



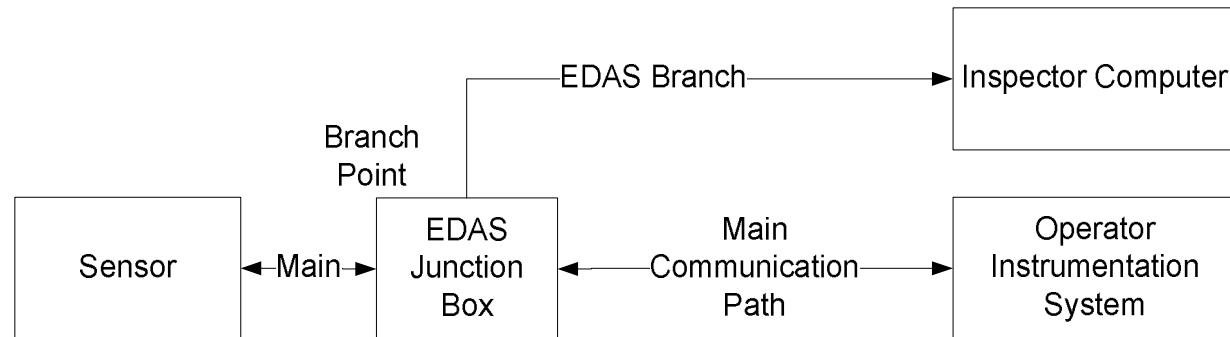
Testing the Enhanced Data Authentication System (EDAS)

SAND2014-17709PE

EDAS is a technical concept to branch operator instrumentation signals to provide a secure copy to an inspectorate.



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EDAS E-Poster Agenda

- EDAS Technical Concept
- Requirements, robustness and integration testing and results



Operator Instrumentation

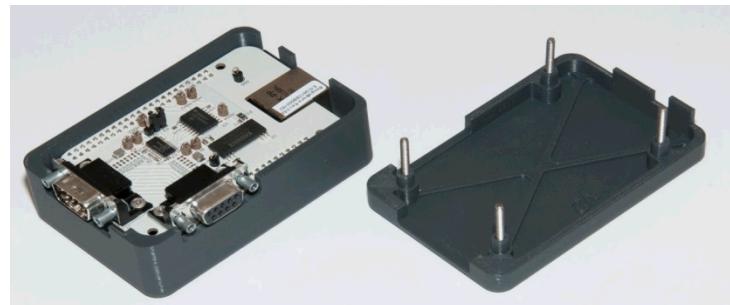


- Upcoming Field Trial and UK Springfields fuel fabrication facility
- Live demonstration

Enhanced Data Authentication System

Technical Concept: branch operator instrumentation signals to provide a secure copy to an inspectorate.

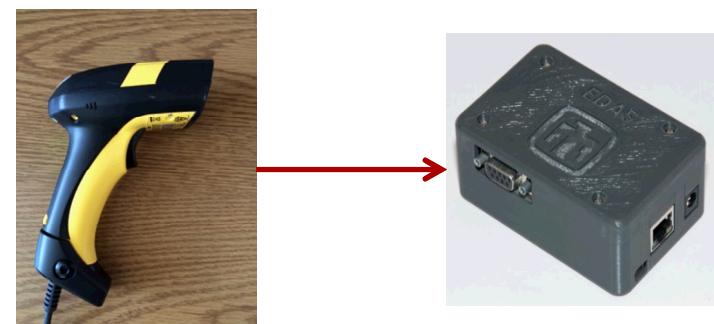
C	D	E	F	G	H	
Message	EDAS ID	EDAS Date/Time	Data Source	Data Size	Data	Authentic
3668508	1	5/24/2014 19:53	operator equipment	856	4F9E3AAF	Passed
3321464	2	10/12/2013 22:16	operator computer	619	19DF971F	Passed
3668509	1	5/24/2014 19:53	operator equipment	829	3AC73801	Passed
3321465	2	10/12/2013 22:16	operator computer	658	AEB87473	Passed
3668510	1	5/24/2014 19:53	operator equipment	860	D8CF7C34	Passed
3321466	2	10/12/2013 22:16	operator computer	631	F80CEBEC	Passed
3321467	2	10/12/2013 22:16	operator computer	613	4304A580	Passed
3668511	1	5/24/2014 19:53	operator equipment	869	AD1F5944	Passed
3321468	2	10/12/2013 22:16	operator computer	631	83314EED	Passed
3668512	1	5/24/2014 19:53	operator equipment	843	096C56A6	Passed
3321469	2	10/12/2013 22:16	operator computer	629	158F08CA	Passed



