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# PHP on IBM i in 2026: The Modernization Engine

Alan Seiden · Principal, Seiden Group



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SEIDEN GROUP

## Alan Seiden

Principal, Seiden Group

- Delivers modern technical solutions for IBM i
- Open source advocate — maintains toolkits for IBM i
- Founder of the Club Seiden community



IBMCHAMPION 

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## IBM i Modernization, PHP, APIs & Projects

- Seiden PHP+ Server for IBM i, with SmartSupport
- Application support — RPG, PHP, Node.js, CNX Valence, Python, and more
- AI strategy and enablement
- Developer support across web, API, and mobile



## AGENDA

# Roadmap for This Session

- PHP as your Modernization Engine — or is it a Monetization Engine?
- PHP and APIs
- Build Something Great with PHP
- Seiden PHP Offerings



*Plus plenty of Alan's advice, insight, and opinions along the way.*



# Modernization Approaches

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MODERNIZATION APPROACHES

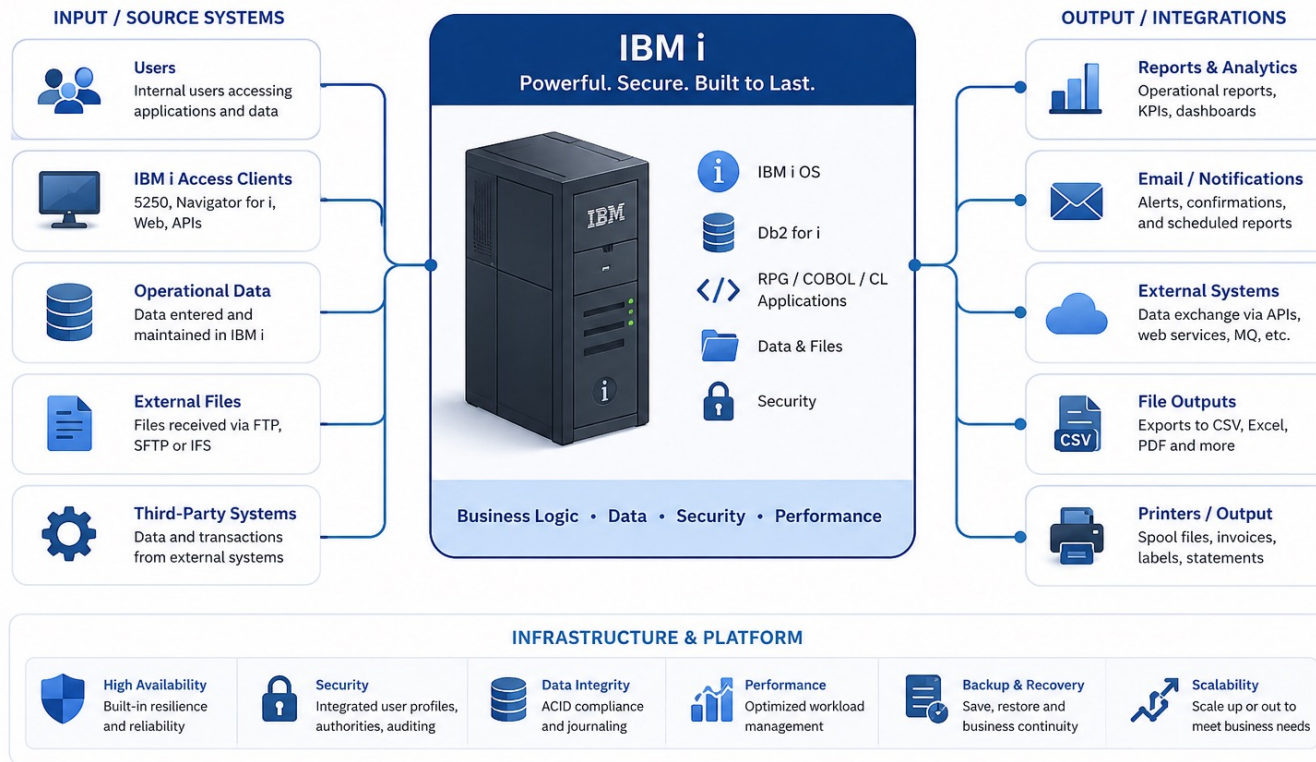
## Can You...?

- ...modernize with fresh web dashboards and applications?
- ...avoid “data sprawl” — copying data from system to system — and keep it real-time and safe?
- ...let go of the limitations holding you back, while keeping the strengths that built your company?
- ...use the new technology of young IT professionals, while keeping enterprise strength and security?

*Safe and secure modernization is possible.*

# IBM i – Existing Systems

Centralized. Reliable. Integrated.

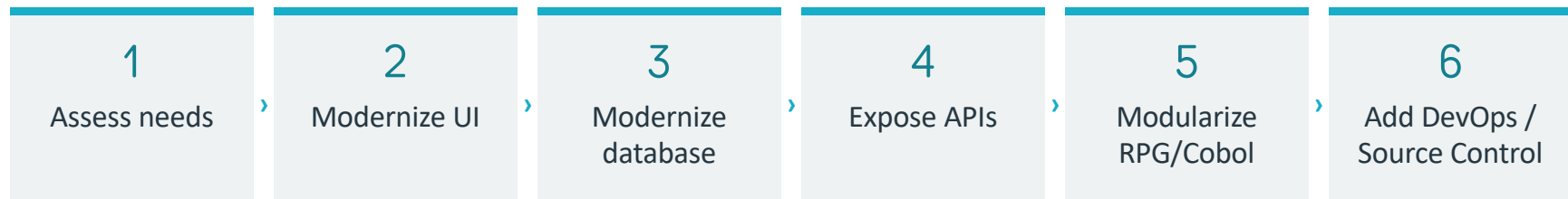


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MODERNIZATION APPROACHES

## Practical Modernization Path

Every path starts with a review and assessment of the business needs. A potential low-risk sequence:



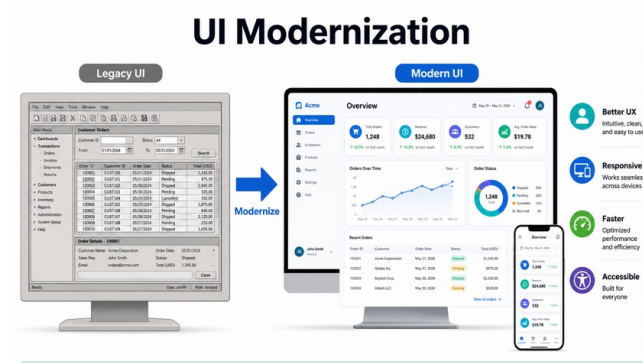
*For most IBM i environments, the best strategy isn't "get off IBM i" — it is modernization that delivers business value, preserves what works, and replaces only what truly needs replacing.*

## MODERNIZATION APPROACHES

# UI Modernization

Replace or wrap green-screen 5250 interfaces with browser, mobile, or portal UI.

- Web-based or GUI 5250 front end
- Screen scraping or transformation
- New web front ends over RPG/COBOL
- Low-code or framework-based web apps
- Mobile interfaces for specific workflows



*Best when the business logic is still good, but the user experience is outdated.*

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MODERNIZATION APPROACHES

## Externalize System/36 Tables

Externally define database tables for universal access and flexibility.

- Externalize older flat-file databases for SQL support
- Update RPG/OCL code to ILE for supportability
- Introduce query tools such as Power BI
- Create new apps in PHP and other languages



*Best when the business logic is still good but new reporting and apps are needed.*

## API Enablement

Expose IBM i programs, services, and Db2 for i data through APIs.

