IEC TC57 WG15 – Data and Communication Security Status & Roadmap

May, 2013

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Convenor WG15

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Mission and Scope of WG15 on Cybersecurity

- **Undertake the development of standards for security of the communication protocols defined by the IEC TC 57**

  - **Specifically the IEC 60870-5 series, the IEC 60870-6 series, the IEC 61850 series, the IEC 61970 series, and the IEC 61968 series.**

- **Undertake the development of standards and/or technical reports on end-to-end security issues.**
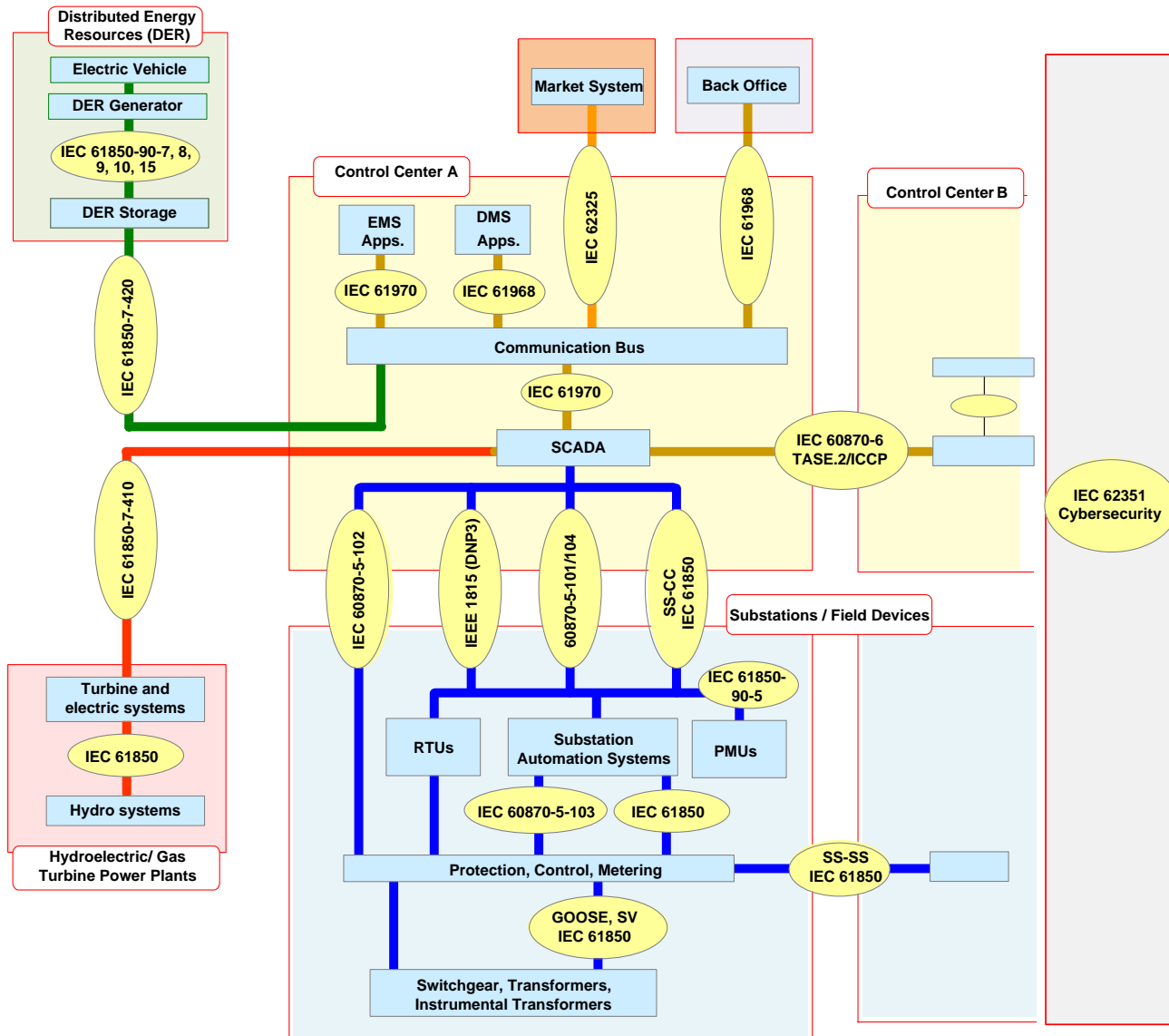
WG15 Members

- **76 members**

- **Participants from 22 countries**

  - **Argentina**
  - **Canada**
  - **China**
  - **Croatia**
  - **Czech Republic**
  - **Denmark**
  - **Finland**
  - **France**
  - **Germany**
  - **Great Britain**
  - **India**

