

## PACT Frequently Asked Questions

- **What features are included in PACT?**

**Answer:** PACT is unique in that it is a tool aimed specifically at the tasks associated with DO-178C and DO-254 project development and process management. While other tools support various aspects of these projects, none do so in the specific and cost-effective way that PACT does.

The primary features of PACT are:

- **World-wide Team Access, with Roles Establishing Data Access**  
Allows teams to work anywhere, anytime and accessing only pertinent data in the context of their roles.
- **One tool for both DO-178C and DO-254 Programs**  
Share the cost across teams and more importantly, improve inter-team communications by sharing/linking pertinent requirements, interfaces, project data, and problem reports that span related hardware/software projects.
- **Documentation Templates, Management and Versioning**  
Saves hundreds of engineering hours otherwise spent on documentation development and incorporates it into a system that supports configuration management.
- **Review Checklists, Process Management, and Evidence Capture (including Consolidated Feedback and Action Item Tracking)**  
Allows flexibility for both in-person and online team and certification auditing reviews, with thorough checklists developed by a leading certification expert to help prepare the team and reduce risk of audit findings at every stage of the project.
- **Requirements Capture, Review, Management and Push-Button Traceability**  
Use with or without DOORS to focus on the requirements and the relationship between requirements pertinent for your project (and related projects). Supports import and export of ReqIF format and other formats of data.
- **Full Featured Problem Reporting and Management**  
Integrated into the project for ease of filing, tracking, resolving, and reporting issues of varying severities, and supportive of the AC 20-189 Open Problem Reporting guidance.
- **Configuration Management and Control of Artifacts**  
Supports the CC1/HC1 and CC2/HC2 requirements for configuration management.
- **Data Importing, Exporting, and Archiving**  
Pull data in from DOORS, documents or spreadsheets and download data from the tool for easy copy and paste into project documentation.
- **Integration to the Development Environment via GitLab**  
Link your development environment into the PACT compliance process environment for complete and seamless project/process data access.
- **Highly Secure Data Storage and Access**  
PACT utilizes the NIST Cyber Security framework, and also includes ITAR support if needed by the project, for the highest levels of security.

- **What is the cost of PACT compared to other similar tools?**

**Answer:** PACT includes the pertinent features to support DO-178C/DO-254 projects from many other

tools. Here are the cost estimates of these tools/features:

- Document Templates
  - Industry offerings are ~\$4000-\$5000
  - Develop yourself, estimated 200+ hours of engineering time at \$100/hr = \$20,000 (per project)
- Review Checklists/Management
  - Industry offerings up to \$2000 (but none that offer the management aspects of reviews)
  - Develop checklists/review process/data capture yourself, estimated 100+ hours of engineering time at \$100/hr = \$10,000 (per project)
- Requirements Management and Tracing
  - Industry solutions, such as DOORS, from \$10,000-\$25,000+ (per year)  
Note: While PACT does not do everything DOORS does, it manages requirements in a way that is more conducive to DO-254 and DO-178C projects and team use at a much lower cost.  
Note that with DOORS, you pay for initial installation license, monthly maintenance, per user access, training and customizations.
  - Handling requirements in a document or spreadsheet, estimated 200+ hours of engineering time at \$100/hr = \$20,000 (per project, plus this comes at high risk of issues)
- Plus, Problem Reporting, Document Management, Single environment for secure and controlled anytime, anywhere team access to certification related project data. For a DO-254/DO-178C process compliance, you need a CM repository tool that can manage changes and be tied to the problem reporting activities and change management of the DO-254 data items.
  - You could use free tools but would need to tailor them, write procedures around them, and also create templates for the problem reports and problem report processing flows needed to meet the DO-254 DAL C objectives. Tools that you buy or pay licensing for are better but still need customization and training and processes written around them. The engineering hours to piece all of this together, maintain the information, document it, etc. can run into hundreds of hours and tens of thousands of dollars.
  - ACS provides the GIT lab license and PR process compliance as part of PACT (and is accessible to customers roughly at our cost). The infrastructure and the procedure is already provided free of charge as part of the tool and the templates.

