The menu lists several options, with option 5 highlighted. At the bottom, there is a prompt "Selection or command" followed by "===> _". The footer contains function key definitions, copyright information, and a status bar with "MA a MW" and "21/007".

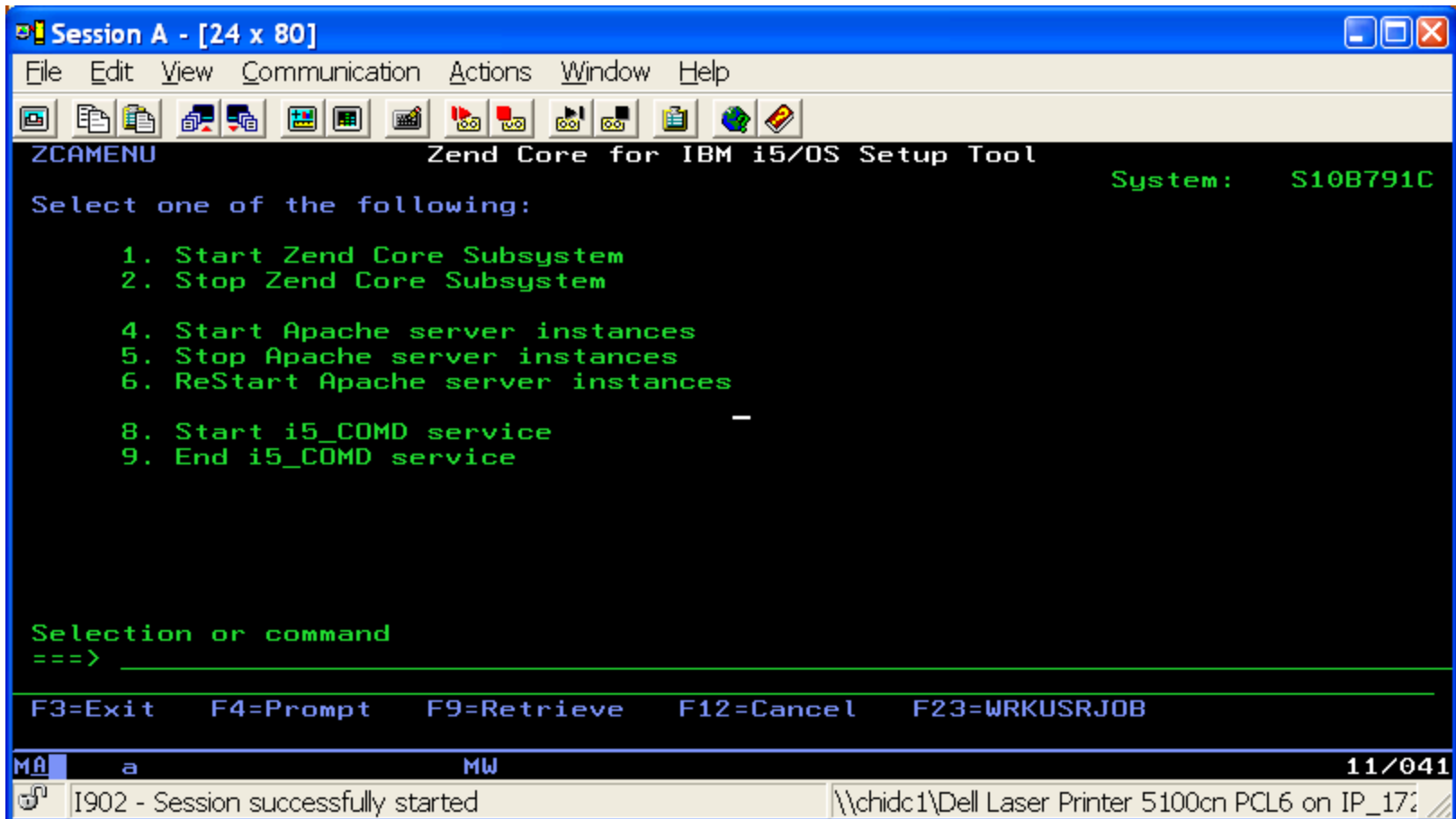
```
Session A - [24 x 80]
File Edit View Communication Actions Window Help
ZCMENU                               Zend Core for IBM i5/OS Setup Tool          System:  S10B791C
Select one of the following:
    1. Set Zend Core Web Administration Console password
    2. Update via Zend Network menu
    3. Run Support Tool
    5. Service Management menu
    90. Signoff

Selection or command
===> _

F3=Exit  F4=Prompt  F9=Retrieve  F12=Cancel  F23=WRKUSRJOB
Copyright Zend Technologies LTD (2006)
MA a MW 21/007
I902 - Session successfully started \\chidc1\Dell Laser Printer 5100cn PCL6 on IP_172
```

