Predictive Security for IoT Platforms and Networks of Smart Objects

Wyniki

Informacje na temat projektu

SecureIoT

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Strona internetowa projektu

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CORDIS oferuje możliwość skorzystania z odnośników do publicznie dostępnych publikacji i rezultatów projektów realizowanych w ramach programów ramowych HORYZONT.

Odnośniki do rezultatów i publikacji związanych z poszczególnymi projektami 7PR, a także odnośniki do niektórych konkretnych kategorii wyników, takich jak zbiory danych i oprogramowanie, są dynamicznie pobierane z systemu OpenAIRE.

Rezultaty

Documents, reports (36)

Intelligent Data Collection Mechanisms and APIs_Interim version

A report on the mechanisms and APIs for intelligent and adaptive data collection, along with the prototype implementation of the APIs on the platforms and smart objects to be used in the use cases. The task will reflect the outcomes of task T3.2 and T3.3.

Intelligent Data Collection Mechanisms and APIs_Final version

A report on the mechanisms and APIs for intelligent and adaptive data collection, along with the prototype implementation of the APIs on the platforms and smart objects to be used in the use cases. The task will reflect the outcomes of task T3.2 and T3.3.

Report on legal and regulatory implications of SecureIoT services deployment_Final version

Report reflecting the outcomes of T5.6.

Trustworthiness Metrics and Utility Calculation_Final version

Definition of trustworthiness metrics as part of the security monitoring infrastructure. It will reflect the outcome of task T3.4

Standardization Activities and Participation in Associations_Final version

A report reflecting the project's contributions to standards, while also reporting the project's participation in SDO and associations' activities

Report on Community Building and Ecosystem Support_Final version

A report reporting on the community building activities and outcomes, as well as on the support activities to the participants of the project's ecosystem.

SecureIoT services for third-party IoT communities_First version

Report on the IoT security services offered in the scope of SecureIoT to other communities such as FIWARE and IoT-EPI. The report will also described collaborations with other communities and ecosystems based on the outcomes of task T7.2.

Detailed Specification of Usage Scenarios and Planning of Validation Activities_First version

Detailed description of the use cases planning activities, including the details of each scenario. As part of this deliverables, the KPIs of each use case will be detailed and the KPIs listed in Section 1.3 of the partB, along with their target values will become more specific. It is based on 6.1.

IoT Security Solutions Market Platform Architecture and Specifications_First version

Detailed specification of the services of the market platform and of its architecture, based on T7.1.

Integration and Validation of the third-party solutions_First version
Report on processes/tools devoted to the auditing of third-party IoT security services (T7.3). It will also deal with validation against laws and regulations (T7.5).

Architecture and Technical Specifications of SecurityIoT Services_Final version
Specification of the technical architecture and main technical components based on the outcomes of T2.4.

Evaluation of the SecureIoT Services and Use Cases_Final version
Evaluation of the project's services and use cases, including both techno-economic evaluation (T6.6) and analysis of stakeholders' feedback (T6.5).

Dissemination and Communication Activities_Interim version
A report (living document) on the outcomes of T8.1, which will be delivered periodically (per annum).

Legal and Regulatory Auditing of SecureIoT Architecture and Services_First version
Report on SecureIoT's compliance to legal/regulatory requirements, including a review of envisaged measures. It's based on T2.5.

Report on legal and regulatory implications of SecureIoT services deployment_First version
Report reflecting the outcomes of T5.6.

Standardization Activities and Participation in Associations_First version
A report reflecting the project's contributions to standards, while also reporting the project's participation in SDO and associations' activities

Legal and Regulatory Auditing of SecureIoT Architecture and Services_Final version
Report on SecureIoT's compliance to legal/regulatory requirements, including a review of envisaged measures. It's based on T2.5.

Reference Scenarios and Use Cases
Description of the project's reference scenarios and use cases based on T2.1.

Architecture and Technical Specifications of SecurityIoT Services_First version
Specification of the technical architecture and main technical components based on the outcomes of T2.4.

Report on SLAs for Security Monitoring_Final Version

A report on SLAs for security monitoring in mutli-vendor, multi-device and highly heterogeneous IoT ecosystems. It will reflect the outcomes of task T3.5.

Detailed Specification of Usage Scenarios and Planning of Validation Activities_Final version
Detailed description of the use cases planning activities, including the details of each scenario. As part of this deliverables, the KPIs of each use case will be detailed and the KPIs listed in Section 1.3 of the partB, along with their target values will become more specific. It is based on 6.1.