- REST, SOAP, GraphQL
- Wrap RPG and COBOL programs as REST APIs
- Expose Db2 data to external applications
- Connect IBM i to Salesforce, e-commerce, mobile, and cloud services
- Gradually decouple front ends from back-end logic



*Often the safest first step — it preserves working core logic while making it usable by modern systems.*

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MODERNIZATION APPROACHES

## RPG/COBOL Code Modernization

Improve the existing application codebase and make usable from web and APIs

- Convert fixed-format RPG to free-form RPG
- Modularize monolithic programs
- Move business logic into service programs
- Remove dead code
- Call modular code from web and API languages

*Useful when the system works but is hard to maintain, hard to onboard into, or tightly coupled.*



## PHP As Your Modernization Engine

## These languages can all do the job

Node.js (JavaScript), PHP, and Python can each:

- Drive web applications — traditional MVC or single-page apps with React, Vue, and more
- API services – consume and provide
- RPG and COBOL – call and be called

## Why Alan Picked PHP in 2004

### A Career Crossroads

- Powerful open source technology, or the IBM midrange?
- Alan hoped PHP could let him do both
- A popular language would protect his career
- No limitations -- unlike past proprietary tools
- He decided to push PHP forward on the "i5"

### "Batteries Included"

- Web-ready out of the box
- API-ready out of the box
- RPG-ready out of the box



*Eventually we built the PHP Toolkit with IBM, became prime contributors to PHP, and built our own PHP Server for IBM i*

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PHP AS YOUR MODERNIZATION ENGINE

## PHP Runs on IBM i – and Everywhere

- Available for IBM i, Windows, Linux, and Mac
- Open source and widely used — millions of sites, from Meta to Wikipedia
- Runs simply on IBM i
- Direct access to live Db2 data and RPG
  - No slowdowns from copying data between systems
- The PHP Toolkit is the most mature of its kind

“A thousand times better than what I was using before. I can run this directly on the IBM i and connect to live data. It's so fast!”  
– Industry friend who came back to PHP for automating her business

PHP AS YOUR MODERNIZATION ENGINE

# Call RPG & COBOL — Adapt 5250 Logic to Web & APIs

Minnesota Order Entry Entered By YVONNES  
Invoice # 01 Invoice Posted Order Date 12/15/08

Minnesota  
Bill To: Minnesota  
CALD 754 CALD 754 CALD 754  
EAST 754 CALDERON  
IL EAST 754 26TH  
Cour IL EAST  
Phon Cour

6124  
Emp Country  
Req Dealer  
Req Empty Bo  
Req Request  
Zone Request  
Ente Zone  
Ente Request

Address: <http://i.medranexpress.com/MedranoExpress/150E/oeorder.php?Invoice=01121508>

**Medrano Express**

bienvenido! LA GUADALUPANA MARKET (GUAMAR) February 2,2010  
Branch: Medrano Express - Minneapolis Phone: 612-721-4647

Dealer | Update Profile | Work with Customers and Invoices

Work with Order 00192913-1

**Bill-to Customer: 2223492**  
CALDERON RIVERA, MARGARITA  
754 26TH ST  
EAST MOLINE, IL 61244-1864  
USA  
Telephone: 309-292-3297

**Ship-to: FAMILIA**  
CALDERON RIVAS, ELSA MARINA  
BARRIO LAS CRUCITAS  
SANTA CRUZ DE YUJOA,  
CORTES  
HONDURAS  
Telephone: 6549412

**Branch:** 65 Medrano Express - Minneapolis  
**Order Date:** 2008-12-15  
**Order taken by:** YVONNES (Branch-65)  
**Dealer:** GUAMAR-LA GUADALUPANA MARKET  
**Zone:** GUAMAR

**Pickup Date/Comments:** 2009-01-02 ESTA CAJA SE RECOJERA POR FEDEX  
**Shipment Date/Comments:** 2009-01-05

Line#	Item	Item Description	# of Pkgs	Declared Value	Quantity	Unit Price	Customs Fee	Insurance	Extended Amount
1	22"x22"x22" Status: X	Box Size: 22 X 22 X 22 Weight: 00 Qty Package Content and Description Value Package 1 of 1 <input type="button" value="Add/Update content"/> 0 ZAPATOS 0.00 0 ROPA 0.00 0 CAMARA DE VIDEO 0.00 0 PACLES DESECHABLES 0.00 Total Content Value 0.00	1	500.00	1	165.00	0.00	15.00	180.00
Order Totals:			1		1		0.00	15.00	180.00

**Order Notes**

- 2008-12-15 Invoice scheduled for P/U on 12/15/08 By YVONNES. SYSTEM
- 2008-12-15 Package Content entered/updated by YVONNES SYSTEM
- 2008-12-16 Zone changed from LAPAZM To GUAMAR by YALITZAF SYSTEM

## Easy to Start Small

- Start gradually and learn as you go
- PHP is mainstream — guidance on php.net and all AI LLMs
- Alan's first PHP was a line like this:

```
mail('customer@example.com', 'Order 1356', 'Thank you for your order.');
```

*Alan's first professional PHP code was a single line — to send an email message.*

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PHP AS YOUR MODERNIZATION ENGINE

## Open AND Enterprise

### Open Source Foundations

- Widely adopted and community-driven
- Vast ecosystem
- Millions of sites and applications



### Enterprise Capabilities

- Hardened, secured, and supported for business by Seiden Group
- 24×7 support, proactive tune-ups, and managed upgrades
- Powerful admin dashboards and tools

## Who Can Use PHP?

### RPG Developers

- SQL knowledge helps
- PHP does not look so different from free-format RPG and other modern languages
- Can produce solid internal apps and utilities
- **AI tools help with look and feel**

### New or Outside PHP Developers

- Often bring a broader view of user interface and experience
- Collaborate with an RPG / Db2 / IBM i expert who knows the data
- The combination works very well

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PHP AS YOUR MODERNIZATION ENGINE

## Toolkit Selfie with Tony Cairns at ZendCon 2011

Alan Seiden <alan@alanseiden.com> @  
another pic for our Toolkit Scrapbook  
To: 'Tony Cairns' <adc@us.ibm.com>

October 25, 2011 at 1:10 AM

I think it's pretty cool, with the Zend booth in the background, capturing a historic moment (?) in IBM i toolkit history, Tuesday, Oct, 18, 2011.



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PHP AS YOUR MODERNIZATION ENGINE

## Alan and the ElePHPant



## Why PHP Is Still Compelling Today

- **Start simply and learn as you go**
- **Flexible**
  - Run anywhere, instantly
  - Easy, quick deployment — runs source code directly
  - Create logic that fits your business perfectly
  - Integrates with RPG and more
  - AI is a real help with PHP — even for beginners
- **Fast**
  - Uses your fast Power hardware, and gets faster with every release

*Skills: Lots of developers know at least some PHP*

## Safe and Speedy (faster each release)

- Mature on IBM i — thousands of installations over 20 years
- Db2 connectivity plus MySQL, MS SQL, and more
- RPG/COBOL integration — the PHP Toolkit leads the field
- Each new PHP version is faster and better

**King Harrison**  28 days ago

since PHP 8.3 i have found speed is ridiculous. i had someone complain it felt too fast



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PHP AS YOUR MODERNIZATION ENGINE

## A Perfect Fit for Web & API Development

- Comes with the essentials for web and APIs
- Forgiving — you don't need to be an expert
- Even though Seiden Group works with every language: Node, Python, Java, .NET / C#...
  - Our Python and Node experts love PHP on IBM i

*“PHP is like a comfortable pair of shoes. It's so easy.” — Jack Woehr*

## Stability and Official Support

### Stability

- The longest-established PHP on IBM i
- The most mature database connectors and toolkit
- Includes most of what web and APIs need — few extra packages

### Official Support

- Seiden Group World-Class Support
- See [IBM's PHP for IBM i page](#) for details

