Early Deployer Technical Assistance

Our objective: Accelerate testing and deployment of interoperable connected ITS technologies during the early stages of deployment when development of standards, best practices, and support systems and processes are also ongoing efforts and not yet finalized for national deployment. Iteratively and collaboratively build upon the state of the practice.
We will achieve this objective...
...through open collaboration.

(not this)

(it’s a work in progress)

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https://commons.wikimedia.org/w/index.php?curid=11770851
What do we mean by “open”? An **agile, open approach** to information technology acquisition, development, and policy that embraces commercial best practices will be the foundation of a successful ITS deployment.

<table>
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<th>Digital Playbook to Enable Innovation and Protect Privacy</th>
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<tr>
<td>Agile software development</td>
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<tr>
<td>Modular/service oriented architecture</td>
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<td>User centered design</td>
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<tr>
<td><strong>Default to open</strong></td>
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<tr>
<td>(data, code, development, feedback)</td>
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<td>Commodity solutions</td>
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<td>Data driven decision-making</td>
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Support successful, interoperable early deployments through practical technical assistance

Facilitate an active, self-organized community of practice that iteratively and collaboratively builds expertise, data, and software

Accelerate the pipeline from research to real-world field testing and support testing of various approaches

Accelerate the dissemination of successful practices from early deployers to the broader community

Enable user feedback to the standards and architecture, certification, and other support programs to increase agility and ongoing innovation
Currently Available Resources

- Help Desk & Testbed https://cvcs.samanage.com
- Open software and research data
  - http://itsforge.net/
  - https://www.its-rde.net
  - https://wxde.fhwa.dot.gov/
- Architecture http://www.iteris.com/cvria/
- Documentation http://www.its.dot.gov/
- Operational data sharing tools
- Practical technical assistance for early deployers
Southeast Michigan Testbed

- 2016 Standards Compliant Testbed Equipment
- In-Facility Device Testing
- Data Exchange Systems and Tools
- Short-term Equipment Loans
- Help Desk and FAQs

Ask a question or schedule an appointment at: https://cvcs.samanage.com
Southeast Michigan Testbed

- **7 vehicles**
  - CAN information is available for the vehicles
  - CAN adapters to connect to OBU are available
  - OBU Power is supplied by via standard OBU Delphi power connectors
  - Vehicles can provide power for up to 10 devices
  - Heated Garage to work on vehicles

- **In-facility device testing (RSU / OBU)**
  - Focus on SAE J2735 SPAT, MAP, TIM messages
  - DSRC Wireless sniffer access
  - GPS repeater to allow bench testing
  - GPS simulator available for use (pseudo range accuracy < 1mm)
  - Remote network access available for offsite team support
  - IPv6 fully supported
  - Outdoor / Indoor RSU available for local testing

- **Short term OBU and RSU equipment loans**
- **Two self-contained trailers for temporary RSU deployment** (Trailers have power and communications capability)
- **46 intersections with RSUs in SE Michigan**
  - 22 Provide SPAT and MAP
  - 46 provide IPv6 gateway services
  - 46 provide CAN broadcast TIM messages
  - Remote network access / admin rights to deployed RSU can be granted for specific application testing
  - 46 eavesdrop BSMs and forward the data to CVCS warehouse / clearinghouse as VSD records
Southeast Michigan Testbed

• Samanage Ticketing System for Deployment Questions and Technical Support
  • DSRC device configuration support
    • Security
    • J2735 messages
  • SEMI Architecture support
    • Warehouse / Clearinghouse interactions and troubleshooting
    • ISD Generation tool
    • TIM Generation Tool
    • Access to documentation related to the SEMI Architecture
  • 2016 J2735 Encoding Support / Questions
• V2I Infrastructure Implementation support
  • Access to experienced personnel who have implemented and managed over 70 DSRC intersections since 2010
  • IPv6 network design recommendations
  • IT Security guidance
  • Physical installation guidance
Southeast Michigan Testbed

• Situation Data Clearinghouse (SDC)
  • Consumes Vehicle Situation Data (VSD) and Intersection Situation Data (ISD) and makes those available via subscription in near real time
• Situation Data Warehouse (SDW)
  • Stores VSD and ISD from SDC and Advisory Situation Data (ASD) directly for up to 30 minutes and makes those available via query
  • Separate component also stores VSD and ISD for 9 months
• Object Registration and Discovery (ORDS) used to register and discover SDCs, SDWs, and other components
In the next few months, the testbed architecture will shift to accommodate different data flows and incorporate other USDOT data products.

Changes to the architecture include:

- Adding capabilities for locally managed and owned data distribution (ODE) and regional or national managed data distribution (SDC/SDW)
- Interacting with the RDE
- Other TBD user needs

Purpose of the shift:

- Better reflect data ownership and flow in CV Pilot era
- Allow for flexibility of data exchange models and iterative experimentation on different data distribution models
  - We still don’t know what the national system will ultimately look like!
“With increased connectivity among vehicles, organizations, systems, and people, unprecedented amounts of data are being generated. **New methods** to collect, transmit/transport, sort, store, share, aggregate, fuse, analyze, and apply these data will be needed for management and operations of transportation systems.”
Data Products – We Need You!

USDOT-administered tools
- Research Data Exchange (RDE)
- Weather Data Environment (WxDE)
- Situation Data Clearinghouse (SDC)
- Situation Data Warehouse (SDW)
- CVRIA & Standards
- Data Policy Playbook (coming soon)

Locally-administered tools
- Operational Data Environment (ODE)
- Vehicle Data Translator/Pikalert
- Data Privacy Algorithm
- What else?

We encourage you to use and help inform the roadmap for these and other products, and actively collaborate on their development. There will be formal opportunities to engage in the next few months but we are looking for informal collaborations right now. Contact ariel.gold@dot.gov for more information and to get involved.
For More Information

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