Trustworthiness Metrics and Utility Calculation_First version
Definition of trustworthiness metrics as part of the security monitoring infrastructure. It will reflect the outcome of task T3.4

Dissemination and Communication Activities_First version
A report (living document) on the outcomes of T8.1, which will be delivered periodically (per annum).

Evaluation of the SecureIoT Services and Use Cases_First version
Evaluation of the project's services and use cases, including both techno-economic evaluation (T6.6) and analysis of stakeholders' feedback (T6.5).

Final Report
The project's final report summarizing the main achievements and findings of the project.

Integration and Validation of the third-party solutions_Final version
Report on processes/tools devoted to the auditing of third-party IoT security services (T7.3). It will also deal with validation against laws and regulations (T7.5).

Analysis of Stakeholders' Requirements
Report reflecting the outcomes of task T2.2

Dissemination and Communication Activities_Final version
A report (living document) on the outcomes of T8.1, which will be delivered periodically (per annum).

Trustworthiness Metrics and Utility Calculation_ Interim Version
Definition of trustworthiness metrics as part of the security monitoring infrastructure. It will reflect the outcome of task T3.4

IoT Security and Privacy Models
Specification of IoT security and privacy policy models and languages to the used in the project, based on task T2.3.

IoT Security Solutions Market Platform Architecture and Specifications_Final version

Detailed specification of the services of the market platform and of its architecture, based on T7.1.

Evaluation of the SecureIoT Services and Use Cases_Interim version

Evaluation of the project's services and use cases, including both techno-economic evaluation (T6.6) and analysis of stakeholders' feedback (T6.5).

SecureIoT services for third-party IoT communities_Final version

Report on the IoT security services offered in the scope of SecureIoT to other communities such as FIWARE and IoT-EPI. The report will also described collaborations with other communities and ecosystems based on the outcomes of task T7.2.

Report on Community Building and Ecosystem Support_First version

A report reporting on the community building activities and outcomes, as well as on the support activities to the participants of the project's ecosystem.

Report on SLAs for Security Monitoring_First version

A report on SLAs for security monitoring in mutli-vendor, multi-device and highly heterogeneous IoT ecosystems. It will reflect the outcomes of task T3.5.

Intelligent Data Collection Mechanisms and APIs_First Version

A report on the mechanisms and APIs for intelligent and adaptive data collection, along with the prototype implementation of the APIs on the platforms and smart objects to be used in the use cases. The task will reflect the outcomes of task T3.2 and T3.3.

Demonstrators, pilots, prototypes (34)

Integration and Validation of Industrie 4.0 Usage Scenarios_Final version

Prototype implementation of the SecureIoT-enabled Industrie 4.0 use cases based on the outcomes of task T6.2.

IoT Developers Support as a Service_First version

Prototype implementation of the SECaaS services of task T5.3. The releases will be supported by T5.5.

Integration and Validation of Industrie 4.0 Usage Scenarios_First version

Prototype implementation of the SecureIoT-enabled Industrie 4.0 use cases based on the outcomes of task T6.2.

Security Monitoring and Knowledge Inference_First version
Prototype implementation of the security monitoring mechanisms of T4.1.

Models and Annotation for Security-Aware IoT Programming_Final version
Prototype implementation of the annotations oriented programming approach of task T4.4.

Cross-Platform Security Support_Interim version
Prototype implementation of the security interoperability features of the project, including a relevant report based on task T4.3.

Cross-Platform Security Support_First version
Prototype implementation of the security interoperability features of the project, including a relevant report based on task T4.3.

IoT Compliance Auditing as a Service_Interim version
Prototype implementation of the SECaaS services of task T5.2. The releases will be supported by T5.5.

IoT Risk Assessment and Mitigation as a Service_Final version
Prototype implementation of the SECaaS services of task T5.1. The releases will be supported by T5.5.

Integration and Validation of Industrie 4.0 Usage Scenarios_Interim version
Prototype implementation of the SecureIoT-enabled Industrie 4.0 use cases based on the outcomes of task T6.2.

IoT Risk Assessment and Mitigation as a Service_First version
Prototype implementation of the SECaaS services of task T5.1. The releases will be supported by T5.5.

Security Monitoring and Knowledge Inference_Final version
Prototype implementation of the security monitoring mechanisms of T4.1.

