Modern Mainframe CI/CD

Enterprises require a modern mainframe Continuous Integration/Continuous Delivery (CI/CD) tool that empowers veteran and novice developers alike to quickly and safely understand, build, test, and deploy mainframe code. That solution is **ISPW®**.

ISPW's technology enables IT to optimize code quality, improve developer productivity, and rapidly meet the digital demands of the business. ISPW fits into a modern DevOps toolchain, empowering developers of all experience levels to increase the quality, velocity, and efficiency of software development and delivery.

Organizations can use ISPW for mainframe source code management (SCM), build, and deploy or leverage Enterprise Git, such as Bitbucket or GitHub, for source control and ISPW for build and deploy.
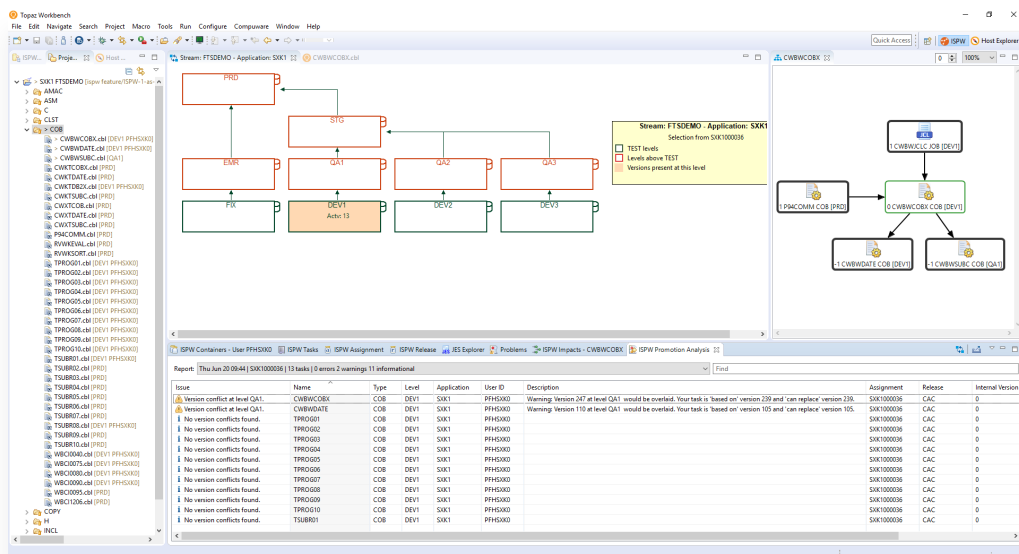
SOURCE CODE MANAGEMENT

Visibility Across the Development Lifecycle

ISPW supports development teams working on multiple versions of programs at different levels in the development lifecycle and provides end-to-end tracking of every action that affects code running in production—or at any level. When developers are tasked with making a source code change, they don't have to spend hours determining which version to use. ISPW also displays source code across the entire lifecycle and recommends the most current version to update.

ISPW includes other helpful features that can save time and minimize errors including a side-by-side Compare capability that enables users to quickly compare versions of code to spot changes and easily merge them as well as the ability to hover over a program to see who else might be working on it.

ISPW provides a graphical visualization of where your code is in the development cycle and how it relates to other programs, jobs, and copybooks.

Update Code Easily and Confidently for Agile Development

ISPW retains control of your code at all times, providing the flexibility needed for Agile Development. To make changes, developers pull code into an ISPW-controlled development area (not a personal library). ISPW can be configured with as many development areas as desired, enabling enterprise-wide parallel development, a hallmark of Agile cross-platform DevOps.

To immediately see how a code change might impact the rest of the mainframe environment, developers can use ISPW's Impact Analysis feature with rich visualization capabilities. This is an important capability given the risk that even a minor code change in one program can negatively impact multiple other programs due to complex—and typically undocumented—interrelationships among mainframe applications and databases.

Rich Analysis and Intelligent Automated Testing Through a Deep Integration with Topaz

ISPW is fully integrated into **Topaz® Workbench**, which provides access to Compuware solutions including **Topaz for Program Analysis**. While editing programs, developers can use Topaz for Program Analysis to visualize complex application logic. This capability is particularly beneficial for programmers who aren't familiar with program structure or logic, or the flow of data across the variables of a program. Equipped with these details, they can more confidently make changes to the code.