You are in: [IBM i Technology Updates](#) > [Open Source Technologies](#) > PHP on IBM i

#### PHP on IBM i

There are two primary ways to deploy PHP on IBM i. The two options known to be certified as enterprise-ready are :

- [Seiden PHP+](#) from Seiden Group
- [ZendPHP](#) from Perforce

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PHP AS YOUR MODERNIZATION ENGINE

## Easy to Get to “Hello”

Apache and IBM FastCGI are configured automatically. Create `/www/myphpsite/htdocs/hello.php`:

```
<?php  
  
echo "Hello, world!";  
  
?>
```

View it in your browser: <http://youribmi.com/hello.php>

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PHP AS YOUR MODERNIZATION ENGINE

## Integrated, Consistent, Complete

- Integrated with the IBM i Apache web server (STRTCPSVR / ENDTCPSPVR, TLS, and more)
- API-ready: cURL extension included in PHP core
- Built-in extensions, including Db2 access
- Automatic logging
- Need more? Composer is PHP's equivalent of npm and pip

## A Rich Framework Ecosystem

Frameworks are optional — PHP is complete in itself. A few popular choices:

- Laravel — a full framework with extensive functionality and UI templates
- Mezzio — the successor to Laminas, which replaced Zend Framework
- Slim — a microframework well suited to APIs
- AuraPHP — choose only the components you need
- PHPGrid and DataTables

10 entries per page Search:

Name	Position	Office	Age	Start date	Salary
Airi Satou	Accountant	Tokyo	33	2008-11-28	\$162,700
Angelica Ramos	Chief Executive Officer (CEO)	London	47	2009-10-09	\$1,200,000
Ashton Cox	Junior Technical Author	San Francisco	66	2009-01-12	\$86,000
Bradley Greer	Software Engineer	London	41	2012-10-13	\$132,000
Brenden Wagner	Software Engineer	San Francisco	28	2011-06-07	\$206,850
Brielle Williamson	Integration Specialist	New York	61	2012-12-02	\$372,000
Bruno Nash	Software Engineer	London	38	2011-05-03	\$163,500
Caesar Vance	Pre-Sales Support	New York	21	2011-12-12	\$106,450
Cara Stevens	Sales Assistant	New York	46	2011-12-06	\$145,600
Cedric Kelly	Senior JavaScript Developer	Edinburgh	22	2012-03-29	\$433,060

Name Position Office Age Start date Salary

Showing 1 to 10 of 57 entries « < 1 2 3 4 5 6 > »

## Security: Fewer Dependencies

- PHP minimizes dependencies — always minimize third-party components
- PHP is a complete web and API language on its own
- The next best thing to RPG 😊
- See Seiden Group's “Secure Your Open Source” talk on Node npm supply-chain risks

*Example — the Axios npm supply-chain compromise (March 2026). Axios is a widely used HTTP module; a native alternative is the Fetch API.*

## Security: Built-In Password Hashing

- PHP makes secure password hashing easy with `password_hash()` function
- No extra libraries required
- Recently migrated a project from md5 to Argon2
- Guidance: [seidengroup.com/2021/04/05/storing-passwords-safely](https://seidengroup.com/2021/04/05/storing-passwords-safely)

```
248 -         $loginResult =
248 +         $options = [
249 +             'memory_cost' =>
250 +             1<<17, // 128 MB
251 +             'time_cost' => 4,
252 +             // 4 iterations
253 +             'threads' => 2
254 +             // Parallelism (threads)
255 +             ];
256 +         $argon2IdHashedPassword
257 +         = password_hash($formData->
258 +             >PASSWORD, PASSWORD_ARGON2ID,
259 +             $options);
```

# Not Just Modernization — Monetization

PHP + IBM i as a profit center



“

PROVEN IN PRODUCTION

Our portal systems running Seiden PHP+ process over 8 billion dollars in credit-card payments annually, with 99.99% uptime availability.

**Curbstone Corporation**  
PCI-validated payment processing

**CURBSTONE**

 **SEIDEN**  
GROUP

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PROVEN IN PRODUCTION

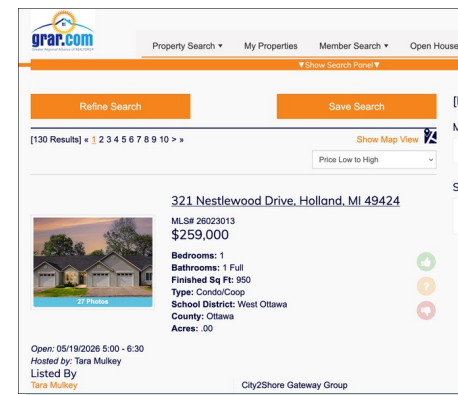
## Retailer Saves \$100,000 a Year on API Usage

- An online retailer's shipping-rate API jumped from free to \$100,000 per year
- Seiden Group used PHP to switch to APIs from USPS, FedEx, and UPS directly
- Rates are now calculated for free — the retailer already ships through those carriers
- Done two years ago, and saving money every year since

PROVEN IN PRODUCTION

## GRAR Site = Profit Center

- Greater Regional Alliance of Realtors
- Public site built with the Seiden PHP+ Server on IBM i
- Calls RPG stored procedures
- grar.com — fast, fast, fast



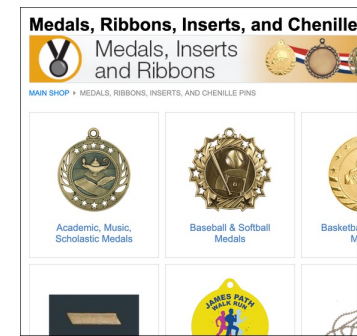
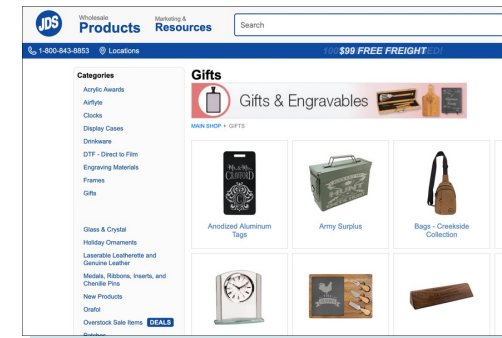
PROVEN IN PRODUCTION

## JDS Industries

- A leader in personalized gifts and awards
- Huge order volume processed with the Seiden PHP+ Server on IBM i

*"We are lucky to have found Seiden Group.  
Our busy ecommerce site is running as smooth as can be."*

**Barry Brown, CTO — JDS Industries**



PROVEN IN PRODUCTION

# K3S Inventory Management

The screenshot displays the K3S Inventory Management web application. The interface includes a navigation bar at the top with the URL 'calvin.k3s.com:8003/todaysagenda'. The main content area is divided into several sections:

- Assigned Tasks:** A table showing tasks left for various categories like Suggested Orders (495), Order Paid Order (448), Order Hold Order (118), Approved Orders (0), Suggested Not Organized (81), All Reminders (12), Replenish On Suppliers (1), Replenish On Products (11), Old Order Cycle (1,149), Open PO Checks L1-L5 (3,543), Open W Checks (42), and Overruns (1,285).
- Night Job Log:** A summary of night jobs over the past weekend, showing 1,485 Supplier Passed Over Not Call and 978 Sales Price + Cost.
- Your User Activity Today:** A section with filters for Today's Agenda, Username, Signon Time, Open POs, Current On Hand, and Current Overstock. It also shows a 'Next Period End' table.
- Suggested Order Adjustments:** A line chart showing percentage adjustments for K4\_DEV from 01/17/2026 to 02/15/2026.
- Inventory Investment Today:** A pie chart showing the distribution of inventory investment: Cycle Stock (28.73%), Safety Stock (33.92%), On Order (35.03%), Overstock (0.78%), Overstock On Order (0.3%), Discouraged On Order (0.3%), Manual Stock On Order (0.3%), and Discouraged (0.3%).