Start Zend Core

- Menu: Select option 4



The screenshot shows a terminal window titled "Session A - [24 x 80]". The window contains the following text:

```
File Edit View Communication Actions Window Help
ZCAMENU          Zend Core for IBM i5/OS Setup Tool          System:  S10B791C
Select one of the following:
  1. Start Zend Core Subsystem
  2. Stop Zend Core Subsystem
  4. Start Apache server instances
  5. Stop Apache server instances
  6. ReStart Apache server instances
  8. Start i5_CMD service
  9. End i5_CMD service

Selection or command
==>
```

At the bottom of the terminal, there is a status bar with the following information:

```
F3=Exit  F4=Prompt  F9=Retrieve  F12=Cancel  F23=WRKUSRJOB
MA a MW 11/041
I902 - Session successfully started \\chidc1\Dell Laser Printer 5100cn PCL6 on IP_172
```

Zend Core

It's that easy!

PHP Code

- Some real PHP code:
- Basics:
 - Variables are all cast with \$
 - Arrays: Indexed, Associative and Multi-dimensional
 - Can change the type of a variable during operation
 - If then, while do, Switch, Do Until
 - And many many more!

PHP Example 2

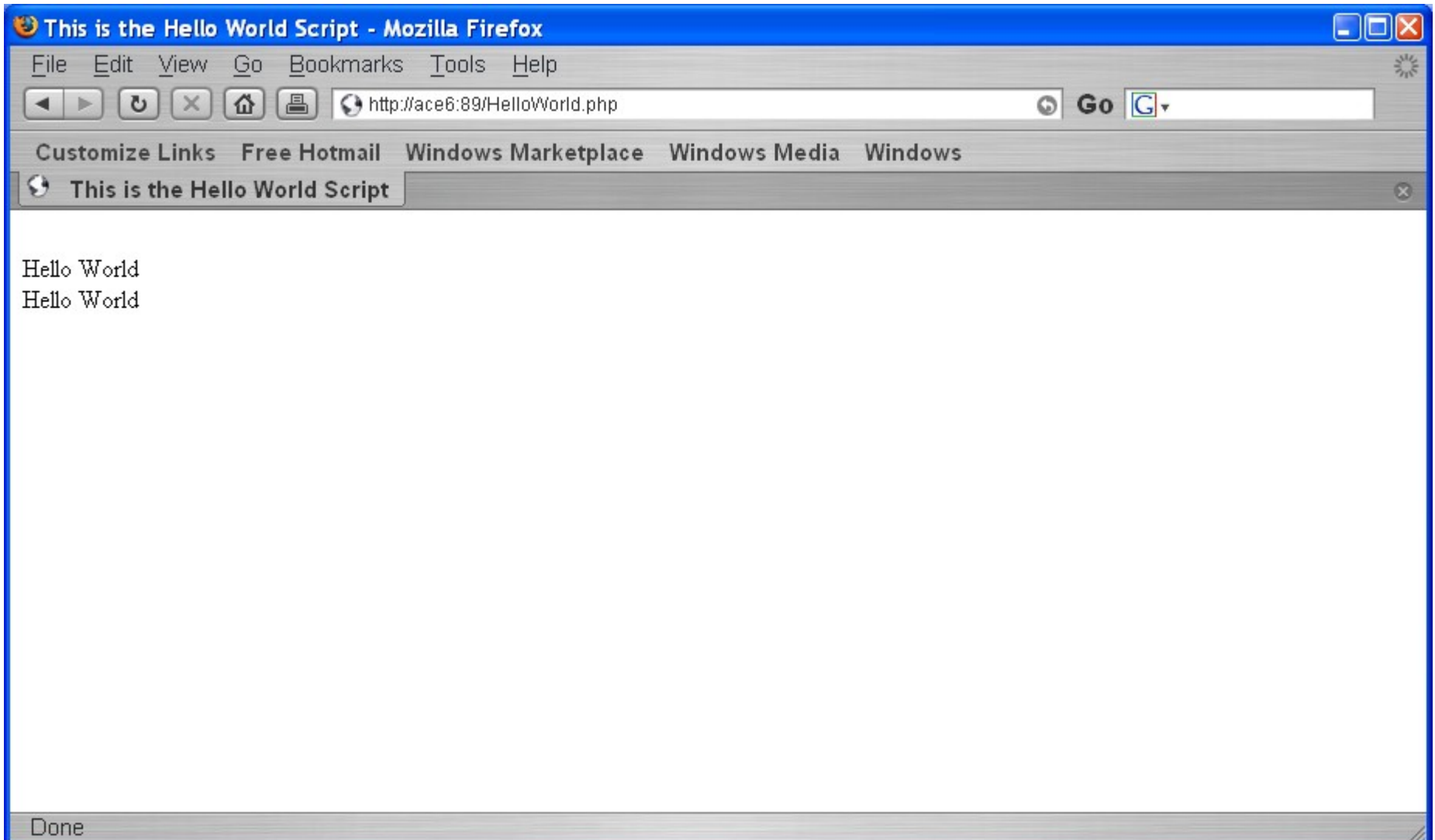
- Hello World

```
<html> <head>
<title>This is the Hello World Script</title>
</head>
<body>

<?php
// This is a comment
/* This is a comment
   that spans multiple lines */

    echo "<br> Hello World";
    echo "<br> Hello World";
?>
</body></html>
```

