European Reference Network for Critical Infrastructure Protection

Our mission is to foster the emergence of innovative, qualified, efficient and competitive security solutions, through the networking of European experimental capabilities.

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ERNCIP Handbook 2018

The third edition of the ERNCIP Handbook has recently been issued, see https://erncip-project.jrc.ec.europa.eu/documents/erncip-handbook-2018-edition

This annual summary of the results and current status of ERNCIP is produced to facilitate dissemination of ERNCIP-related information to all relevant CIP stake-holders.

ERNCIP / IMPROVER Critical Infrastructure (CI) Operators Workshop - Lisbon

CI operators and researchers joined forces in Lisbon for two days of presentations, discussions, and networking on May 23-24. The workshop gathered 51 participants from 20 countries, including operators from the Energy, Transport, Water and ICT sectors. This was the third Operator's workshop to be co-organised by ERNCIP and the H2020 IMPROVER project. Previous events have focused on the technical aspects of resilience, as well as organisational and community resilience. This year's theme was tools, methods and guidelines for critical infrastructure resilience, with the workshop again an opportunity for ERNCIP and IMPROVER to present their latest results and receive feedback from critical infrastructures operators.

CI Operators perspectives

Three CI operators DONG, SNAM and EDP presented how they work to improve resilience against disruptions in their respective fields. A common topic in the discussions was how to deal with interdependencies between critical infrastructures. The participants agreed the importance of understanding dependencies and finding a way to share information between actors. As one operator stated "I can be resilient but if my dependencies (e.g. electricity) are not resilient, I am not resilient anymore."

Resilience assessment tools and methods

RISE presented the IMPROVER Critical Infrastructure Resilience Framework (ICI-REF) and the methodologies for resilience assessment that has been developed to fit with the framework. The Municipality of Barreiro presented its experience of being a "living lab" in the project and what it has learned from the pilot implementation of ICI-REF at their water infrastructure.The operators were generally positive to the tools developed within the IMPROVER project; however many felt that support will be needed to implement within their own organisation. One operator commented "I understand the purpose and the value of the tools, but I am not able to adopt them on my own".

Practices, guidelines and standards

The University of Sheffield presented the AESOP Guidelines for effective communication between CI operators and members of the public during crisis situations. Recommendations included: creating platforms and/or channels of communication that can provide feedback about CI operators' services before, during and after a major incident. The guidelines are published as an IMPROVER deliverable. ICLEI presented how the projects Smart Mature Resilience and RESIN have worked with standardisation. They have focused on city resilience and they have been working closely with municipalities and cities around Europe in order to bring forward standards that are valuable and operational on a local level. The National Emergency Supply Agency, Finland described the Finnish approach, stating that "written strategies are good to assign responsibilities, but when something unexpected happens that is not covered by the procedures you need to be able to manage that as well".

What did we learn?

With a wide range of backgrounds at the workshop, there were plenty of opportunities to share knowledge from different sectors and industries. During the breakout group discussions, experiences were shared and several topics were discussed, such as training and exercising, standardisation and resilience assessment. There was a consensus that training and exercises are important to build resilience in an organisation. It was further stated that resilience should focus on society, and each sector increasing its resilience will benefit all other sectors, due to dependencies..

For further information on this series of operators' workshop, visit: https://erncip-project.jrc.ec.europa.eu/networks/operators

For the latest updates on IMPROVER, visit: http://improverproject.eu/

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Industrial Automation Control Systems Cybersecurity Certification framework (ICCF)

This ERNCIP Thematic Group has recently completed its feasibility assessment for a European Framework for the Evaluation and Certification of the Cybersecurity of IACS components. The origins of this Framework go back to 2014, when the ERNCIP IACS TG proposed an approach to harden the security of Industrial Automation Control Systems used by European CI Operators. Since then, the Group has achieved the following milestones:

1. Publication of a project plan for a feasibility study on a European Certification framework for the cybersecurity certification of IACS Components, titled: "Proposals from the ERNCIP Thematic Group for a European IACS Components Cyber-security Compliance and Certification Scheme" (EC-JRC 2014 available here);
   - This report sets out key elements relating to IACS Cybersecurity certification, together with a plan to establish a European Certification Scheme for the Cybersecurity of IACS components. The Group engaged in extensive stakeholder consultation to assess potential limitations on the feasibility of the proposed project plan and framework. During this phase, the Group supported the work on DG CNECT's roadmap for the certification of product and services (published July 2016), providing options on establishing the governance of a "IACS sectorial response" on cybersecurity evaluation and certification.