Fast and modern — running on IBM i with a modern PHP + JavaScript front end

PROVEN IN PRODUCTION

## Transformation: Allied Beverage Group

- New Jersey's largest wine distributor
- Started with RPG II code and flat files
- New application in PHP on IBM i, alongside existing RPG
- Word of mouth brought users to the system, so that 85% of orders flow through the PHP web interface



A screenshot of a modern web application interface for order management. The top navigation bar includes "Home", "Advanced Search", "Orders", "Transactions", "Email Mgmt", "Bill and Hold", "Pickup Form", "To Follow", and "Log out". The main content area shows a "Welcome to eBiz" banner and a "PENDING MONTH: December 2023" header. Below this are search filters for "Account #", "Comments (optional)", "Delivery Date", "Pre-avail", and "Min Date". A table titled "Drafts and committed orders" displays the following data:

Action	Status	Account	Comments	Order Date	Create	Delivery	Ct	Dr	\$ Line	\$ Discount	\$ Net
✓	draft	00235 TOYS LIQ STORE		12/04/23	not avail				.00	.00	.00
✓	draft	07023 CONVENIENCE LIQ		12/04/23	not avail	1	45.40		45.40		45.40
✓	draft	06021 FREEBRODE WAS		12/04/23	not avail				.00	.00	.00
✓	draft	08091 KENVI LIQ WINE FOOD		12/04/23	not avail				.00	.00	.00
✓	draft	06147 GOODFATHER PIZZERIA		12/04/23	not avail	3	129.33		129.33		129.33
✓	draft	06041 READKINSON WAS		12/04/23	not avail				.00	.00	.00
✓	draft	08011 JON WAS		12/04/23	not avail				.00	.00	.00
✓	draft	06012 VHT EDGE WAS		12/03/23	not avail	1	403.42		403.42		403.42
✓	draft	03110 HOLLAND LIQ		12/03/23	not avail				.00	.00	.00
✓	draft	18060 TRUMP NATL GOLF COUR		11/05/23	not avail	2	436.62		436.62		436.62
✓	committed (paid)	06021 BOURSON ST STEWARTSV		12/04/23	not avail	5					

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PROVEN IN PRODUCTION

## Transformation: Secrets of Success

- **More orders = more money**
  - The client let us learn how reps and customers worked — and what they wanted to improve
- **Designed the experience for both experienced and new users**
- **Real-time, live Db2 data — no finger-pointing**
  - Preserved key RPG logic so subject-matter experts could maintain it while we focused on UX — the PHP Toolkit helped

*Speed, speed, speed*

PROVEN IN PRODUCTION

## Transformation: Designed for both experienced and new users

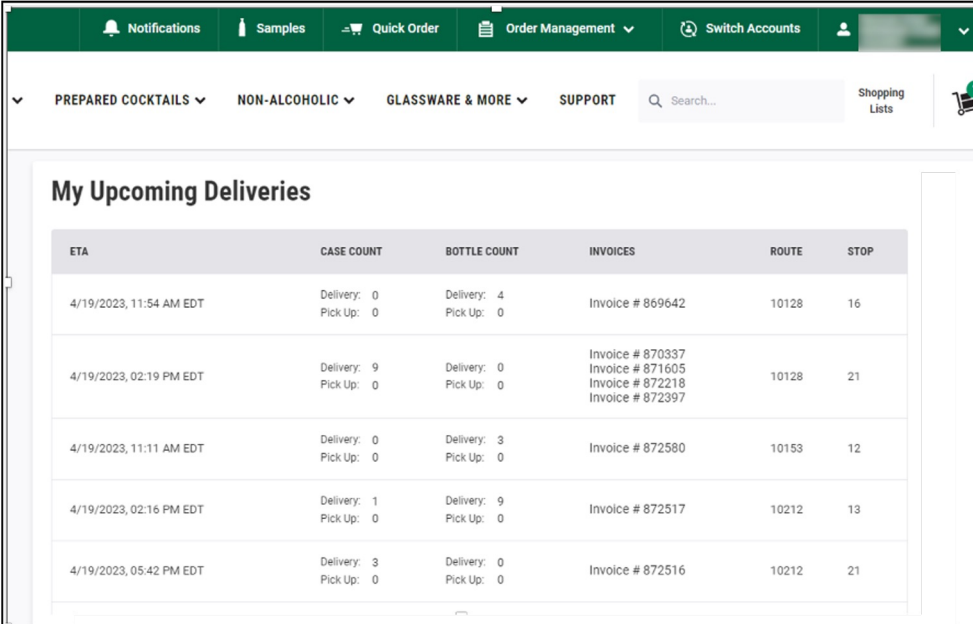
The screenshot displays the eBiz system interface. At the top, there is a header with a logo on the left, the text "Welcome to eBiz" in the center, and "Alan Seiden Consulting" on the right. Below the header, the navigation bar shows "Home > Orders" and "PRICING MONTH: March 2026". The main form area includes several fields: "Account#" with a search dropdown showing "023" and a list of suggestions ("023451: Copacabana Grill, Bayonne", "023724: Discount Liq, Fairfield", "023557: Essex Hunt Club, Peapack"), "Comments (optional)", "Delivery Date" set to "next available", "Delivery Req" checkbox, "Bill and Hold" checkbox, "Pre-sell" checkbox, "Mon Delv:" with "Yes" selected and "No" as an option, "Separate order" checkbox, and "Entry Mode" set to "Expert". A "Create" button is located at the bottom right of the form. Below the form is a table with columns for "Action", "Status", "Account", "Comments", "Order Dates" (Created, Delivery), "Cs", "Bt", and "Totals (Estimated)" (\$ List, \$ Discount, \$ Net). The table contains one row with a "draft" status and "026100: BROS LIQ OUTLET" account.

Action	Status	Account	Comments	Order Dates		Cs	Bt	Totals (Estimated)		
				Created	Delivery			\$ List	\$ Discount	\$ Net
	draft	026100: BROS LIQ OUTLET		03/25/26	next avail			.00	.00	.00

*Users WANTED to adopt the new system once they heard the word of mouth*

PROVEN IN PRODUCTION

# PHP evolution to APIs for additional Salesforce interface



The screenshot displays a web application interface with a green navigation bar at the top containing icons for Notifications, Samples, Quick Order, Order Management, and Switch Accounts. Below the navigation bar, there are menu items: PREPARED COCKTAILS, NON-ALCOHOLIC, GLASSWARE & MORE, and SUPPORT, along with a search bar and a Shopping Lists icon. The main content area is titled 'My Upcoming Deliveries' and contains a table with the following data:

ETA	CASE COUNT	BOTTLE COUNT	INVOICES	ROUTE	STOP
4/19/2023, 11:54 AM EDT	Delivery: 0 Pick Up: 0	Delivery: 4 Pick Up: 0	Invoice # 869642	10128	16
4/19/2023, 02:19 PM EDT	Delivery: 9 Pick Up: 0	Delivery: 0 Pick Up: 0	Invoice # 870337 Invoice # 871605 Invoice # 872218 Invoice # 872397	10128	21
4/19/2023, 11:11 AM EDT	Delivery: 0 Pick Up: 0	Delivery: 3 Pick Up: 0	Invoice # 872580	10153	12
4/19/2023, 02:16 PM EDT	Delivery: 1 Pick Up: 0	Delivery: 9 Pick Up: 0	Invoice # 872517	10212	13
4/19/2023, 05:42 PM EDT	Delivery: 3 Pick Up: 0	Delivery: 0 Pick Up: 0	Invoice # 872516	10212	21

