



Avionics Systems Hosted on a distributed modular electronics Large scale dEmonstrator for multiple tYpe of aircraft

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ASHLEY Tool Chain Framework

ASHLEY-WP73-ISQ-DISM-PRES-0515



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Presentation Content



- *Introduction*
- *ATF*
- *Conclusions*
- *Contacts*

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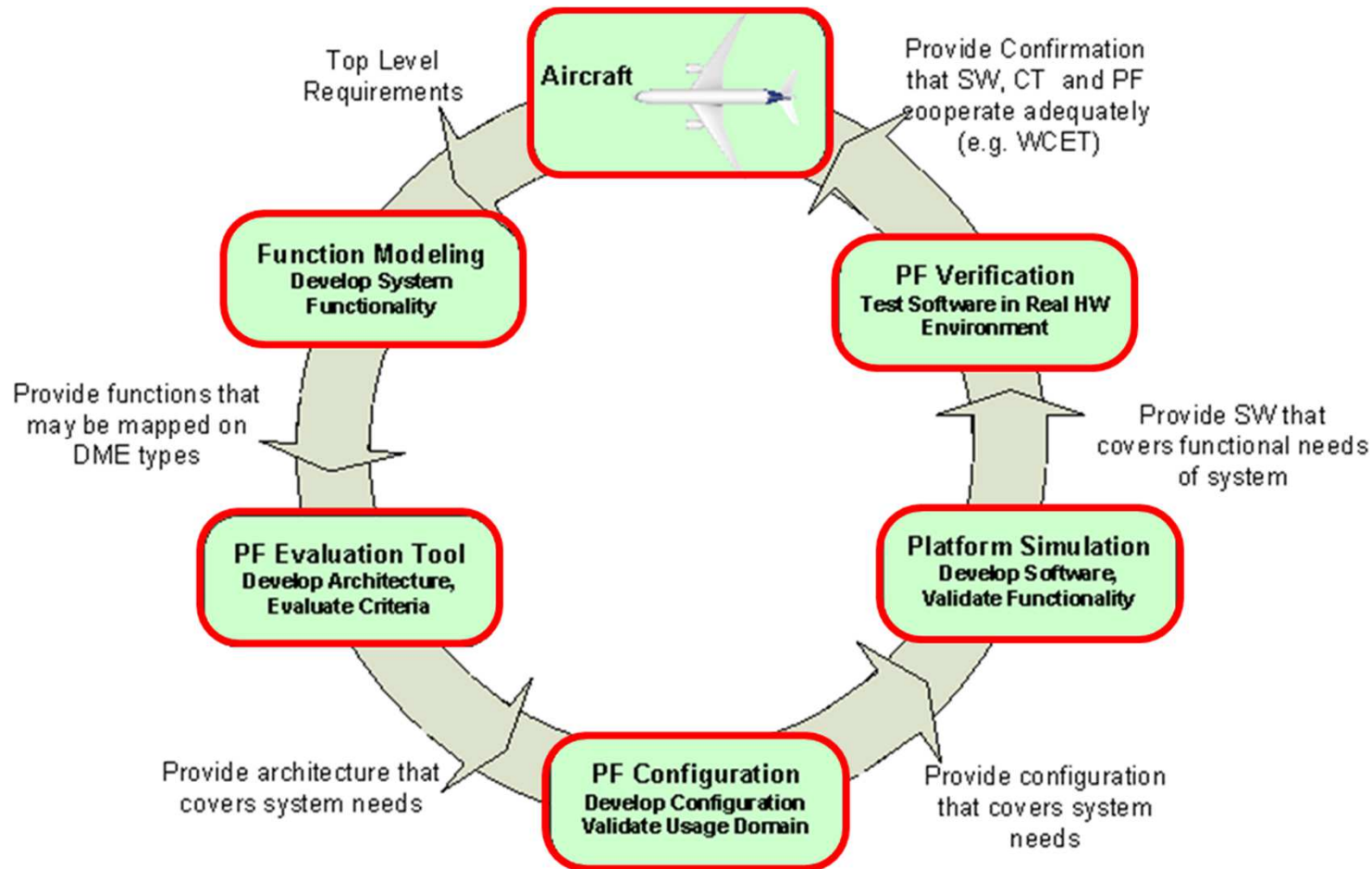
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ASHLEY Tool Chain Framework Introduction



- Avionics Tool Chain life cycle:
 - Tools must pass information between them.