IoT Developers Support as a Service_Final version
Prototype implementation of the SECaaS services of task T5.3. The releases will be supported by T5.5.

Tools and Techniques for Predictive IoT Security_Interim version
Prototype implementation of the predictive analytics techniques and tools of T4.2.

Models and Annotation for Security-Aware IoT Programming_Interim version
Prototype implementation of the annotations oriented programming approach of task T4.4.

IoT Compliance Auditing as a Service_Final version

Prototype implementation of the SECaaS services of task T5.2. The releases will be supported by T5.5.

Security Information Storage and Analytics Infrastructure_First Version

Prototype implementation of the infrastructure for scalable storage and processing of IoT security information, based on T3.1.

Integration and Validation of AAL Usage Scenarios_Interim version

Prototype implementation of the SecureIoT-enabled socially assisted robots use cases based on the outcomes of task T6.3.

Tools and Techniques for Predictive IoT Security_Final version

Prototype implementation of the predictive analytics techniques and tools of T4.2.

Integration and Validation of Connected Car Usage Scenarios_First version

Prototype implementation of the SecureIoT-enabled connected car and self-driving use cases based on the task T6.4.

Security Information Storage and Analytics Infrastructure_Final version

Prototype implementation of the infrastructure for scalable storage and processing of IoT security information, based on T3.1

IoT Compliance Auditing as a Service_First version

Prototype implementation of the SECaaS services of task T5.2. The releases will be supported by T5.5.

Integration and Validation of Connected Car Usage Scenarios_Interim version

Prototype implementation of the SecureIoT-enabled connected car and self-driving use cases based on the task T6.4.

Integration and Validation of AAL Usage Scenarios_First version

Prototype implementation of the SecureIoT-enabled socially assisted robots use cases based on the outcomes of task T6.3.

Tools and Techniques for Predictive IoT Security_First version

Prototype implementation of the predictive analytics techniques and tools of T4.2.

IoT Security Knowledge Base_Final version

Prototype implementation of the knowledge based on the outcomes of task T5.3. The releases will be supported by T5.5

IoT Developers Support as a Service_Interim version

Prototype implementation of the SECaaS services of task T5.3. The releases will be supported by T5.5.

Cross-Platform Security Support_Final version
Prototype implementation of the security interoperability features of the project, including a relevant report based on task T4.3.

Models and Annotation for Security-Aware IoT Programming_First
Prototype implementation of the annotations oriented programming approach of task T4.4.

IoT Risk Assessment and Mitigation as a Service_Interim version
Prototype implementation of the SECaaS services of task T5.1. The releases will be supported by T5.5.

IoT Security Knowledge Base_Interim version
Prototype implementation of the knowledge based on the outcomes of task T5.3. The releases will be supported by T5.5

Integration and Validation of AAL Usage Scenarios_Final version
Prototype implementation of the SecureIoT-enabled socially assisted robots use cases based on the outcomes of task T6.3.

IoT Security Knowledge Base_First version
Prototype implementation of the knowledge based on the outcomes of task T5.3. The releases will be supported by T5.5

Integration and Validation of Connected Car Usage Scenarios_Final version
Prototype implementation of the SecureIoT-enabled connected car and self-driving use cases based on the task T6.4.

Open Research Data Pilot (3)

Data Management Plan
The project's DMP as illustrated in Section 2, it will be an outcome of T1.3.

Data Management Plan_Interim version
The project's second version of DMP as illustrated in Section 2, it will be an outcome of T1.3.

Data Management Plan_Final version

The project's final version of DMP as illustrated in Section 2, it will be an outcome of T1.3.

Other (3)

Integrated Multi-Sided Market platform_First version
Prototype implementation of the MSP (T7.4).

Integrated Multi-Sided Market platform_Final version
Prototype implementation of the MSP (T7.4).

Integrated Multi-Sided Market platform_Interim version
Prototype implementation of the MSP (T7.4).