[seidengroup.com/2018/02/19/salesforce-talks-ibm-php](https://seidengroup.com/2018/02/19/salesforce-talks-ibm-php)



Build Something Great  
with PHP

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BUILD SOMETHING GREAT WITH PHP

# Demos

Live demonstration

BUILD SOMETHING GREAT WITH PHP

# Bob & PHP

```
105 <?php
106 <!DOCTYPE html>
107 <html lang="en">
108 <head>
109 <meta charset="utf-8">
110 <title>Contacts - simple PHP CRUD</title>
111 <style>
112   body { font-family: Arial, sans-serif; max-width: 640px;
113         margin: 40px auto; color: #222;
114   h1 { font-size: 20px; }
115   table { border-collapse: collapse; width: 100%; margin-top: 20px; }
116   th, td { border: 1px solid #ccc; padding: 8px; text-align: left; }
117   th { background: #f0f0f0; }
118   form.add { margin: 16px 0; }
119   input[type=text], input[type=email] { padding: 6px; width: 200px; }
120   button { padding: 6px 12px; cursor: pointer; }
121   a { color: #1f6feb; }
122   .sqllog { margin-top: 30px; }
123   .sqllog h2 { font-size: 15px; margin-bottom: 6px; }
124   .sqllog pre { background: #f0f0f0; color: #444; padding: 12px;
125               border-radius: 4px; font-size: 13px; overflow-x: auto;
126               white-space: pre-wrap; }
127 </style>
128 </head>
129 <body>
130
131 <h1>Contacts</h1>
132
133 <!-- The form does double duty: Add a new contact, or Edit an
134      existing one when ?editID is in the URL. -->
135 <form class="add" method="post">
136   <input type="hidden" name="action"
137         value="<?=$editing ? 'update' : 'create' ?>">
138   <?php if ($editing): ?>
139     <input type="hidden" name="id" value="<?= esc($editing['id']) ?>">
140   <?php endif; ?>
141
142   <input type="text" name="name" placeholder="Name" required
```

IBM BOB

what is wrong with this code? 16k / 200k 0.13

crud.php (max 1000 lines)

I've analyzed the crud.php code and found one critical syntax error on line 113:

### Issues Found

- Missing closing brace in CSS (Line 113)

Severity: Critical - This will break the page

Line 113 is missing a closing brace } for the body CSS rule:

```
body { font-family: Arial, sans-serif; max-width: 640px;
      margin: 40px auto; color: #222;
```

Should be:

```
body { font-family: Arial, sans-serif; max-width: 640px;
      margin: 40px auto; color: #222; }
```

### Other Observations (Not Errors, But Worth Noting)

What's on your mind?

(@ to add context, / for commands, hold shift to drag in files/images)

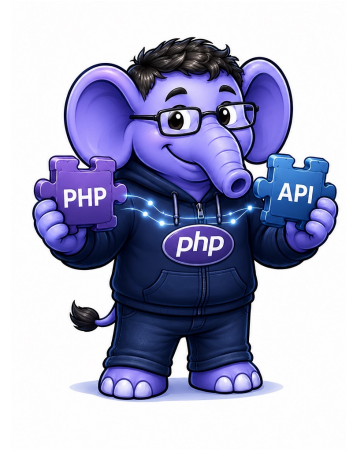
Plan

Ln 117, Col 35 Spaces: 4 UTF-8 LF () PHP Bob - Settings Plan: pro plan





# PHP and APIs



## Easy to Consume APIs in PHP

Basic consumer functions: `file_get_contents()` and `cURL`.

```
// file_get_contents() - no authorization header needed
$response = file_get_contents('https://api.example.com/location/2428344/');
$response = json_decode($response);

// cURL extension - built into PHP
$curl = curl_init();
curl_setopt($curl, CURLOPT_POST, 1);
curl_setopt($curl, CURLOPT_HTTPHEADER, ['Authorization: Bearer sk_test_...']);
curl_setopt($curl, CURLOPT_URL, 'https://api.stripe.com/v1/customers');
curl_setopt($curl, CURLOPT_RETURNTRANSFER, 1);
$result = curl_exec($curl);
curl_close($curl);
```

## Slim PHP – Example API Project

Excellent learning example for clean API design ([akrabat/slim-bookshelf-api](https://github.com/akrabat/slim-bookshelf-api)).

```
// Routes
$app->get('/', App\Action\HomeAction::class);
$app->get('/ping', App\Action\PingAction::class);

// Routes that need a valid user token
$app->group('', function () use ($app) {
    $app->get('/authors', Bookshelf\Action\ListAuthorsAction::class);
    $app->post('/authors', Bookshelf\Action\CreateAuthorAction::class);
    // ...more...
    $app->post('/authorise', Auth\Action\AuthoriseAction::class);
})->add(Auth\GuardMiddleware::class);

// Auth route
$app->post('/token', Auth\Action\TokenAction::class);
```

## PHP Example: Amazon Selling Partner API

A PHP SDK for Amazon authentication and more — highly secure, with several token levels.

```
$config = new SellingPartnerApi\Configuration([
    "lwaClientId"    => "<LWA client ID>",
    "lwaClientSecret" => "<LWA client secret>",
    "lwaRefreshToken" => "<LWA refresh token>",
    "awsAccessKeyId" => "<AWS access key ID>",
    "awsSecretAccessKey" => "<AWS secret access key>",
    "endpoint"      => SellingPartnerApi\Endpoint::NA,
]);
```

## Use PHP from RPG and CL

- PHP can be called from CL and RPG
- QSH CMD('/QOpenSys/pkg/bin/php myscript.php arg1 arg2 ...')
- Use APIs and payment gateways, and create spreadsheets and graphics



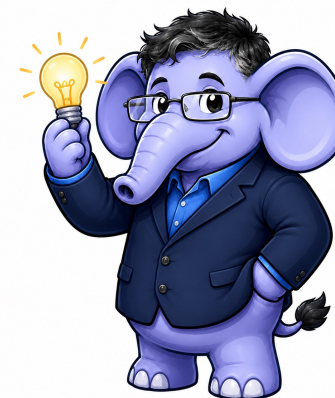
Guidance: [seidengroup.com/php-documentation/calling-php-from-cl](https://seidengroup.com/php-documentation/calling-php-from-cl)

## QSHPHRUN Command

The QSHPHRUN command makes it easy for CL and RPG to call PHP scripts without having to concatenate long commands.

Example of a PHP call passing CL arguments:

```
QSHONI/QSHPHRUN SCRIPTDIR('/phporders')  
SCRIPTFILE(submitorder.php) ARGS(&ACCT &ORDNO &IMMED)
```



## Technical PHP Tips

## Which version is best for me?

- **PHP 5.6**
  - It was a good release, but like V5R4, it's time to move on.
- **PHP 7.0-8.0-8.1**
  - Performance improvements and gradually more strict
- **PHP 8.2-8.3-8.4**
  - Minimum right now
- **PHP 8.5**
  - **Recommended this year**
- **PHP 8.6**
  - Being worked on now

## PHP 8.4 Helpful Features

- <https://www.seidengroup.com/2024/12/13/php-8-4-is-here/>
- Seiden Group's Calvin Buckley was a release manager for 8.4
- Once again: high quality, no drama

### A Few Highlights of PHP 8.4

- ▶ Performance and security improvements
- ▶ **Bcmath\Number Object**: Simplifies money calculations, and other arithmetic requiring decimal math, without loss of precision
- ▶ **DOM API Enhancement**: Improves HTML5 parsing
- ▶ **Property Hooks**: Reduces the amount of code needed for “get” and “set” functionality
- ▶ **Lazy Objects**: Objects that initialize only when needed; can speed up ORMs such as Doctrine
- ▶ **request\_parse\_body()**: Makes APIs easier to code for HTTP verbs such as PUT, PATCH, and DELETE