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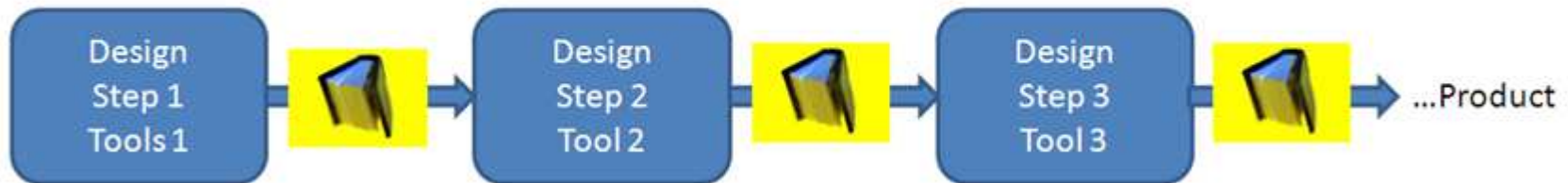
ASHLEY Tool Chain Framework Introduction



❑ Avionics Tool Chain life cycle:

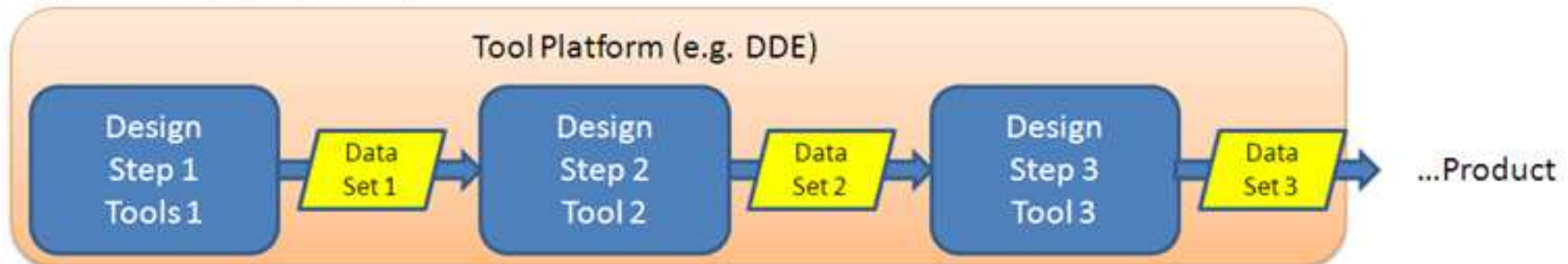
- Current data passing between tools and suppliers: Manual.

Old Design Methodology



- New data passing between tool and suppliers: Automated.

New Design Methodology



- Question: How to achieve this between different suppliers and IPRs?

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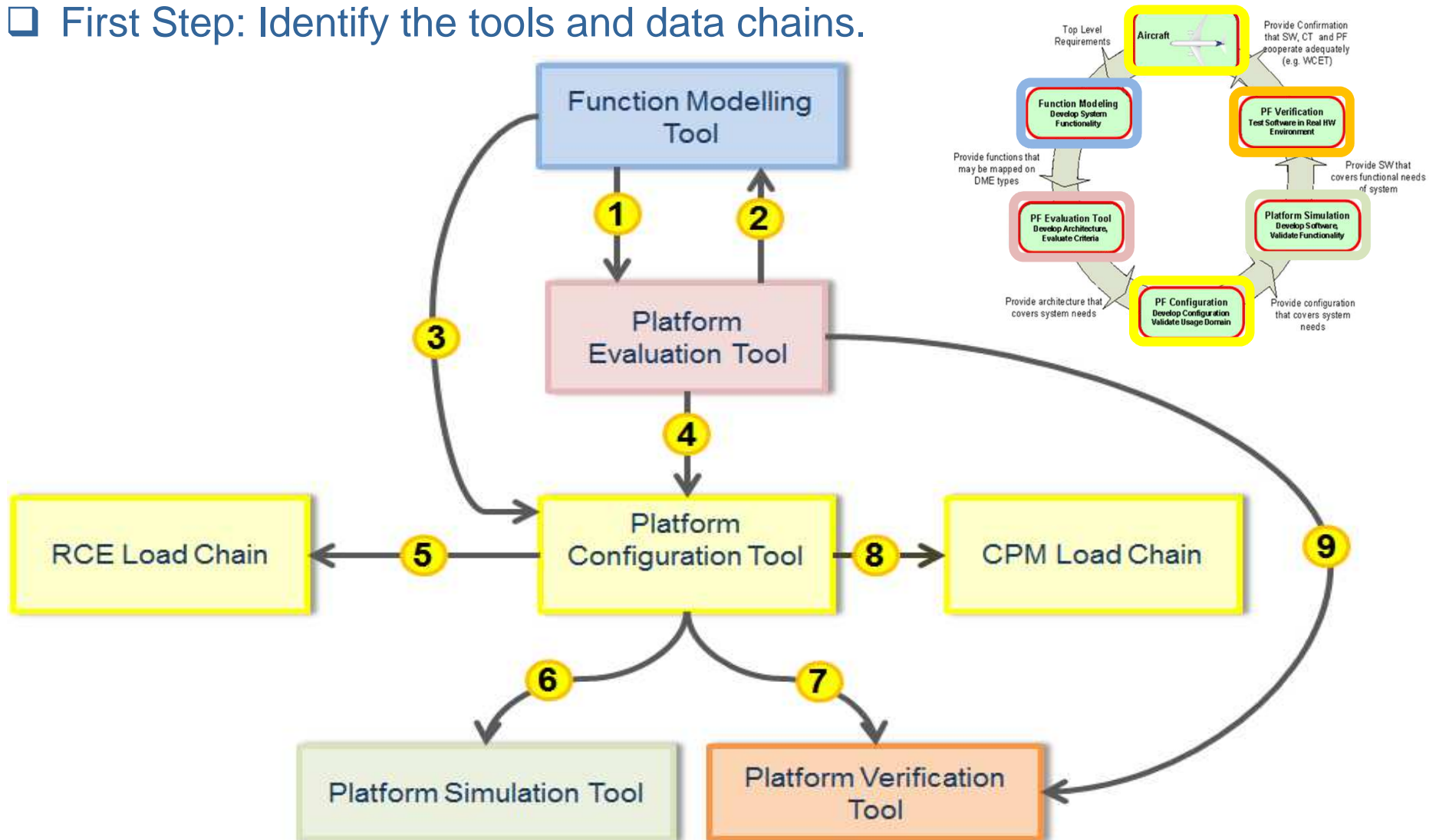
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ASHLEY Tool Chain Framework Introduction