When ready, they can click to access the Eclipse-based data editing in **File-AID®** and debugging in **Xpediter®**.

An integration with **Topaz for Total Test** couples source code management with automated testing for intelligent automated test execution. When a change is promoted in ISPW, a CI/CD pipeline will automatically execute the right tests based on changed source code only. By intelligently choosing which tests to run and when, the pipeline runs faster, code quality improves and software delivery is accelerated.

BUILD

ISPW is much easier to set up and centrally administer than other solutions on the mainframe that compile code. Requiring less custom coding through processors, development teams need only select the specific pre-coded capabilities they want to use. ISPW uses modular, reusable compile skeletons for simple substitution, nesting, and conditional pathing. With a few skeletons, you can easily configure various technologies used in your mainframe environment, from COBOL to Db2 and more. And because skeletons substitute version libraries, they rarely need to be changed.
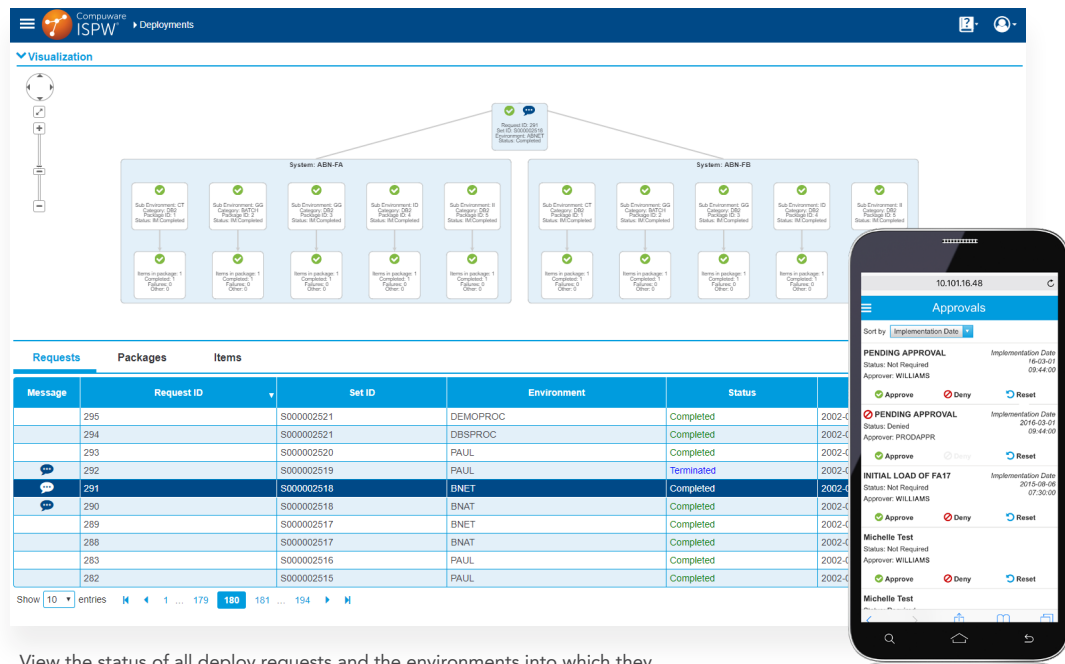
An expanded Promotion Analysis feature automatically identifies dependencies so that components can be deployed confidently.

DEPLOY

ISPW enables organizations to promote mainframe code faster, resulting in more rapid rollouts with fewer errors. Staff can deploy changes into production with confidence knowing that ISPW provides complete visibility over all versions of a program at multiple points in the development cycle. This level of clarity prevents incorrect overlaying of versions, ensuring that even when large development teams are doing parallel development, Continuous Integration, and Deployment can be done with full integrity.

Using ISPW's web deploy interface, DevOps staff can easily view the status of all deploy requests and the environments into which code was deployed. In the event of a failed deployment, a right click on the status field produces an intuitive hierarchical chart that guides operators to the failure point so they can take corrective action.