  - **Israel**
  - **Italy**
  - **Japan**
  - **Korea**
  - **Norway**
  - **Russia**
  - **South Africa**
  - **Spain**
  - **Sweden**
  - **Switzerland**
  - **USA**

Mapping of TC57 Communication Standards to IEC 62351 Security Standards
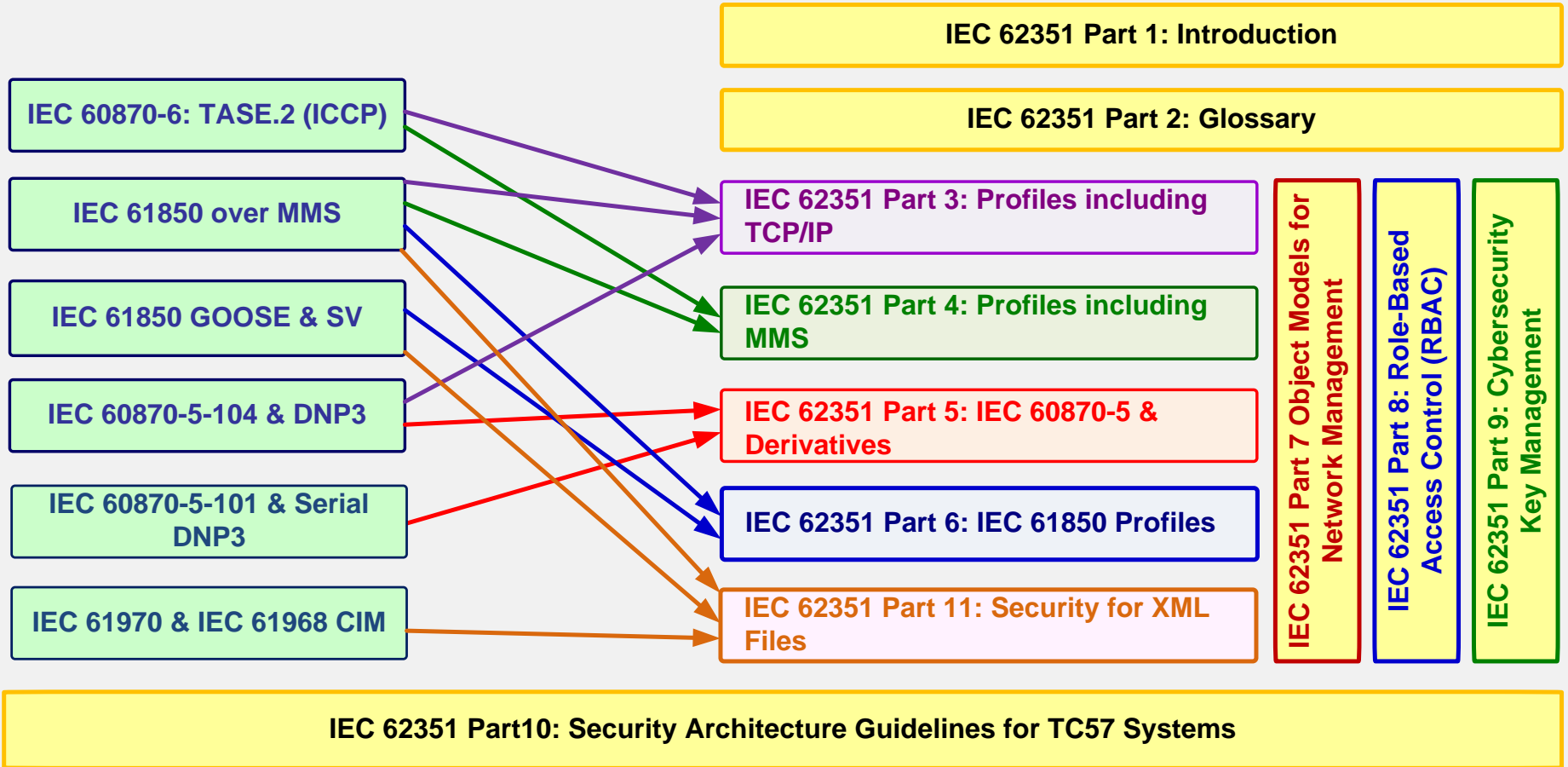
Status of IEC 62351 Parts