□ First Step: Identify the tools and data chains.



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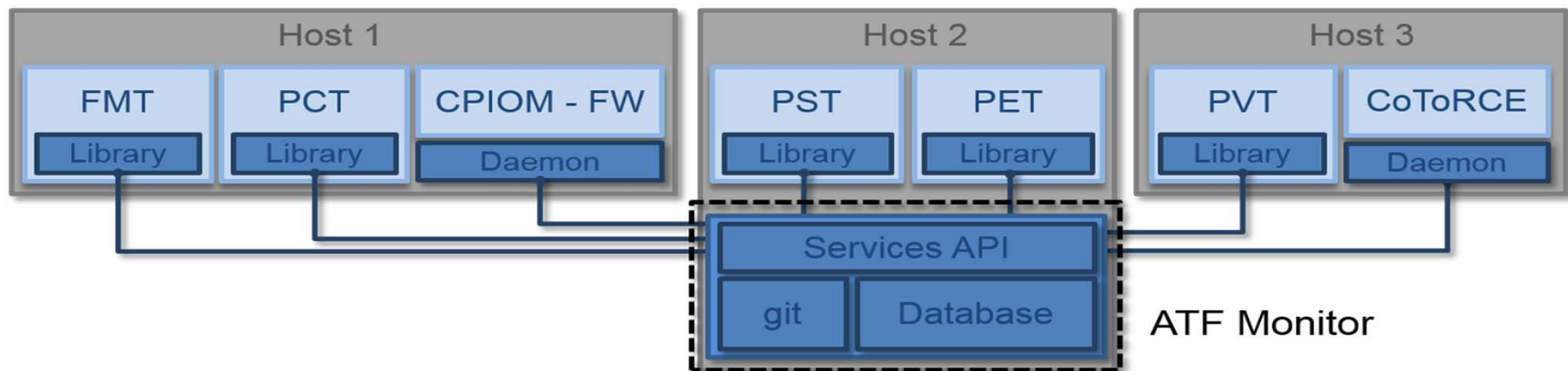
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ASHLEY Tool Chain Framework Introduction



- ❑ Second Step: Identify the architecture considering various requirements:
 - Should be distributed to accommodate individual tools execution environment requirement;
 - Should be capable to keep track of the data transfers to allow for data consistency verifications across the tool chain.
 - Should interact with all the tools in a uniform way.
 - Should accomplish integration through the tools implementation or through a minimum set of capabilities.



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ASHLEY Tool Chain Framework Introduction



- Third Step: Map the data exchanges which need to be covered in the Framework.

ASHLEY Tool\Repository Folder	FMT_SIN	PET_THA	PCT_TUHH	CoToRCE_DAS	PST_THA	PVT_TEL	CPIOM_THA
Function Modelling Tool		Export (1) Import (2)	Export (3)				
Platform Evaluation Tool	Import (1) Export(2)		Export (4)			Export(9)	
Platform Configuration Tool	Import(3)	Import (4)		Export (5)	Export (6)	Export (7)	Export (8)
RCE Load Chain			Import (5)				
Platform Simulation Tool			Import (6)				
Platform Verification Tool		Import(9)	Import (7)				
CPM Load Chain			Import (8)				