## PHP 8.5 – Improved Curl Support (API calls!)

- Native curl support is another great feature of PHP!
- New: Persistent curl connections
- <https://www.php.net/manual/en/function.curl-share-init-persistent.php>
- If you do many curl requests over time, you can use a single connection handle instead of reconnecting
- Reuse cookies, good for API authentication

```
<?php

// Initializes a new cURL session
$ch = curl_init();

// Set URL and other appropriate options
curl_setopt($ch, CURLOPT_URL, "http://www.example.com/");
curl_setopt($ch, CURLOPT_HEADER, 0);

// Grab URL and pass it to the browser
curl_exec($ch);
```

## Let Rector Help

- Rector can transform and update code automatically
- Automatic search/replace to use null coalescing operator:  
[https://github.com/rectorphp/rector/blob/main/docs/rector\\_rules\\_overview.md#ternarytonullcoalescingrector](https://github.com/rectorphp/rector/blob/main/docs/rector_rules_overview.md#ternarytonullcoalescingrector)

### TernaryToNullCoalescingRector

Changes unneeded null check to ?? operator

- class: `Rector\Php70\Rector\Ternary\TernaryToNullCoalescingRector`

```
-isset($value) ? $value : 10;  
+$value ?? 10;
```

## Prepare for Business Growth

- Make sure you have configured enough PHP jobs, Apache threads, and database jobs for your traffic.
- Key settings:
  - SetEnv="PHP\_FCGI\_CHILDREN=10" in fastcgi.conf
  - ThreadsPerChild 40 in httpd.conf
- Prestart job settings
- Details: <https://www.itjungle.com/2018/12/03/guru-right-size-your-php/>



# Seiden PHP Offerings

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SEIDEN PHP+ SERVER

## Seiden PHP+ Server — We're Here for You

- Professional PHP with maintenance and support
- 24x7 support and an admin dashboard
- Proactive tune-ups, security bulletins, hotfixes, and urgent help
- Free upgrade / migration assessment with Alan
- [seidengroup.com/free-php-upgrade-assessment](https://seidengroup.com/free-php-upgrade-assessment)

VERIFIED FOR USE WITH



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CUSTOMER VOICES

## What Customers Say

“After we IPLed, Seiden PHP+ was the only PHP that came up without needing babysitting.”

**Kim Mitchell**  
United Heritage Insurance

“The Seiden PHP+ package proved that the IBM i is capable of running production PHP after all.”

**Anthony**  
H-P Products

“We saw immediate performance improvements.”

**Larry Amond**  
GRAR

“

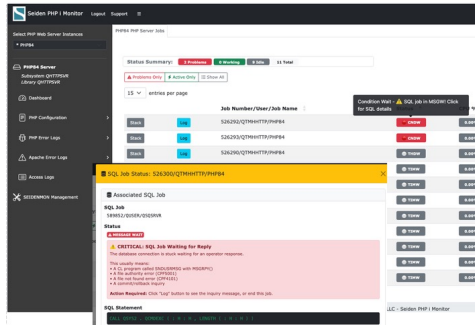
PROVEN IN PRODUCTION

Our previous PHP environment delivered only fair results. Seiden's PHP+ gave us **rock-solid reliability and speed**. We bashed our test systems with **hundreds of millions of transactions** from a thousand sources, with zero PHP failures — plus increases in **speed and capacity**.

**Ira Chandler, Founder — Curbstone Corporation**  
“The Payments Wizard”

## PHP Choices — Seiden and Zend/Perforce

- No more Zend Server after 2027 — Perforce is moving it to a PaaS solution, not for IBM i
  - (Perforce ZendPHP will still run on IBM i)
- Seiden PHP+ Server is dedicated to IBM i, with enterprise features



## Exclusive in Seiden PHP+ Server

- Speed! [Caching with APCU](#)
- Security! [Encryption with gnupg](#) extension
- Flexibility! [ODBC and ibm\\_db2 coexist](#)
- Safety! Test multiple PHP versions in parallel
- Optimized for IBM i

*Best practices configured out of the box*

# We keep ibm\_db2 going as official maintainers

**ibm\_db2 2.1.0**

Package Information	
<b>Summary</b>	Extension for IBM DB2 Universal Database, IBM Cloudscape, and Apache Derby
<b>Maintainers</b>	Helmut Tessarek (helper) [details] Amarnath Reddy N <areddy_at_rocketsoftware_dot_com> (lead) [details] Jesse Gorzinski (lead) [details] Calvin Buckley (developer) [details]
<b>License</b>	Apache License 2.0
<b>Description</b>	This extension supports IBM DB2 Universal Database, IBM Cloudscape, and Apache Derby databases.
<b>Release notes Version 2.1.0 (stable)</b>	* 2020-11-30: 2.1.0 - Compatibility with PHP 8 - Fix compatibility with 64-bit PASE/modern IBM i (sqlcli-dev package, pointer/integer width mismatch, XMLSERVICE location, etc) - Backport character trim from Zend Server - Major improvements to test suite (fix broken tests, less hardcoding) - Handle CCSID 65535 on IBM i - Fix warnings (returning void from non-void, etc)

## Calvin Buckley

Account Details		Maintaining These Packages:	
<b>Handle:</b>	calvinb	<b>Package Name</b>	<b>Role</b>
<b>Name:</b>	Calvin Buckley	ibm_db2	developer
<b>Homepage:</b>	<a href="http://cmpct.info/~calvin/">http://cmpct.info/~calvin/</a>	PDO_IBM	developer
<b>Additional information:</b>	I work for Seiden Group to improve PHP on IBM i. My presence at PECL is for the IBM database extensions.		
<b>VCS Access:</b>		<b>Notes for user calvinb</b>	
		cmb 2020-11-28 00:00:00: Account opened	

## Business-Ready and Secure

- Digitally signed for security
- Updated monthly, in sync with official PHP releases
- Available in all modern versions: 7.3, 7.4, 8.0, 8.1, 8.2, 8.3, 8.4, 8.5
- Supported by Seiden Group's PHP experts

## Help You Migrate to New PHP Versions

- Code conversion as needed
- Compatibility for PHP 7.x or 8.x; ibm\_db2, ODBC, PDO\_IBM connectivity; toolkit calls; soft-coded paths
  
- Parallel testing against the previous version

# Enterprise Dashboard for Errors & Troubleshooting

The screenshot displays the Seiden PHP Monitor interface. The top navigation bar includes 'Seiden PHP | Monitor', 'Logout', and 'Support'. Below this, there are tabs for 'Home', 'SEIDENMON PHP Server Jobs', and 'SEIDENMON: PHP Error Log - January 31, 2026'. A search bar labeled 'Table Search:' is positioned on the right. The left sidebar contains a menu with categories: 'SEIDENMON Server' (Subsystem: QHTTSPVR, Library: QHTTSPVR), 'PHP Server Jobs', 'HTTP Configuration', 'PHP ini', 'PHP Error Logs' (expanded to show 'Current PHP Error Log' for January 31, 2026, and previous dates), 'Apache Error Logs', 'Access Logs', and 'SEIDENMON Management'. The main content area shows a table of error logs with columns 'Line' and 'Message'. The messages include warnings for undefined variables and deprecated pathinfo() usage.