View the status of all deploy requests and the environments into which they are deployed. A right click in the status field brings up a hierarchical chart that guides operators to any failure points so that corrective action may be taken.

A mobile interface enables DevOps managers to respond immediately to alerts when code changes are ready for approval.

Customers whose current legacy SCM tools don't include deploy capabilities—such as CA Endevor—can purchase ISPW's deployment capabilities separately. This hybrid solution provides the benefits of a true deploy solution with your legacy source control solution.

Easy Fallback in Case of an Error

ISPW can return production software to an unlimited number of previously stored program versions in the event that a newly introduced change adversely impacts production software. Developers can easily access the version they need and put it into production while they fix the problem code. Even when additional effort is required for data changes, ISPW provides scripting capabilities to assist in the automated fallback processing.

AUTOMATE PROCESSES ACROSS MULTI-PLATFORM ENTERPRISES

ISPW integrates into a cross-platform DevOps toolchain to enable Continuous Build and Deploy while ensuring code quality.

Jenkins Plugins

ISPW integrates with **Jenkins** for orchestration and Continuous Integration. Users can leverage two Jenkins plugins with ISPW:

- The **Compuware Source Code Downloader plugin** allows source code stored in ISPW to be downloaded from the mainframe to Windows or Linux servers. Source can then be used in code quality assessment tools like **SonarSource SonarQube** for analytics and reporting.

- The **Compuware ISPW Operations plugin** enables users to build a DevOps pipeline in Jenkins to manage code throughout the development lifecycle. DevOps engineers can easily orchestrate ISPW operations, such as generate, promote, compile, deploy on the mainframe, or pull in source code from Git, all within a Jenkins pipeline.

REST APIs

REST APIs for ISPW enable users to create, promote, deploy, and check the status of code releases using popular Agile/DevOps tools including Jenkins and **Digital.ai Release** with Webhook notification. REST APIs allow visibility into what's occurring on the mainframe so even non-mainframe programmers can run and monitor a deploy without needing specialized knowledge about mainframe technologies.

Webhook Notification

Webhooks communicate information about ISPW activities to other DevOps tools in real time. Webhooks also integrate ISPW with other deployment tools; drive Continuous Integration through Jenkins; and facilitate team communication by enabling DevOps staff to post real-time messages into platforms such as Slack. Webhooks can be triggered regardless of whether developers or operators use Topaz, 3270, or REST APIs.
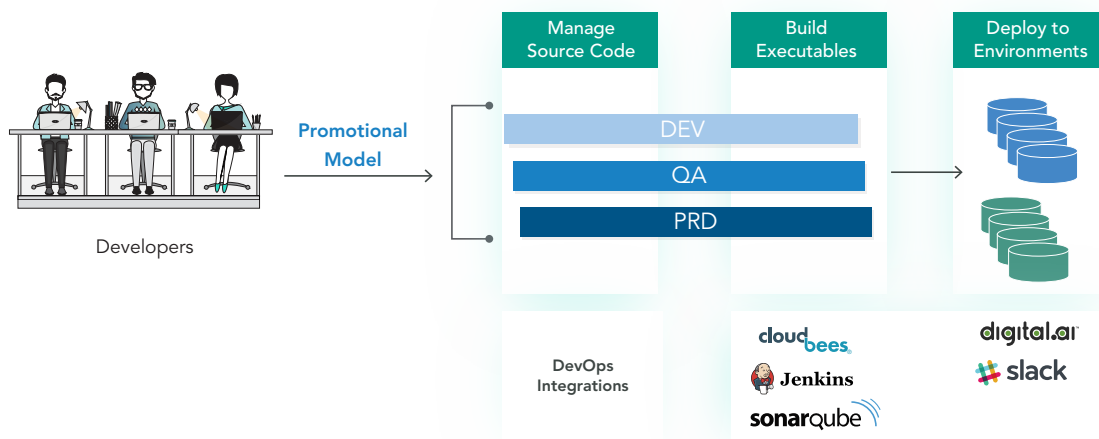
ISPW can be integrated into a cross-platform DevOps toolchain to automate the mainframe build and deploy processes while ensuring code quality.