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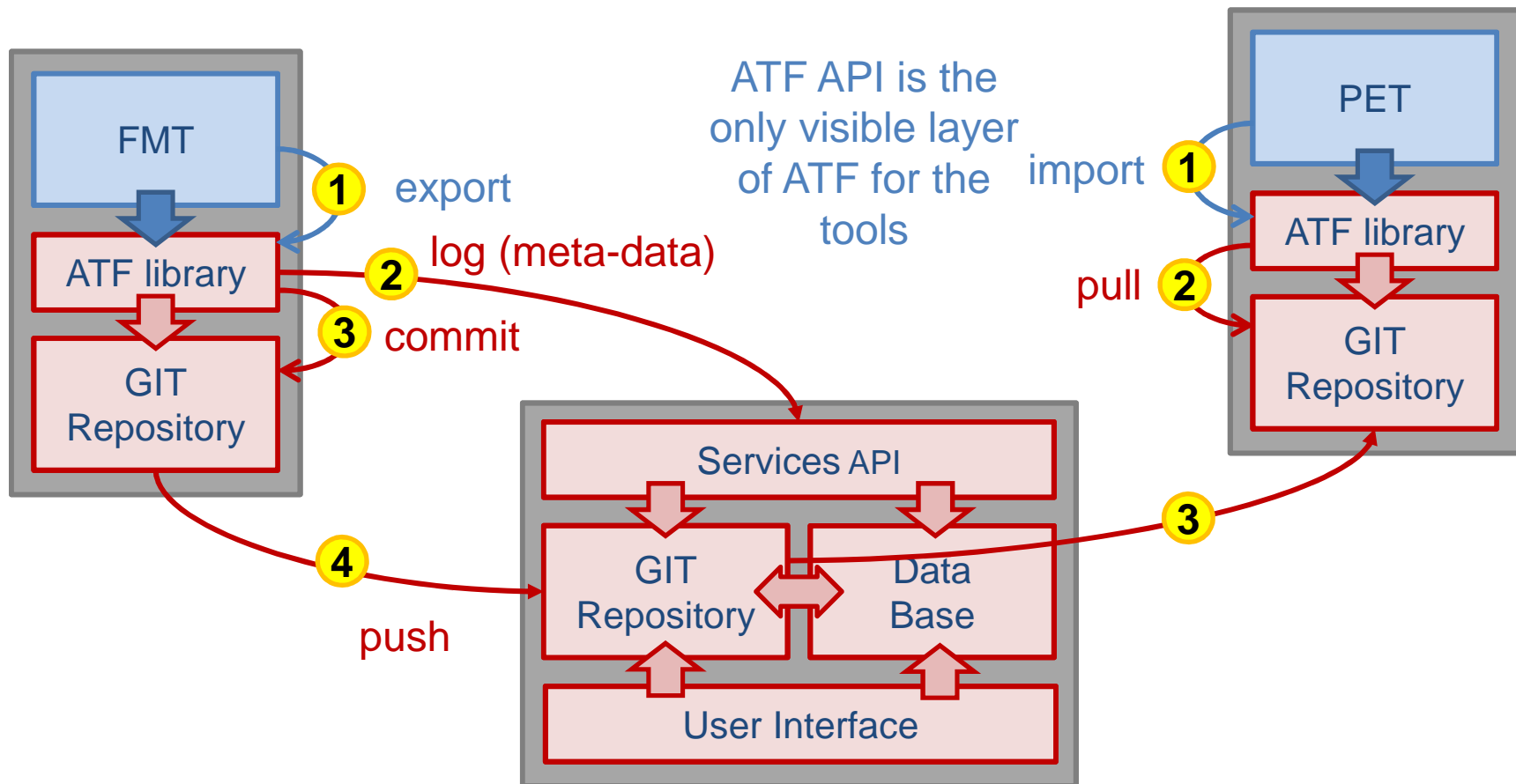
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ASHLEY Tool Chain Framework ATF



Export and Import services



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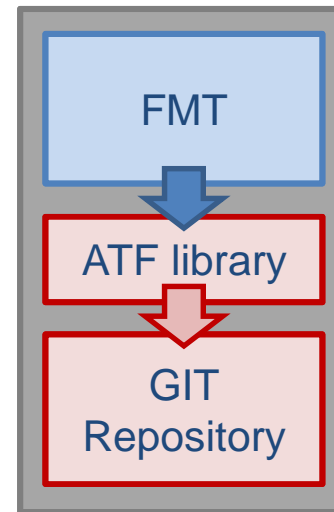
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ASHLEY Tool Chain Framework ATF

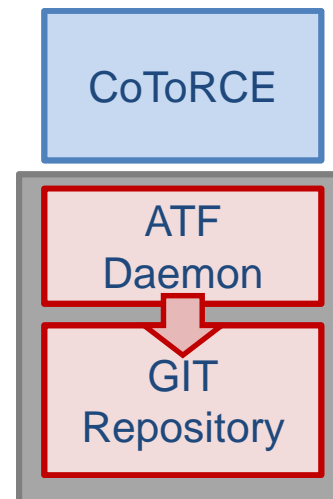


□ Currently ATF supports two separate integration mechanisms:

➤ Library – fully integrated into the tool.



