



Countermeasures against new Cyber-attacks

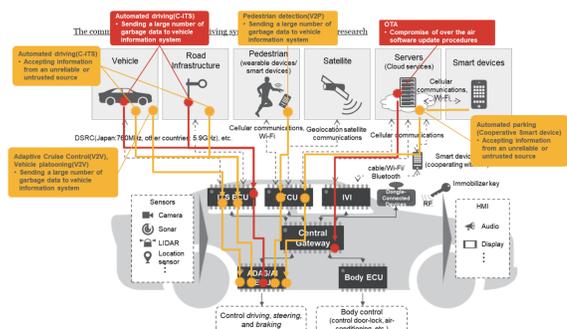
New Cyber-attacks and Countermeasures Research

New attack methods, IDS and Evaluation Method Trend Research

Overview

- ▶ Research & analyze trend of latest cyber-attacks/incidents and develop attack model(attack scenario & risk analysis).
- ▶ Research trend of Intrusion Detection System (IDS) and other security technologies effective against new cyber-attacks and develop evaluation method for such technologies.
- ▶ Conduct trial evaluation of IDS using an Open-source Vehicle Test-bed and verify the evaluation method.

New cyber-attacks research & Attack scenario analysis

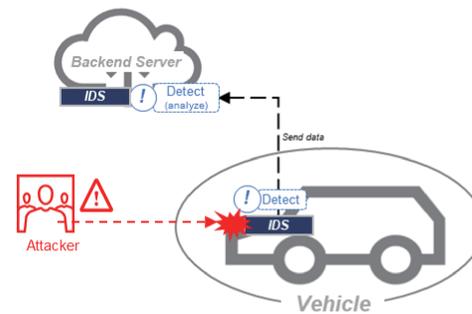


Threat model (from SIP ph1 research)

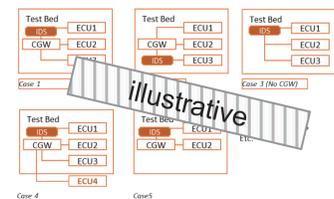
Step	Reconnaissance	External comm I/F	Comm ECU	CGW	Control ECU
0	Reconnaissance				
1	Action: Connect to embedded Wi-Fi/AP	Objective: Vehicle system intrusion			
2		Action: Login to service	Objective: Obtain control of the ECU		
3			Action: Send message to control ECU	Objective: Send message to control ECU	
4				Action: Process message	Objective: Re-write firmware

Attack Scenario

IDS research, Evaluation method development & trial



Vehicle IDS Research



	Product A	Product B	Product C
Functionality	○	×	△
Efficiency	○	○	○
Compat	○	○	○
Usability	○	○	○
Reliability	△	○	○
Maintainability	○	○	×
Portability	×	○	○

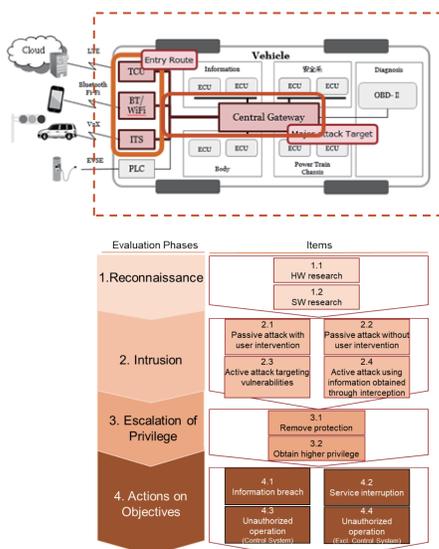
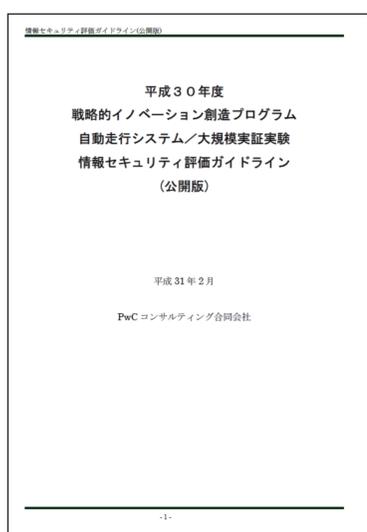
Evaluation method & trial

Vehicle Penetration Testing Research & Standardization

Overview

- ▶ Developed "Information Security Evaluation Guideline(Penetration testing guideline)" through SIP Ph1 research and field operational tests conducted on actual vehicle systems.
- ▶ Work towards standardization of the guideline within automotive industry by building baseline consensus among relative stakeholders such as OEM, suppliers, security vendors.

Evaluation Guideline (SIP Ph1)



Standardization Approach (JasPar)



Penetration Testing Guide(drafting)



- Testing Process standardization
- Penetration testing definition
- Other testing criteria