PHP Example 2



Connection to DB2

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

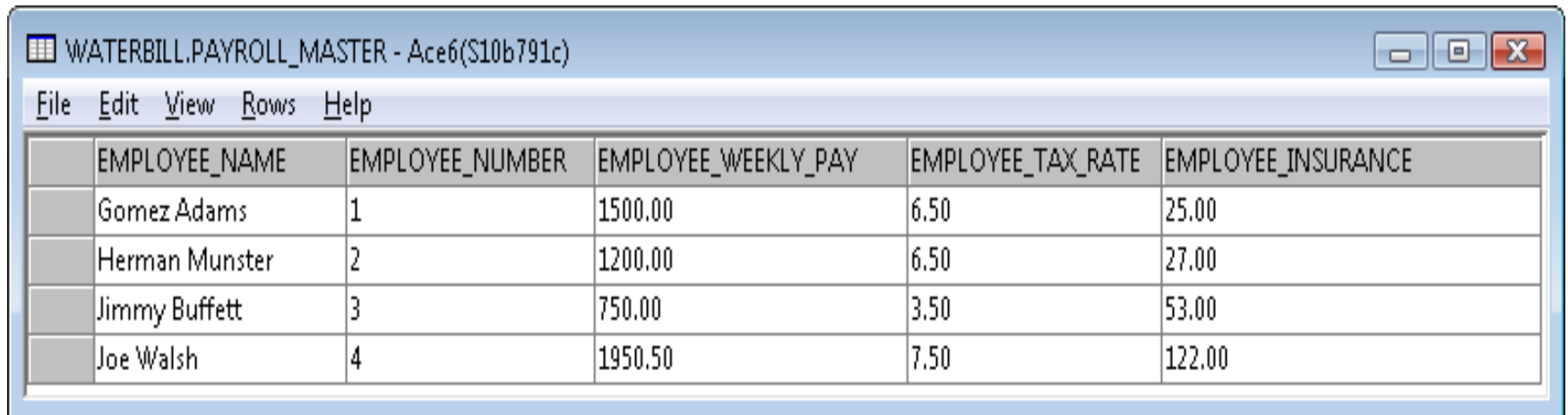
```
$conn = "*LOCAL";  
$name = "PHPDEV";  
$pwd = "password";
```

```
$i5link = i5_connect($conn, $name, $pwd);  
if ($i5link) echo "Connected to i5 running under $name profile";  
else echo 'Connection failed: '.db2_stmt_error().': '.db2_stmt_errormsg();
```


Sample Payroll List

- Connect to System i
- Select record from any table
- Display records
 - Calculate net pay
 - Calculate totals
- Perform some summary functions
- Disconnect

Source Data



The image shows a screenshot of a database application window titled "WATERBILL.PAYROLL_MASTER - Ace6(S10b791c)". The window has a menu bar with "File", "Edit", "View", "Rows", and "Help". Below the menu bar is a table with five columns: "EMPLOYEE_NAME", "EMPLOYEE_NUMBER", "EMPLOYEE_WEEKLY_PAY", "EMPLOYEE_TAX_RATE", and "EMPLOYEE_INSURANCE". The table contains four rows of data.