➤ Daemon – Separated from the tool.



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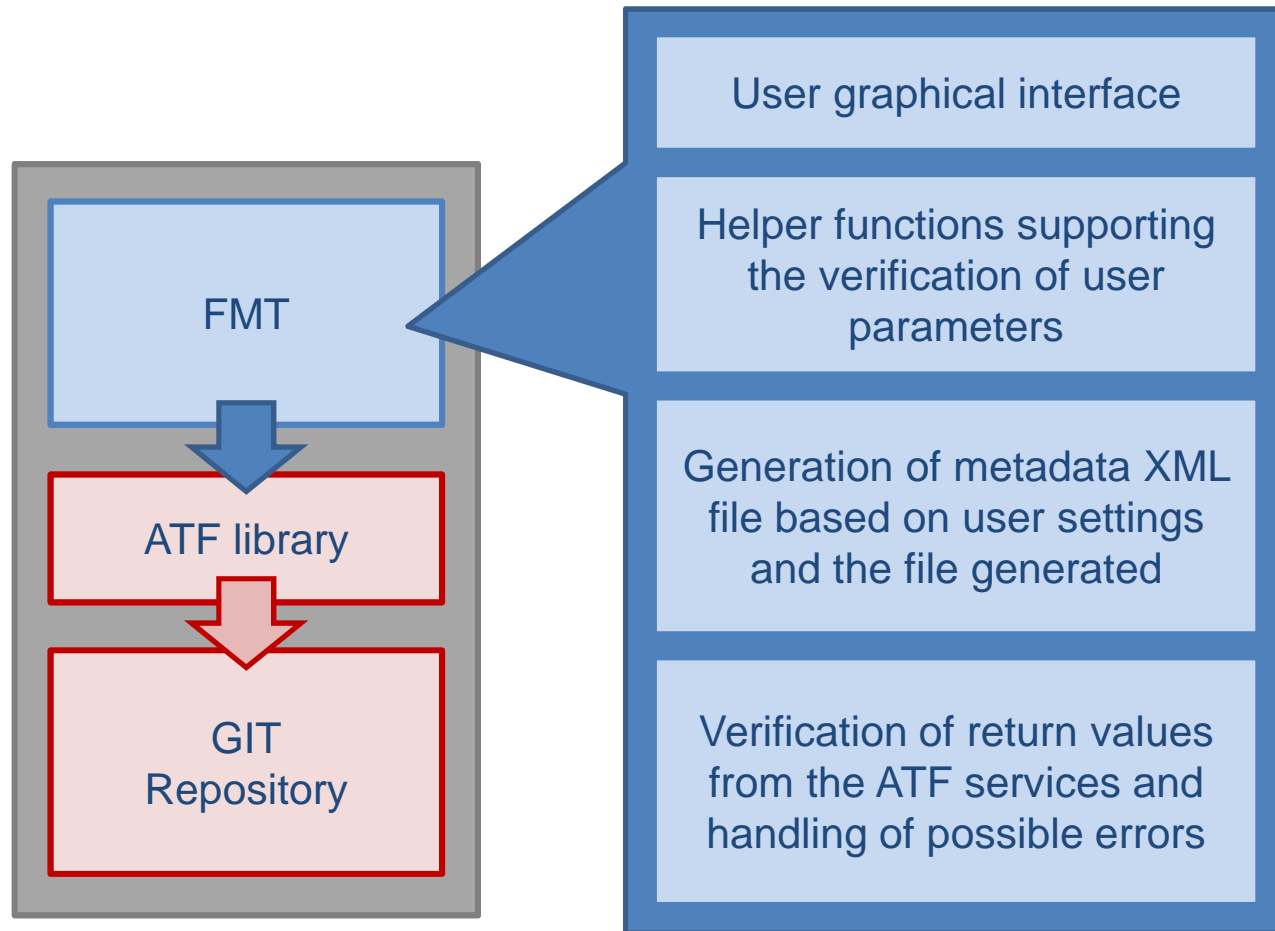
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ASHLEY Tool Chain Framework

ATF - Library



- ❑ Library provides the tool with all services and supports error checking and data transfer control files production.