PACT is a small fraction of this total cost and provides more features and value specifically tuned to avionics and safety-critical certifiable HW/SW development projects than all of these solutions combined. Plus it can be used (and cost shared) for multiple projects across both hardware and software. Contact us today for a quote.

- ***How does PACT compare to JAMA?***

**Answer:** JAMA is a popular tool for managing requirements and team collaboration. PACT

supports the same basic features of JAMA (including, support for “anywhere” team collaboration, requirements management and traceability, flexible development process support, review flow and capturing evidence, configuration management and problem reporting) but is more tuned for DO-254 avionics and DO-178C software compliance projects. Unlike JAMA, PACT incorporates the specific document templates and review checklists needed for these programs, which can save hundreds of engineering hours otherwise spent on developing documentation structure and reduce risk of audit findings by utilizing pre-designed checklists developed by an industry expert auditor.

- ***Does PACT just support DO-254 and DO-178C or can I use it for other safety-critical programs?***

**Answer:** PACT is indeed currently tuned for DO-254 and DO-178C programs. But it was also designed to be flexible enough to support other safety-critical programs. Today PACT comes with a set of DO-254 and DO-178C documentation templates and review checklists that greatly facilitate those types of projects. But PACT also supports adding custom templates and checklists. Besides this, most safety-critical programs have the same sort of focus on requirements management, documentation, verification (including reviews), problem reporting and problem management, and configuration management of artifacts. PACT supports these features, which apply across a multitude of project types. In future releases, we will be adding new features and templates to support other types of programs. If you’d like to discuss our plans to support your project type, send an email to [info@airworthinesscert.com](mailto:info@airworthinesscert.com).

- ***Can PACT support the linkage and relation between systems and the hardware and software items that comprise them across hierarchical levels?***

**Answer:** Yes. Projects have visibility into the status (e.g., Problem Reviews, Review Progress) of its lower level software and hardware items. Additionally, System Requirements (at the Project level) link to the hardware and software items, which in turn can also have the appropriate linkages across the hierarchy. For example, System requirements can link to PCB Requirements which can link to the corresponding Requirements for an FPGA on that board as well as Software requirements that may be running on a microprocessor on the board. The over Project design functionality, as defined by Requirements, may be tightly related and those relations can be identified in PACT. This is important to be able to trace and understand the impact of one requirement on related requirements.

- ***Can we define and/or restrict what sort of data our various team members have access to within the Project?***

**Answer:** Yes. PACT defines various team member roles and each has its own defined data access.

- ***Can PACT support teams who are geographically disbursed?***

**Answer:** Yes. As a web-based tool, your Project Team Members can be in different countries or simply down the street working from home and can still have full access (as defined by their role) to work on Project development through PACT. All it requires is an internet connection and a user profile set up by the Organization’s PACT Administrator.

- ***Can we use PACT to hold our SOI audits with our Certification Authority?***

**Answer:** Yes. You can add your auditor as a Team Member or give that person temporary View Only access to your project.

- ***Can PACT help with creating a Certification Package of documentation?***

**Answer:** Yes. At the end of your Project (or at any time during the development), you can select which documentation you need for Certification (or customer) review and PACT zips up these documents into a certification package with the click of a button.

- ***Can I use PACT with DOORS?***

**Answer:** Yes. Lots of companies use DOORS to manage their System level requirements. But managing the requirements for the Hardware/Software Items that comprise those systems can be cumbersome and expensive. The ideal integration of DOORS with PACT involves exporting your System Level Requirements from DOORS, importing those into PACT, and then creating and managing all the requirements for the Hardware/Software Items within the PACT environment, linking those to the System level requirements. This lets you keep your corporate investment in DOORS but utilize a simpler and more cost effective environment for hardware and software development teams to manage the requirements for their compliance development processes.