Line	Message
1	[31-Jan-2026 12:21:21 America/New_York] PHP Warning: Undefined variable \$server in /www/seidenmon/htdocs/bobdev/gets/chartData/getURLs_NotFoundData.php on line 77
2	[31-Jan-2026 12:20:25 America/New_York] PHP Warning: Undefined variable \$server in /www/seidenmon/htdocs/bobdev/gets/chartData/getURLs_NotFoundData.php on line 77
3	[31-Jan-2026 12:12:11 America/New_York] PHP Deprecated: pathinfo(): Passing null to parameter #1 (\$path) of type string is deprecated in /www/seidenmon/htdocs/bobdev/gets/getOverallAn
4	[31-Jan-2026 12:12:09 America/New_York] PHP Warning: Undefined variable \$server in /www/seidenmon/htdocs/bobdev/gets/chartData/getURLs_NotFoundData.php on line 77
5	[31-Jan-2026 12:08:15 America/New_York] PHP Warning: Undefined variable \$server in /www/seidenmon/htdocs/bobdev/gets/chartData/getURLs_NotFoundData.php on line 77
6	[31-Jan-2026 12:04:20 America/New_York] PHP Deprecated: pathinfo(): Passing null to parameter #1 (\$path) of type string is deprecated in /www/seidenmon/htdocs/bobdev/gets/getOverallAn
7	[31-Jan-2026 12:04:17 America/New_York] PHP Warning: Undefined variable \$server in /www/seidenmon/htdocs/bobdev/gets/chartData/getURLs_NotFoundData.php on line 77
8	[31-Jan-2026 12:02:50 America/New_York] PHP Warning: Undefined variable \$server in /www/seidenmon/htdocs/bobdev/gets/chartData/getURLs_NotFoundData.php on line 77
9	[31-Jan-2026 12:00:36 America/New_York] PHP Warning: Undefined variable \$server in /www/seidenmon/htdocs/bobdev/gets/chartData/getURLs_NotFoundData.php on line 77
10	[31-Jan-2026 11:59:24 America/New_York] PHP Warning: Undefined variable \$server in /www/seidenmon/htdocs/bobdev/gets/chartData/getURLs_NotFoundData.php on line 77
11	[31-Jan-2026 11:31:13 America/New_York] PHP Warning: Undefined variable \$server in /www/seidenmon/htdocs/bobdev/gets/chartData/getURLs_NotFoundData.php on line 77
12	[31-Jan-2026 11:30:42 America/New_York] PHP Warning: Undefined variable \$server in /www/seidenmon/htdocs/bobdev/gets/chartData/getURLs_NotFoundData.php on line 77
13	[30-Jan-2026 19:04:53 America/New_York] PHP Warning: foreach() argument must be of type array object, null given in /www/seidenmon/htdocs/bobdev/gets/getSQL_Job_Data.php on line 10
14	[30-Jan-2026 19:04:53 America/New_York] PHP Warning: Undefined variable \$phpJobs in /www/seidenmon/htdocs/bobdev/gets/getSQL_Job_Data.php on line 102
15	[30-Jan-2026 18:34:23 America/New_York] PHP Warning: foreach() argument must be of type array object, null given in /www/seidenmon/htdocs/bobdev/gets/getSQL_Job_Data.php on line 10
16	[30-Jan-2026 18:34:23 America/New_York] PHP Warning: Undefined variable \$phpJobs in /www/seidenmon/htdocs/bobdev/gets/getSQL_Job_Data.php on line 102
17	[30-Jan-2026 18:33:30 America/New_York] PHP Warning: foreach() argument must be of type array object, null given in /www/seidenmon/htdocs/bobdev/gets/getSQL_Job_Data.php on line 10
18	[30-Jan-2026 18:33:30 America/New_York] PHP Warning: Undefined variable \$phpJobs in /www/seidenmon/htdocs/bobdev/gets/getSQL_Job_Data.php on line 102

# Enterprise Dashboard for Db2/RPG Call Troubleshooting



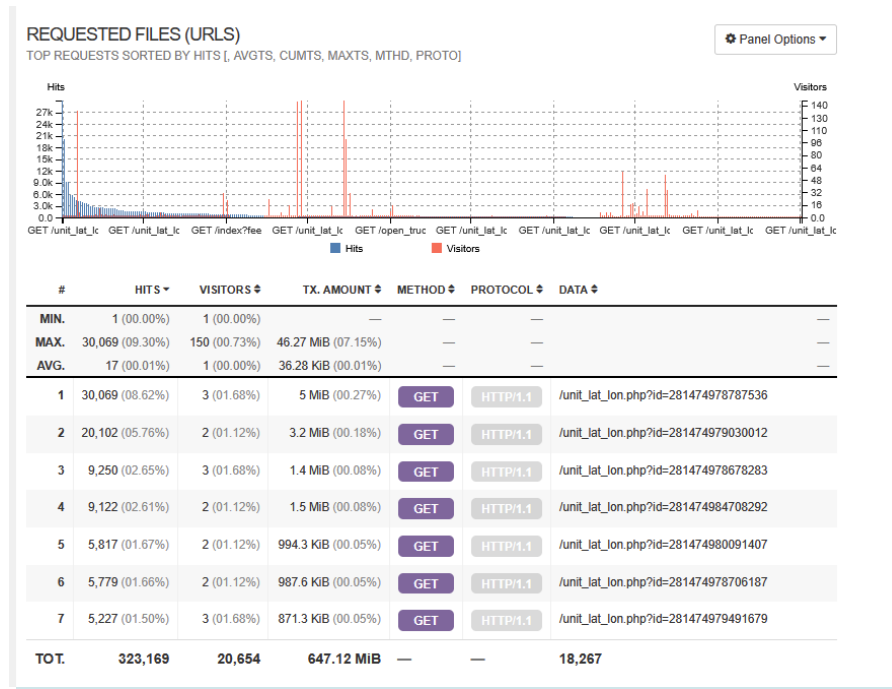
The screenshot shows the Seiden PHP Monitor interface. On the left is a navigation sidebar with options like 'PHP8 Server', 'PHP Error Logs', and 'Apache Error Logs'. The main area displays a table of PHP jobs. A tooltip is visible over the table, indicating a condition: 'Condition Met - SQL Job in MSGRPT CLAS for SQL details'. The table has columns for 'Job Number/User/Job Name', 'Status', and 'Function'. The status column shows 'Wait' for several jobs, and the function column shows 'php-qp'. A tooltip also points to the 'Log' button in the table.

Job Number/User/Job Name	Status	Function
526292/QTMHHTTP/PHP84	Wait	php-qp
526293/QTMHHTTP/PHP84	Wait	php-qp
526296/QTMHHTTP/PHP84	Wait	php-qp
526291/QTMHHTTP/PHP84	Wait	php-qp
526294/QTMHHTTP/PHP84	Wait	php-qp
526295/QTMHHTTP/PHP84	Wait	php-qp
526296/QTMHHTTP/PHP84	Wait	php-qp
526297/QTMHHTTP/PHP84	Wait	php-qp
526298/QTMHHTTP/PHP84	Wait	php-qp
526299/QTMHHTTP/PHP84	Wait	php-qp
526300/QTMHHTTP/PHP84	Wait	php-qp

The screenshot shows a detailed view of an SQL job status. The title bar reads 'SQL Job Status: 526300/QTMHHTTP/PHP84'. The main content area is titled 'Associated SQL Job' and shows the job ID '589852/QUSER/QS05RVR'. The status is 'MESSAGE WAIT'. A critical message is displayed: 'CRITICAL: SQL Job Waiting for Reply. The database connection is stuck waiting for an operator response.' Below this, a list of possible causes is provided: 'A CL program called SNDUSRMSG with MSGRPY()', 'A file authority error (CPF5001)', 'A file not found error (CPF4101)', and 'A commit/rollback inquiry'. An 'Action Required' section states: 'Click "Log" button to see the inquiry message, or end this job.' At the bottom, the SQL statement is shown: 'CALL QSYS2 . QCMDXCL ( : H : H , LENGTH ( : H : H ) )'. A 'Close' button is located at the bottom right.