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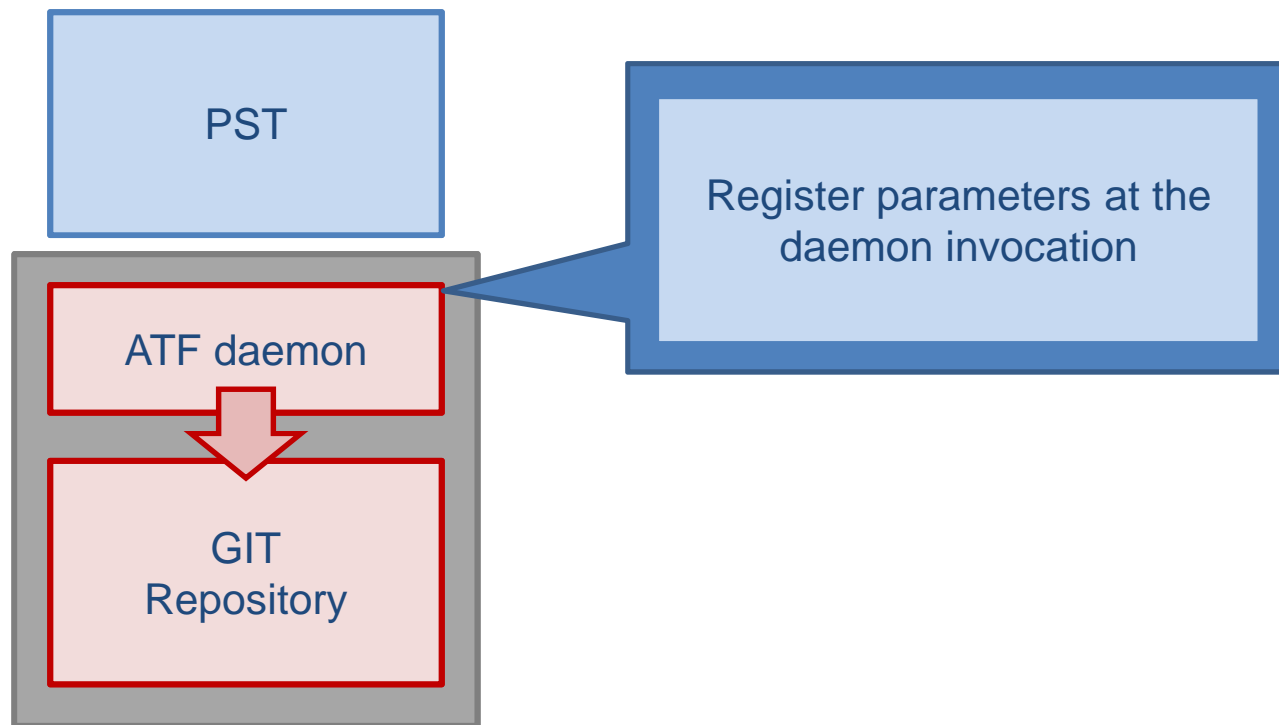
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ASHLEY Tool Chain Framework

ATF - Daemon



- ❑ The Daemon is currently used when the tool is already qualified and no integration was deemed feasible in the scope of the project.



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ASHLEY Tool Chain Framework ATF



□ ASHLEY ATF Monitoring tool

Configuration File used.
Configuration File Loaded: C:\0000_testATF\serverConfig.xml

Services available to the ATF Monitor

REGISTER REFRESH REPO FMT_SIN EXPORT SHOW REPO REPORT(S)

Status of Tools connected to the monitor

- FMT_SIN
- PET_THA
- PCT_TUHH
- PST_THA
- CPIOM_THA
- PVT_TEL
- GoToRCE_DAS

Events Log Window

```
22/09/2015 03:47:05.235: Configuration file selected:serverConfig.xml
22/09/2015 03:47:05.676: SERVER ready
22/09/2015 03:47:05.686: Database already created successfully!!
```