- ***I use Matlab to create high level models of my design prior to implementation. Can PACT support my Matlab models as requirements?***

**Answer:** Yes. PACT supports using images for Requirements or Conceptual Design objects. This can be used to support model-based designs.

- ***Can I integrate my whole development environment with PACT?***

**Answer:** Yes. While you can do code development outside of PACT (e.g., developing source code in an external development system), PACT can integrate with and link to existing or new Github and/or GitLab repositories. PACT includes an optional GitHub interface that permits you to integrate with any existing or new Git repository. If you are already developing using GitHub, PACT will integrate with an existing GitHub repository. In either case, you can incorporate your source code into PACT in just a few clicks. Once in PACT you can do simple code analysis, include profiling, code tracing and dead code detection. Because PACT also supports test cases and test procedures, you can also use PACT to manage your Quality assurance environment.

- ***What happens to my data if I decide to discontinue using PACT?***

**Answer:** You decide. You can export all your Project artifacts and documentation from PACT. You can also Archive your project. (See next question). ACS also offers long term project storage to help meet project Archive/Retrieval requirements. For more information on options and costs, send an email to [info@airworthinesscert.com](mailto:info@airworthinesscert.com).

- ***Is there a way to archive my Project or get my information out of PACT?***

**Answer:** At any time with PACT, you can export your project data (i.e., documentation, reviews, records of source code, test cases, problem reports, etc.). You can also take a snapshot of your project at any time (for Archive or even baselining purposes).

- ***Can PACT help me control my project data to the strict requirements my safety-standard?***

**Answer:** Yes. PACT supports cc1/hc1 configuration management requirements for DO-178C and DO-254 projects. This means that all project documentation is version managed to these strict standards.

- ***I have a DAL A program. Can PACT support this?***

**Answer:** PACT supports DAL A, B, C, and D. The appropriate documents and checklists are automatically used depending on the DAL you specify for your project.

- ***How does PACT differ from QCMS?***

**Answer:** PACT is a completely redesigned version of the original QCMS tool. It performs the same basic functions as QCMS as a foundation but has substantial improvements, including:

- Vastly improved data security, including the NIST cyber security framework and ITAR support if required
- Documentation templates, which can be modified per a company's standards/style, and automatically populated and set by DAL. (Note, new Documentation template set coming in 2021, including all the latest guidance documents)
- A new set of comprehensive DAL-adjusted Peer and Transition Review checklists, pre-defined or customized and automatically populated when reviews are set
- A review environment that manages the review process and evidence, including invitations, sign-in sheets, DAL adjusted checklists (developed by a certification auditor), consolidated review feedback, and action item tracking
- Support of project hierarchy, from System-Level Project Requirements to Hardware Items (including PCB and chip level) and Software Items
- Requirements capture, management and push-button tracing, (including from system to and across related hardware and software items)
- A full-featured problem reporting system that supports the terminology and expectations of new policy document AC/AMC 20-189
- Configuration management and control of artifacts
- Integration with GitLab, for secure and seamless project development (i.e., code) access
- Data importing/exporting
- Project archiving
- Streamlined User Interface
- Support for Rich Text Formatting and incorporation of images and videos
- Exporting to Microsoft Word
- Completely new and educational User Manual that helps not only with the tool usage but the "DO" processes as well

- ***What happens to our data and access if we stop paying (i.e., stop actively using the tool)***

**Answer:** If you stop paying, we will archive the data for some period of time and give you warnings to download it and archive for your purposes. Also, you can always use the tool for the development programs you currently have and then extract all the data (in Word or other formats), which gives you the ability to update and maintain project data manually if needed outside of PACT. (Note: You would need to update your planning documents and processes to reflect this manual approach if you switched from using PACT to maintaining the project data in a different environment). At ACS, we are flexible and want to support our customers' needs ...We want to work with you on pricing that fit your usage and business needs.