Cross-platform Continuous Delivery

ISPW integrates with Digital.ai Release to enable cross-platform Continuous Delivery. This integration empowers IT teams to automate, standardize, and monitor code deployments across multiple platforms into multiple target environments. Automation and monitoring include test/QA, pre-copy staging and code promotion.

Digital.ai Release's data-rich dashboards empower operators to easily monitor and manage deployments across teams and environments. They can also receive detailed reports and analytics on release flow, helpful in remediating problems to ensure a smooth delivery process.

Similarly, ISPW integrates with **CloudBees Flow** to help users create, promote, and deploy on the mainframe.

Compuware
a BMC company

ISPW also integrates with **Digital.ai Delivery**, enabling users to track the progress of their software development activities from the same dashboards as they use to manage development pipelines across other platforms.
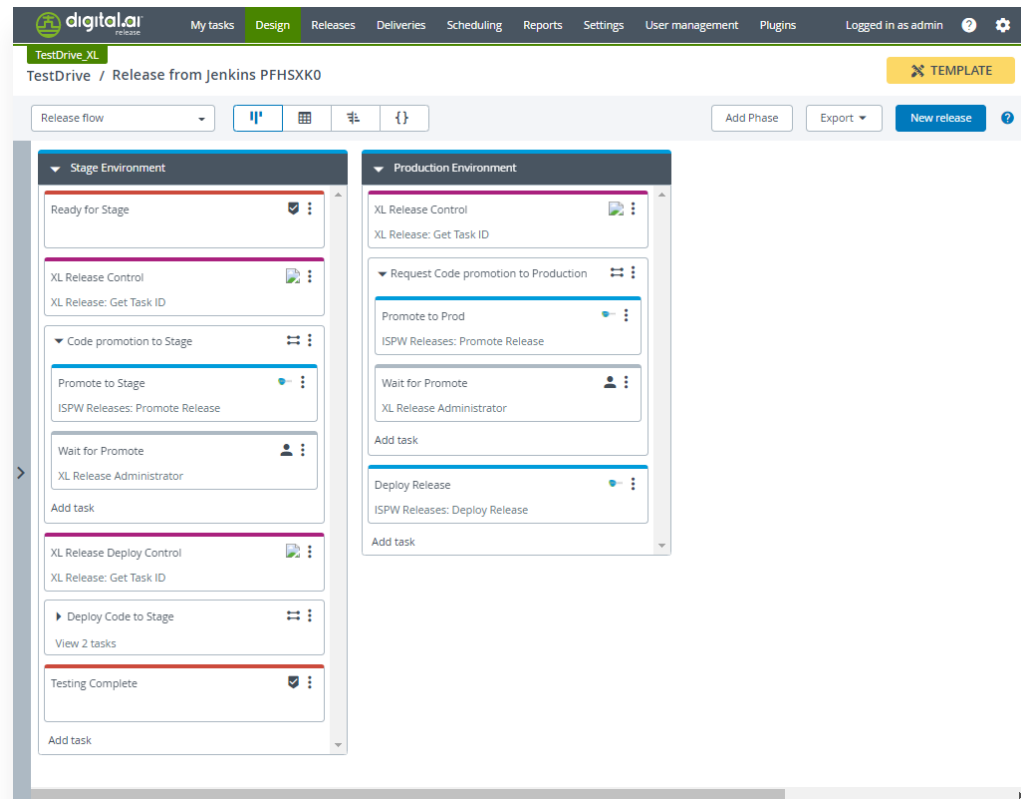

ISPW and Digital.ai Release integrate to enable enterprises to automate, standardize, and monitor code deployments across multiple platforms into multiple target environments.