CLEAR LOG

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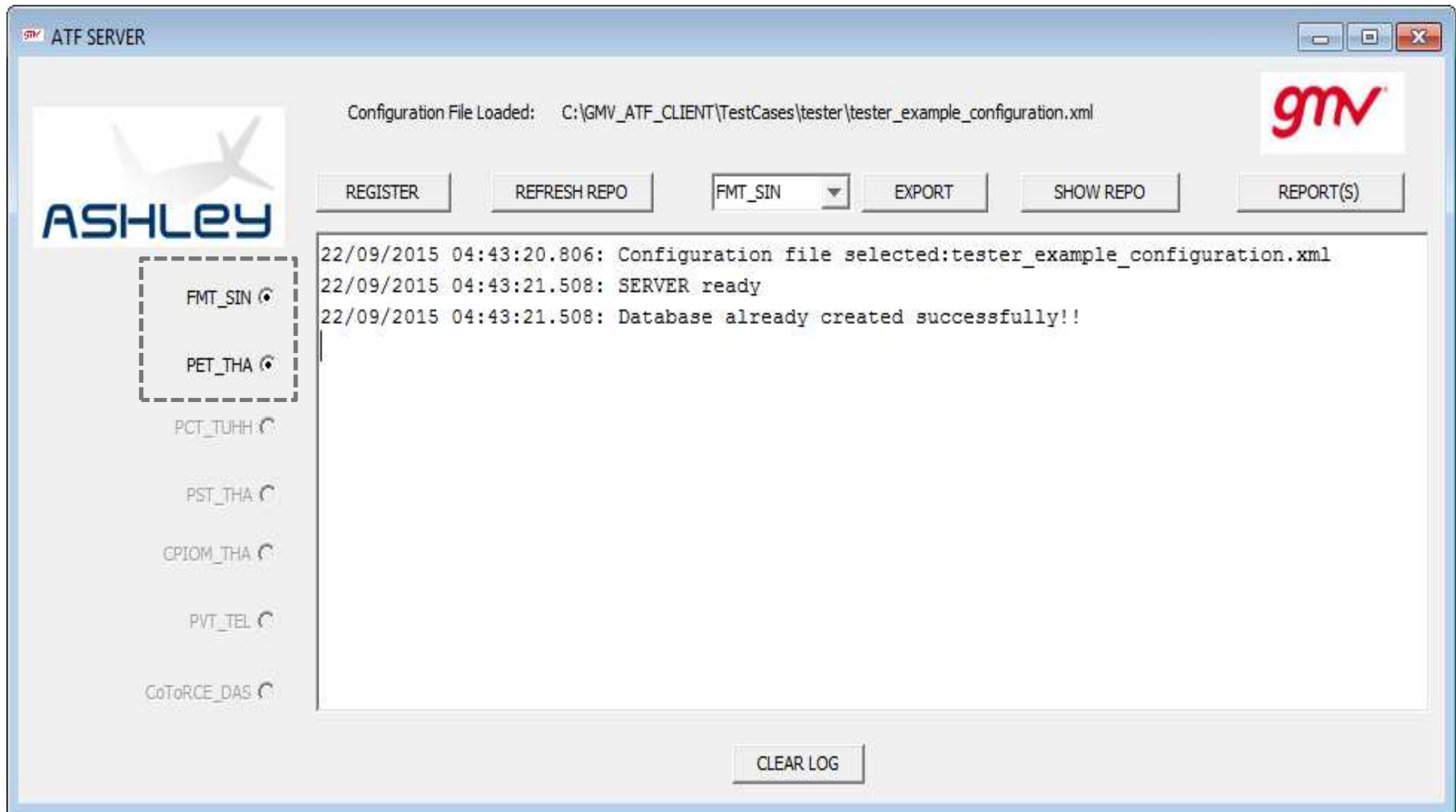
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ASHLEY Tool Chain Framework ATF



- ❑ Monitor active and with tools connected to it.



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ASHLEY Tool Chain Framework ATF



- ❑ Reporting capability: The ATF can generate reports to support the tracing of operations across the tool chain.
- ❑ It can also generate reports based on a given avionics binary providing a full trace of the data used in the generation of that binary – Important for Certification purposes.

ATF Report Type	File Format	DESCRIPTION
FULL REPORT	ATF_REPORT_<TimeStamp>.html	This report is a snapshot of the current Database containing all the export operations. An example of the report is included in the folder: GMV_ATF_CLIENT\Documentation
CoTorCE_DAS	ATF_<FileName>_<TimeStamp>.html	This report details the history of operations that end with the creation the binary loads in the CoTorCE tool. For that the ATF server uses the report exported from this tool IMPORTANT: This report (exported) as to follow the ATF filename convention. Example: LR_AT_*_REP_*.xml. An example of the report is included in the folder: GMV_ATF_CLIENT\Documentation
CPIOM_THA	ATF_<FileName>_<TimeStamp>.html	This report details the history of operations that end with the creation the binary loads in the CPIOM tool. For that the ATF server uses the report exported from this tool. IMPORTANT: This report (exported) as to follow the ATF filename convention. Example: LC_AT_*_REP_*.xml. An example of the report is included in the folder: GMV_ATF_CLIENT\Documentation