IEC 62351 Part	Released	Activities (by May 2013)	Planned Release
IEC/TS 62351-1: Introduction	2007		
IEC/TS 62351-2: Glossary http://std.iec.ch/terms/terms.nsf/ByPub?OpenView&Count=-1&RestrictToCategory=IEC%2062351-2	2008	Review Report pending	Amendment possibly by late 2013 due to loss of lead expert
IEC/TS 62351-3: Security for profiles including TCP/IP	2007	CDV by June 2012 Updated document reviewed during Oct meeting and being finalized Q4 2012	Submitted as CDV by Dec 2012 IS Ed. 2 by June 2014
IEC/TS 62351-4: Security for profiles including MMS	2007	Corrigenda	Submitted to IEC as an IEC Question to be sent to NCs
IEC/TS 62351-5: Security for IEC 60870-5 and derivatives	2009	DTS as Ed. 2	Submitted as TS to IEC – await publication
IEC/TS 62351-6: Security for IEC 61850 profiles	2007	Updates planned but not started – waiting for 61850-90-5 discussions – may obsolete this part	Start RR process after decisions on scope have been agreed to. May obsolete Part 6
IEC/TS 62351-7: Objects for Network Management	2010	Project to review and update objects	Wait for updates to be submitted to WG15
IEC/TS 62351-8: Role-Based Access Control	2011	NESCOR team is reviewing and will have comments by next WG15 meeting (May 2013)	Planning IS in 2014/15
IEC/TS 62351-9: Key Management	Pending	WD still in process 2012 (late)	CD in 2013 with CDV in 2014 and IS in 2015
IEC/TR 62351-10: Security Architecture	2012	DTS sent to IEC	TR published Oct 2012
IEC/TS 62351-11: Security for XML Files	Pending	NWIP – initially rejected due to lack of sufficient NC support, but additional NCs have joined	CD 9/2013, CDV 3/2014, FDIS 3/2015, IS 7/2015

Liaisons with Other Security Activities

- Liaison with ISO JTC 1 / SC 27 IT Security:

  - WG15 has provided lists of Smart Grid security standards and related documents to SC27.

  - WG15 has received documents in the 270xx series on general cybersecurity and has commented on the proposed 27019 standard on power industry cybersecurity.

  - SC27 liaison will meet with WG15 at our next meeting in Venice

- Liaison D with M/490 SGIS:

  - WG15 is exchanging information with SGIS

- Liaison D with UCAIug:

  - Discussions with members of SG-Security in UCAIug on areas of mutual interest are underway.

- Liaison A with IEC TC65C which is standardizing the work of the ISA SP99 Security Standards. Some WG15 members have reviewed and commented on IEC 62443 drafts

- Liaison D with the IEEE PES PSCC Security Subcommittee

  - Working with IEEE Substations on Cybersecurity Standard IEEE 1686

Coordination with Security Groups

- Coordination mostly through common membership:

  - NIST's Smart Grid Interoperability Panel (SGIP) Smart Grid Cybersecurity Committee (SGCC) (used to be called CSWG)

  - NERC CIPs

  - Cigré D2.22

  - MultiSpeak Security / Security for Web Services (e.g. WS-Security)

  - NESCOR

  - ITU-T

  - IEC TC13

TC57 Security (IEC 62351) Roadmap

Complete Work	Updates in Process	Potential New Work
• Parts 1, 2, 3, 4, 5, 6, 7, 8, and 10 – finalized as TRs or TS Documents (Ed 1)	• Part 3 Security using TLS: Submitted as CDV Dec 2012 • Part 9 Key Management: CD due May 2013 • Part 11 Security for XML Files: just starting • Part 7 Network and System Management: update process to Ed 2 expected to start in 2013 • Part 4 Security for MMS: Corrigendum in process and Edition 2 to be started • Part 6 on IEC 61850: Either obsolete Part 6 or develop NWIP updates to equivalent to IEC 61850-90-5 • Part 2 Glossary: adding amendments by late 2013	• Profiles for web services (once these are determined in the IEC 61850-8-2 development) • Metering (collaborate with TC13) • DER systems and other field devices (collaborate with WG17) • CIM-based interactions (collaborate with WGs 13 & 14) • Explore customer premises security issues with WG21

Issues

- **Patent issues with certain cryptographic suites and RBAC. The companies have been contacted, but often slow resolution.**

- **Although we have cybersecurity experts, they are very busy**

- **Cybersecurity is a very dynamic, rapidly changing field which is quite new for the power industry**

    - **Need to coordinate with other industries and standards groups**

    - **Need rapid development of new standards and updates to existing standards**

    - **Need guidelines for end-to-end security, but only for very specific areas**

    - **Need both standards and technical reports**

    - **Need input from power system domain experts on security requirements**

- **Need conformance and/or interoperability testing for IEC 62351**

    - **Abstract conformance test cases should be in each Part, with IEC 61850-10 providing specifics for 61850**

    - **Interoperability testing?**

Questions? Comments?

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