EMPLOYEE_NAME	EMPLOYEE_NUMBER	EMPLOYEE_WEEKLY_PAY	EMPLOYEE_TAX_RATE	EMPLOYEE_INSURANCE
Gomez Adams	1	1500.00	6.50	25.00
Herman Munster	2	1200.00	6.50	27.00
Jimmy Buffett	3	750.00	3.50	53.00
Joe Walsh	4	1950.50	7.50	122.00

Resulting Webpage

Payroll Report - Mozilla Firefox

File Edit View History Bookmarks Tools Help

TRIPPLITE Payroll Report

Connected to i5 running under PHPDEV profile

Name	Number	Gross	Tax Rate	Insurance	Net
Gomez Adams	1	\$1500.00	6.50	\$25.00	\$1465.25
Herman Munster	2	\$1200.00	6.50	\$27.00	\$1165.20
Jimmy Buffett	3	\$750.00	3.50	\$53.00	\$694.38
Joe Walsh	4	\$1950.50	7.50	\$122.00	\$1813.87

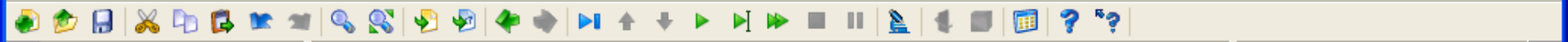
Total Gross Pay is \$5400.5

Total tax payment is \$34803.75

Total insurance payment is \$227

The average for each record is \$1350.13

Code for Page...



File Manager

- Desktop
- My Documents
- My Computer
- My Network Places
- IBM iSeries Access
- OpenOffice.org 2.C
- Adobe Reader 7.0.
- Desktop Manager.lf
- EZ-Setup.lnk
- iSeries Navigator.ln
- Lotus Notes 7.lnk

All Files

Inspect: [Icons]

\\ace61ROOT\www\zendcore\ht

```

14 //connect to i5 DB2
15 $i5link = db2_connect($conn, $name, $pwd);
16 if ($i5link) echo "<p>Connected to i5 running under $name profile</p>";
17 else echo "<p>Connection failed: ".db2_stmt_error()." : ".db2_stmt_errormsg(
18
19
20 //prepare sql statement
21 $sql = "SELECT * from payroll_master";
22
23 i5
24
25 // i5_add_new(resource $file, integer $mode) resource
26 // i5_adopt_authority(string $username, string $password, $connection = null) boolean
27 // i5_bookmark(resource $file) integer
28 // i5_cancel_edit(resource $result) boolean
29 // i5_close(resource[optional] $connection = null) boolean
30 // i5_cmdget(string $name, resource[optional] $connection = null) mixed
31 // i5_command(array $command, array[optional] $inputs = null, $outputs = null, ... boolean
32 // i5_connect(string $server, string $user, string $password, array[optional] ... resource
33
34
35 //
36 wh
37 function i5_add_new(resource $file,
38                     integer $mode)
39 Create new record in the file.
40
41 Parameters:
42     file resource opened i5 file
43     mode integer if to clean the record (I5_ADDNEW_CLEAR - clear, I5_ADDNEW_NOCLEAR - do
44
45 Returns:
46     resource if open succeeded, false if open failed

```

Debug Output

Text HTML

Debug Output

Debug Messages

Variables Watches Stack Breakpoints Output Buffer

GLOBALS

Resources...

■ Books

- Sam's teach yourself PHP, MySQL and Apache All in One (3rd edition) ISBN:0672328739
- Redbooks
- PHP User Guide comes with Zendcore download!

■ Websites:

- Zend.com - Forums
- php.net – On-line PHP Manual
- Sourceforge.net – Free applications
- phpclasses.net – Free PHP Classes