Drill into specific job errors with detailed information

# Enterprise Dashboard for Scalability, Speed & Bots





## World Class Support

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WORLD CLASS SUPPORT

## Break/Fix Support for Seiden PHP+

**Up to 24×7 break/fix production support — PHP, Apache, toolkit, and more  
"No excuses" support**

- Special access to our support team for quick response
- We handle all issues, including:
- Web server won't start
- Issues after upgrades
- Database or toolkit connectivity

WORLD CLASS SUPPORT

## Proactive Support Keeps Your PHP Running Smoothly

- Tune-up calls to keep your apps on track
- Hotfixes as needed
- Security and support bulletins with important updates

Support Bulletin for CommunityPlus+ PHP from Seiden Group

Hi Kerry,

Alan asked me to send you a copy of our support bulletin. This bulletin describes fixes to two common issues:

- 1. Hard timeout (affects: all PHP users)**
  - Corrected an issue stemming from the original 64-bit IBM build where a hard timeout could terminate the PHP process. Symptom: PHP job dies with a message similar to: "Fatal error: Maximum execution time of 30+2 seconds exceeded (terminated) in Unknown on line 0".
  - **When fixed:** CommunityPlus+ PHP 7.3.23 / 7.4.11
- 2. db2\_bind\_param (affects: ibm\_db2 users who use db2\_bind\_param())**
  - Fixed a conflict between opcache and ibm\_db2 that caused the following messages when using db2\_bind\_param():  

```
PHP Warning: db2_execute(): Value Not Bound  
PHP Warning: db2_execute(): Binding Error 3
```
  - **When fixed:** CommunityPlus+ PHP 7.3.24 / 7.4.12

**Notes:**

- Run **php -v** to find your PHP version. If your PHP version is not at these levels yet, we suggest running **yum update "php-"** and restarting your web server.

---

WORLD CLASS SUPPORT

## Developer Mentoring Subscription

- Seiden Developer Council monthly meetings
- Developer advisory support for PHP and the environment
- Bridges the gap between PHP and IBM i
- “Phone-a-friend” for advice — IDE, Git, extensions, technique, Apache config, and more
- Regular business hours, or by arrangement (for example, during IBM i upgrades)

WORLD-CLASS SUPPORT

# Listen to our customers

Don't take our word for it.


Customer success stories at [seidengroup.com/seiden-php-customer-success-stories](https://seidengroup.com/seiden-php-customer-success-stories)

*"Best support on the planet!"*

**Bob Brinzda, Application Architect**

### A Long-Term Business Partner

"We're lucky to have found Seiden Group and PHP+. Our busy ecommerce site is running as smooth as can be. We look for long term business partners and we believe we have found one!"



— Barry Brown, CTO, JDS Industries

[Hear the JDS Story + PHP Briefing](#)

### Fast Performance, No Disruption to Users

"Alan and the team at Seiden Group have been excellent to work with moving us to Seiden PHP. The migration was quick and easy with their support and guidance, and we were able to make the move without any disruption to our users. We saw immediate performance improvements.

We recommend the Seiden team for all your PHP support needs."

— Larry Amond  
Director of Application Development  
Greater Regional Alliance of REALTORS®

### Responsive Support

"The best support!  
Alan and his group are so accessible and responsive. They've set the bar for customer service!"

— Kim Mitchell  
United Heritage Insurance

[Read the Case Study by IBM](#)


# Production PTF Issue


```
String ->5963 Oak St <- input length 200, output length 14
Fetched row 11
String ->392 Mill St <- input length 200, output length 14
```

Thursday, January 28th ▾

**Calvin Buckley** 1:22 PM  
i also have a possible workaround package made, after much mulling over the best scenario. the actual p test since i can't reproduce it). try it and see?

RPM ▾

 **php-ibm\_db2-2.1.2-5seiden7.3.ibm7.2.ppc64.rpm**  
132 kB RPM

 3:33 PM  
So far have not seen it break  
looks good!

**Calvin Buckley** 3:33 PM  
good to know the workaround works, but confusing that it's needed at all

**Calvin Buckley** 3:39 PM  
when you get the time, please run the repro case/see what PTF caused it  
this could affect others so i wanna be prepared and help you get it fixed upstream

WORLD CLASS SUPPORT

## Git Issue

**John** 3:53 PM  
who do ask to help with this problem?   
git init  
error: unable to mmap '/www/irhcdev/htdocs/wsitg/.git/config': No such device  
fatal: could not set 'core.repositoryformatversion' to '0'  
That is on the IBMi using QP2TERM and I tried with PUTTY.

**calvin** 3:55 PM  
is journalling on there?  
if it is in the IFS, that breaks mmap, which many PASE applications use

**John** 3:55 PM  
We use MIMIX so maybe it is. How do I tell?

**calvin** 3:55 PM  
see [https://ibmi-oss-docs.readthedocs.io/en/latest/troubleshooting/README.html#yum-or-rpm-fails-with-db4-error-19-\[...\]the-specified-device-does-not-exist](https://ibmi-oss-docs.readthedocs.io/en/latest/troubleshooting/README.html#yum-or-rpm-fails-with-db4-error-19-[...]the-specified-device-does-not-exist)  
t|dr: option 8 from wrklnk  
you can see there it can break rpm too

**John** 3:57 PM  
I'll check with our MIMIX guy

**John** 4:11 PM  
That worked!! Thanks.

WORLD CLASS SUPPORT

## Apache / DCM Issue

```
Display formatted message text
System:
Message ID . . . . . : CPDBCA4
Message file . . . . . : OCPFMSC
Library . . . . . : OSYS

Message . . . . . : Object containing the password for the certificate store
file not found.
Cause . . . . . : A certificate store file was provided with no password and
the object containing the password was not found.
Recovery . . . . . : Either provide the certificate store file's password on
the API, or use a different certificate store file or create a new
certificate store file by using the Digital Certificate Manager (DCM).

Press Enter to continue.
Bottom
F3=Exit F11=Display unformatted message text F12=Cancel
MA B 12/042
```

*Turned out to be a certificate issue stopping site from running*



## Next Steps



# How Do We Get Started?

Start small. Enjoy success.  
Expand from there.

## Modernization

PHP / Node.js / Python / RPG / mentoring /  
CNX Valence / VS Code / more

**1** Discovery Call  
We learn about your systems, goals, and challenges

**2** Assessment & Plan  
We map out a modernization path tailored to you

**3** Quick Win Pilot  
A focused first project that delivers visible results fast

## Let's Talk

Alan Seiden  
alan@seidengroup.com  
seidengroup.com  
201-447-2437

STAY CONNECTED

## Free Resources from Seiden Group

### Code for i Fridays



[seidengroup.com/vs-code-for-i-fridays](https://seidengroup.com/vs-code-for-i-fridays)

- next session May 22, 2026, 2:30 pm ET

### IBM i Strategy & Tips — monthly

[seidengroup.com/tips](https://seidengroup.com/tips)

### PHP Free Upgrade Assessment

[seidengroup.com/free-php-upgrade-assessment](https://seidengroup.com/free-php-upgrade-assessment)

#### Node.js v20 and Other Updated Packages Require New IBM i Repositories

by Alan Seiden

**IBM i** The latest IBM i open source packages, such as Node.js v20, require new IBM i repositories. We've heard from several perplexed clients wondering why Yum tells them "No package nodejs20 available" during their node upgrade.

This article shows you how to install the latest IBM i repositories to enable your open source updates well into the future . . .

[Read More](#)

#### What IBM i Users Should Check when Learning of an Open Source Security Vulnerability

by Alan Seiden



Security continues to be a top concern in IT, especially among upper management.

This article shows how to check IBM i open source components to ensure they are at a patched level if a vulnerability is reported . . .

[Read More](#)