2. Publication of the second phase of the feasibility study, titled: "Introduction to the European IACS components Cybersecurity Certification Framework (ICCF) - Feasibility study and initial recommendations for the European Commission and professional users" (EC-JRC 2017 available here);
   - This report proposed an initial set of common European requirements and broad guidelines to help fostering IACS cybersecurity certification in Europe. It proposed the IACS component Cybersecurity Certification Framework (ICCF) with recommendations for its governance, adoption and implementation. This supports DG CNECT's impact assessment regarding ICT certification in Europe, providing inputs for the development of a Proposal for Regulation (September 2017 available here) in order to establish cybersecurity certification schemes under a unique and harmonised European Framework. The Group's work influenced the shaping of the assurance levels and the structures of the schemes.

3. Publication of the third-phase feasibility study of the ICCF, titled "The IACS Cybersecurity Certification Framework (ICCF): Lessons from the 2017 study of the state of the art".
   - The most recent phase of the work, which took place between March 2017 and March 2018, assess the feasibility of the study (phase two) by challenging the ICCF through various exercises executed at national level (EC-JRC 2018 available here). Five National Exercise Teams (ERNCIP NETs) were established to simulate the behavioural and governance model of the ICCF. Each NET comprised the following representatives: national cybersecurity agency, national certification body, national accreditation body, evaluation lab, IACS manufacturer, infrastructure operator. The NETs were established in France, Germany, Netherlands, Poland and Spain, and covered the following activities: E1- Elaboration of a protection profile and a security profile; E2- Simulation of a product compliance assessment; E3- Simulation of testing a product's cyber resilience; E4- Simulation of the evaluation of a product's development process; E5- Study of ICCF governance bodies and processes. These exercises have enhanced the ICCF's feasibility study as a potential "candidate" to the launched once the ICT certification Proposal becomes a Regulation.

Since the potential entry into force of the Regulation is foreseen around summer 2019, ERNCIP has proposed further work to turn the ICCF into a close-to-final scheme to be launched at European level as per articles 45 to 48 of the Proposal:

1. To produce a usable scheme for IACS in the framework of the Proposal;
2. To give practical support to the ICCF in the IACS sector and by involving further stakeholders;
3. To perform a full-scale pilot of the ICCF;
4. To implement the ICCF requirements under an observable protocol;
5. To close identified gaps between practices and ICCF guidelines;
6. To launch an ICCF standardisation new work item with CEN/Cenelec on "common methodologies for evaluation"; (where standards support certification efforts)
7. To establish a joint virtual lab at the JRC in order to perform the pilot and follow the future maintenance of the IACS scheme;
8. To create an exportable "template" to be used in other sectors.

Thematic Groups Updates

Radiological and Nuclear Threats to Critical Infrastructur

In advance of the main meeting of this Group on March 21-22 at Ispra, two sub-group meetings were held in parallel. The subgroup on Novel Technologies reviewed the status of their report on emerging detection technologies for nuclear security.

An interim report on the technical aspects of novel radiation detection methods, due to be published in July 2018, covers recent development on gamma-ray detectors, neutron detectors, source localisation methods, photo sensors and data acquisition. The final report, published in 2019 will focus on the practical benefits and challenges of novel detection technologies.

The Reachback sub-group reviewed the key findings of Its recently published first deliverable "After-action Analysis of the Magic Maggiore Workshop on Expert Support and Reachback, Dec 2017". This sub-group will now focus on documenting relevant case studies and scenarios demonstrating National and Cross-border Expert Support for Nuclear Security.

The full Group meeting discussed the possibilities of further promoting the use of the new standard for list-mode data acquisition (IEC 63047) that was instigated by this thematic group. The IEC Technical Committee responsible for this standard has decided to skip the final approval stage, and is proceeding directly to the publication of standard, by the end of July 2018, instead of March 2019. The thematic group will now work to integrate a IEC 63047 compatible detector, based on a CsI(Tl)-sensor working in spectral mode with 100 ms data acquisition time, with the robotics ROS operation system.

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Thematic Groups Updates

Detection of Indoor Airborne Chemical-Biological Agents

The Group continues its work on a proposed guidance for the setup of a sensoring system for detection of chemical and biological (CB) airborne indoor threats. This guidance will be aimed at critical infrastructure operators and will provide assistance on the steps needed to better protect an infrastructure using sensors for CB agents. A subgroup is developing additional simulation scenarios of airborne contamination in a new building setting, i.e. a realistic mockup of an airport, which will inform the proposed guide on the optimal setup of sensors for CB agent detection. This work was reviewed at meetings on March 23 (teleconference), on May 16 (teleconference), and on June 29 in the Aristotle University of Thessaloniki, Greece.