Testing: EDAS meets both operator and inspector requirements

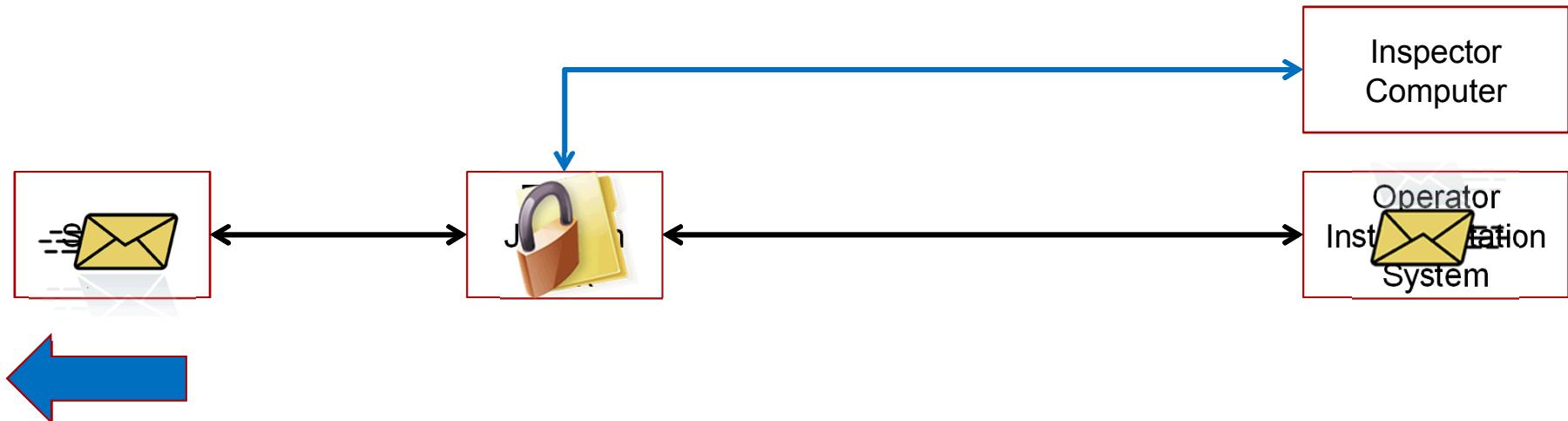
Field trial: demonstrate EDAS branching instrumentation under realistic operating conditions

Acknowledgements



EDAS Technical Concept

- Branched data is a complete, accurate, and confidential replica of operator signal line
- Protects operator system by isolating instrumentation signal line from EDAS electronics
- Designed for low cost deployment, employs mainly commercially available hardware
- Conforms to standard communication interfaces



Requirements Testing and Results

Testing performed with various communication patterns and operational scenarios

Requirement	Test
Non-interfering	Ensure the EDAS cannot corrupt the operator signal line, intentionally or unintentionally, under normal operations and failure modes
Cryptographic	Ensure the branched data line is confidential and authentic
Accuracy and Completeness	Ensure the branched data is a byte-by-byte replica of the operator signal line
Robustness	Ensure EDAS operates correctly under stressing data inputs
Longevity	Ensure EDAS operates correctly with normal data inputs for long time periods

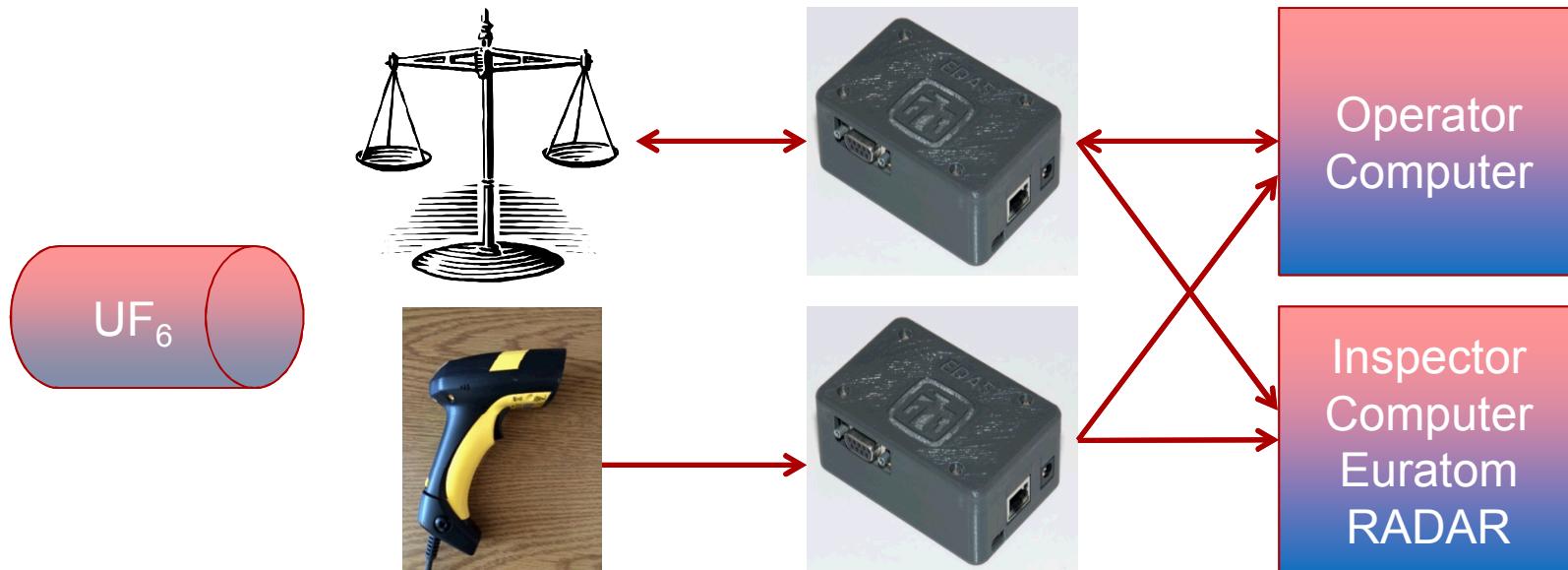


EDAS passed all tests



Field Trial at UK Fuel Fabrication Facility

- Demonstrate secure branching under realistic operating conditions
- Identify any unanticipated issues with EDAS operation and installation
- Derive narrative of facility activity from multiple operator instruments



Acknowledgements

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