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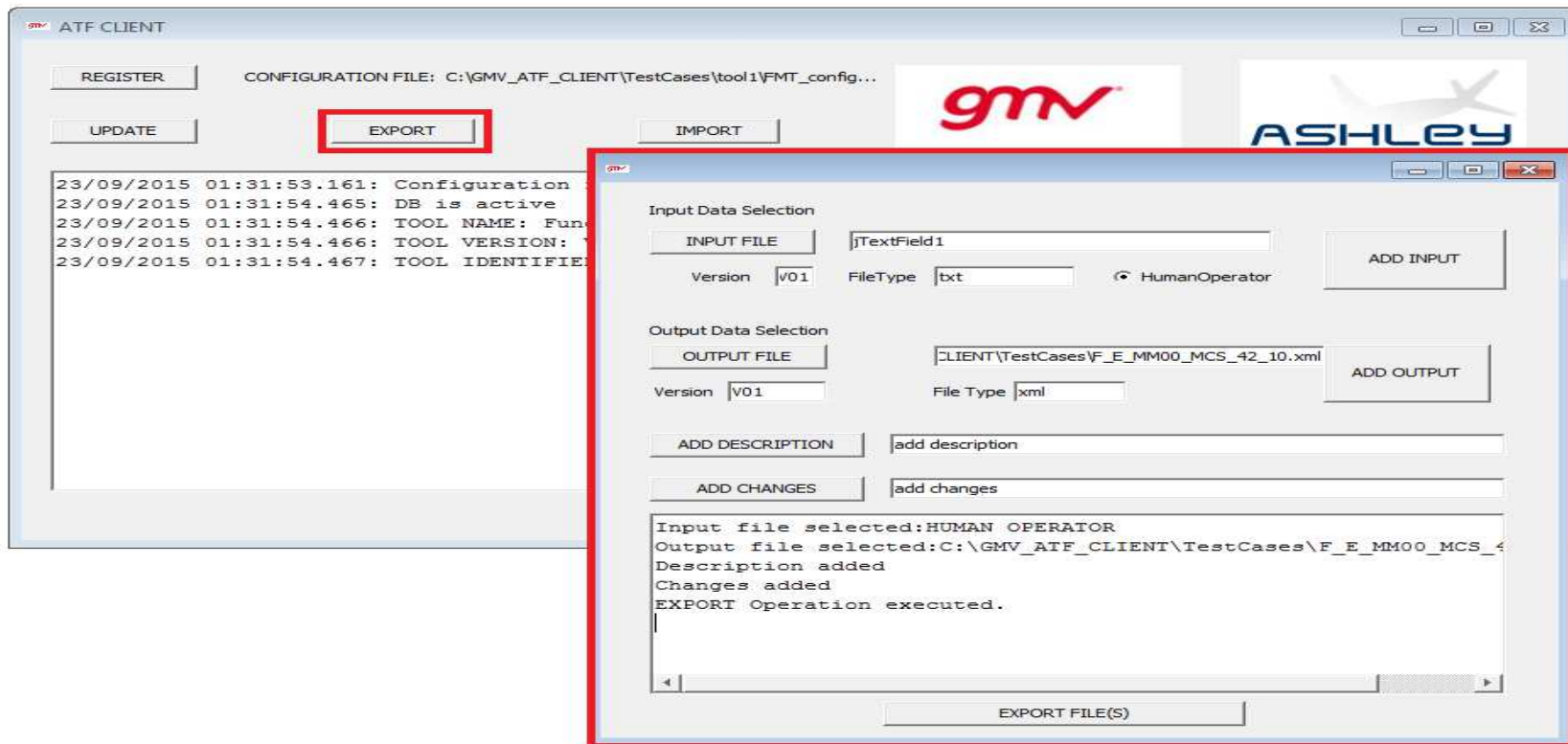
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ASHLEY Tool Chain Framework ATF - integration



- ❑ Support tool for the integration of the ATF into the tools. It simulates other tools and generic data generation to test the integration of the ATF into the tool or the correct operation of a Daemon.
- ❑ Exporting a data file from the FMT to the PET.



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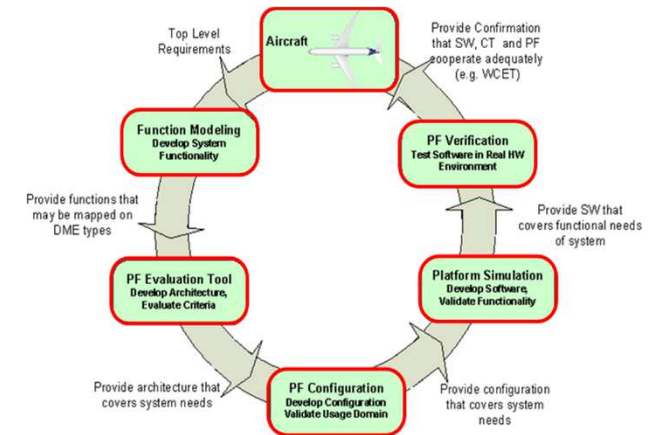
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ASHLEY Tool Chain Framework ATF - Conclusions



- ❑ Distributed architecture to support the data Exchange between the tools of the tool chain.
- ❑ Innovative in the avionics domain as the current approach is to perform data exchanges between companies mostly manually.
- ❑ Potential for improvement. Currently data validity are performed mainly in each tool. These verifications can possibly be performed in the ATF itself reducing the effort of each tool or providing a second degree of data correctness.



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Contacts



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***Avionics Systems Hosted on
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for multiple tYpe of aircraft***

Call identifier: FP7-AAT-2013-RTD-1

**Project co-funded by the European Commission within the
Seventh Framework Programme (2013-2017)**