Call for further expert involvement

The Group is now seeking the advice of end users in 2018 to help review the proposed guidance.

If interested, please contact the ERNCIP Office (jrc-erncip-office@ec.europa.eu).

Protection of Structures against explosive effects

The scope of this Group has been extended and now includes the risk assessment for building protection and testing of windows and facades by arena testing. A special workshop in Ispra on June 12-13 sought to extend the Group with experts in these new fields. Several experts in the field of testing of windows and risk assessment concerning explosive loading presented their expertise and their ideas for future research work. CEN TC 33 has decided to review the standards relating to explosion resistance of windows, doors and shutters (EN13123-1 and 13124-1) taking into account the recommendations of this ERNCIP Thematic Group. The next step is to for appropriate experts in the CEN committees to be allocated to consider implementing these changes to the standards.

Early Warning Zone for CIP

The Group's name has been changed from «Extended Virtual Fencings for CIP» to Early Warning Zones for CIP since this is more in line with the Group's agreed focus. Its meetings on March 9th (Crete) and May 30th (Ispra), the Group fine-tuned its work programme and the concept of operations to be included in the Group's upcoming guidance on «Factors to consider to deploy and operate early warning zones for CIP. The Group is benefitting from the active involvement of two public-transport operators and one in the energy sector, which, together with the JRC's Unit on Safety and Security, are providing the baseline for the concept of operations. The work streams that are developing the Guidance include:

1. a Biometric Technology and Video Analytics' maturity Review;
2. Artificial Intelligence, Cognitive Systems, Robotics and Autonomous Systems;
3. relevant standards;
4. Privacy, risk and design.

Chemical and Biological (CB) Risks to Drinking Water

The Group is finalising its report on "Practical Guidelines of the Requirements of Continuous On Line Water Quality Monitoring System in Drinking Water Supply Systems", to be published in September 2018. Work is also continuing on two other reports:

- Best practises for analytical tools and methodologies to quickly identify the nature of contamination (chemical, biological) in drinking water.
- A European-level guidance document aimed at water utility operators recommending the requirements for production of a water security plan that would address the security aspects in drinking water supply.

Members of the Group also participated on the 10th Meeting of the Community of Users on Secure, Safe and Resilient Societies (Theme: Water Safety and Security) which took place on March 8 in Brussels, where the Group's coordinator emphasised the security aspect in drinking water supply, and promoted and justified the envisaged Water Security Plan, as stand-alone guidance for tackling security issues.

The June meeting was kindly hosted by Agència Catalana de l'Aigua (ACA), which presented its competencies and an overview of the Catalan water supply, critical infrastructures, management, policy and investments. The Group was enhanced by new experts from Everis, University of Prague, University of Antwerp and SINTEF, and the meeting included a field trip to the Aigües de Barcelona Headquarters (Centre of Control, Laboratory) and the Llobregat Drinking Water Plant. The ERNCIP Office would like to thank Agència Catalana de l'Aigua and Aigües de Barcelona for their hospitality.

ERNCIP TG Coordinators

A special meeting of all of the current ERNCIP thematic group coordinators was held at Ispra on January 31. Potential areas of synergy and common interest to the current work of the thematic groups were discussed. As a result, further areas of direct collaboration have been established between the thematic groups.

In preparation for potential future security/defence collaboration, each thematic group agreed to map its activities against the seven baseline NATO resilience areas, and to the seven concrete areas of EU/NATO cooperation.

ERNCIP Group of EU CIP Experts meeting

Representatives from 14 Member States participated in this meeting, held at Ispra on January 30. The Group received comprehensive updates on all of the ERNCIP thematic groups, and discussed opportunities for future exploitation.

The opportunity was taken to visit the JRC vehicle emissions and Smart Grid emulation laboratories, which include testing facilities capable of measuring the emissions and environmental impacts of all types of vehicles, including electric, hybrid, hydrogen and fuel cell. The Smart Grid emulation lab enables assessment of the inter-operability between e-vehicles, recharging systems and the smart electricity grids.

Upcoming Events (check here for latest updates)

13-14 September 2018 (Ispra) - Detection of Indoor Airborne Chemical-Biological Agents TG Meeting

19 September 2018 (Madrid) - Early Warning Zone for CIP TG Meeting

24-25 September 2018 (Paris) - Joint OECD-JRC meeting: System Thinking for critical infrastructure resilience and security.

8-9 October 2018 - Chemical and Biological (CB) Risks to Drinking Water TG Meeting

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