ANALYTICS

ISPW usage data can be leveraged with Compuware **zAdviser's** enhanced machine learning to highlight areas that should be prioritized for reducing technical debt or improving efficiency efforts. Through zAdviser dashboards, teams can visualize constraints in changing source code and focus their development efforts to better meet business and customer requirements.
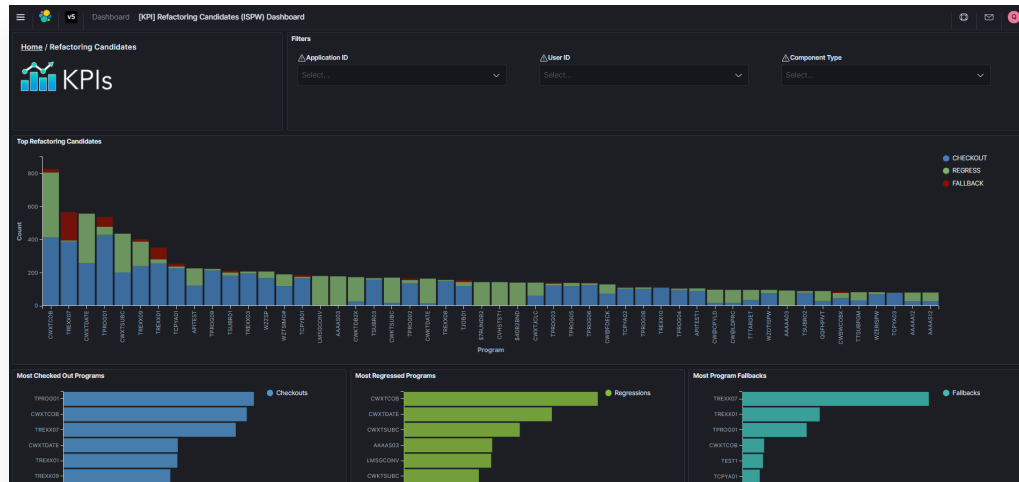
zAdviser dashboard showing code that could be refactored to reduce technical debt.

A PROVEN SCM MIGRATION SERVICE

Migrating away from an outdated mainframe SCM system is the right choice, but the prospect can seem daunting. A successful migration project requires project planning, data migration and integration, as well as testing and knowledge transfer.

The **ISPW SCM Migration Service** is a customized solution for organizations migrating from CA Endevor, CA Panvalet, CA Librarian, Micro Focus/Serena ChangeMan, and homegrown systems to the latest release of ISPW. The offering ensures the highest quality expertise at every step of the migration's project lifecycle and maintains any historical changes that were made in your outdated system.

The methodology also provides continuous communication with customers about migration progress and issues, so that all work can be appropriately coordinated with active development and test activities. Our experienced team can also provide advice on best practices if you wish to reorganize your repository for easier management and use.

ONGOING ACCESS TO TECHNICAL EXPERTISE

Due to budgetary pressures and limited availability of skilled resources, organizations can sometimes lack the in-house expertise to manage their business-critical SCM, putting their SLAs at risk.

ISPW Sentry Services is a **customized end-to-end service** that leverages expert technical resources and proven best practices to provide ongoing administrative support of ISPW. Users have access to Compuware's best technical resources for expert assistance with ISPW administration, maintenance, and upgrades as well as enhanced support services. The program is committed to helping customers keep ISPW running at peak performance to meet best-in-class SLAs across the world for a fraction of their current administrative costs.

For more information on these services, please review the Expertise, Methodology, and Tools for SCM Migration and Ongoing Success fact sheet.

THE VALUE OF ISPW

- Connect with modern DevOps toolchains using REST APIs and command line interfaces (CLIs).

- Automate, standardize, and monitor deployments into multiple target environments.

- Support multiple developers working on the same program at the same time.

- Catch conflicts early with intuitive displays that show the status of all programs throughout the lifecycle—in real time.

- Speed approvals with anytime, anywhere web and mobile approvals.

- Leverage proven, trustworthy SCM Migration Services and ongoing administrative support through ISPW Sentry Services.

- Use in-depth zAdviser metrics to continuously improve.

Learn more at **compuware.com/ispw.**

The Mainframe Software Partner for the Next 50 Years

Compuware, a BMC company, empowers the world's largest companies in their ongoing transformation to an Autonomous Digital Enterprise by delivering innovative software that enables IT professionals with mainstream skills to develop, deliver, and manage mainframe applications with ease and agility.

Learn more at compuware.com.