Publikacje

Book chapters (5)

IoT European Security and Privacy Projects: Integration, Architectures and Interoperability
Autorzy: Ferrera , E , Pastrone , C , Brun , P-E , De Besombes , R , Loupos , K , Kouloumpis , G , O'Sullivan , P , Papageorgiou , A , Katsoulakos , P , Karakostas , B , Mygiakis , A , Stratigaki , C , Caglayan , B , Starynkevitch , B , Skoufis , C , Christofi , S , Ferry , N , Song , H , Solberg , A , Matthews , P , Skarmeta , A F , Santa , J , Beliatis , M J , Presser , M A , Parreira , J X , Martínez
Opublikowane w: Next Generation Internet of Things: Distributed Intelligence at the Edge and Human Machine-to-Machine Cooperation, 2018, Strona(/y) 207-292, ISBN 9788770220088
Wydawca: River Publishers Series in Communication

ThreatPredict: From Global Social and Technical Big Data to Cyber Threat Forecast
Autorzy: Jérôme François, Frederic Beck, Ghita Mezzour, Kathleen M. Carley, Abdelkader Lahmadi, Mounir Ghogho, Abdellah Houmz, Hicham Hammouchi, Mehdi Zakroum, Narjisse Nejjari, Othmane Cherqi
Opublikowane w: Advanced Technologies for Security Applications - Proceedings of the NATO Science for Peace and Security 'Cluster Workshop on Advanced Technologies', 17-18 September 2019, Leuven, Belgium, 2020, Strona(/y) 45-54, ISBN 978-94-024-2020-3

Wydawca: Springer Netherlands
DOI: 10.1007/978-94-024-2021-0_5

3. Data-driven IoT Security Using Deep Learning Techniques
Autorzy: Astaras Stefanos, Nikos Kefalakis, Angela-Maria Despotopoulou, John Soldatos
Opublikowane w: Security Risk Management for the Internet of Things: Technologies and Techniques for IoT Security, Privacy and Data Protection, 2020, ISBN 978-1-68083-682-0
Wydawca: Now Publishers
DOI: 10.1561/9781680836837.ch3

Next Generation Internet of Things
Autorzy: Ovidiu Vermesan, Joël Bacquet
Opublikowane w: Next Generation Internet of Things, Numer 1, 2018, Strona(/y) 1-352, ISBN 9788-770220071
Wydawca: River Publisher
DOI: 10.13052/rp-9788770220071

Application of Artificial Intelligence Techniques for the Creation of Novel Services Based on Connected Vehicles
Autorzy: Adrian Arroyo, David Evans, Alexandre Solleiro, Ignacio Elicegui, Alejandro Manilla, Daniel Calvo
Opublikowane w: Intelligent System Solutions for Auto Mobility and Beyond - Advanced Microsystems for Automotive Applications 2020, 2021, Strona(/y) 26-37, ISBN 978-3-030-65870-0
Wydawca: Springer International Publishing
DOI: 10.1007/978-3-030-65871-7_3

Conference proceedings (13)

Trustworthiness in Supply Chains : A modular extensible Approach applied to Industrial IoT
Autorzy: Jurgen Neises, George Moldovan, Thomas Walloschke, Bianca Popovici
Opublikowane w: 2020 Global Internet of Things Summit (GIoTS), 2020, Strona(/y) 1-6, ISBN 978-1-7281-6728-2
Wydawca: IEEE
DOI: 10.1109/giots49054.2020.9119580

IoT Security Approaches in Social Robots for Ambient Assisted Living Scenarios
Autorzy: Alexandru Vulpe, Ali Paikan, Razvan Craciunescu, Pouyan Ziafati, Sofoklis Kyriazakos, Adrien Hemmer, Remi Badonnel

Opublikowane w: 2019 22nd International Symposium on Wireless Personal Multimedia Communications (WPMC), 2019, Strona(/y) 1-6, ISBN 978-1-7281-5419-0
Wydawca: IEEE
DOI: 10.1109/wpmc48795.2019.9096127

Application-aware intrusion detection - A Systematic Literature Review and Implications for Automotive Systems
Autorzy: David Schubert, Hendrik Eikerling, Jörg Holtmann
Opublikowane w: 17th escar Europe: embedded security in cars, 2019
Wydawca: Ruhr-Universität Bochum, Universitätsbibliothek
DOI: 10.13154/294-6654

A Process Mining Tool for Supporting IoT Security
Autorzy: Adrien Hemmer, Remi Badonnel, Jerome Francois, Isabelle Chrisment
Opublikowane w: NOMS 2020 - 2020 IEEE/IFIP Network Operations and Management Symposium, 2020, Strona(/y) 1-2, ISBN 978-1-7281-4973-8
Wydawca: IEEE
DOI: 10.1109/noms47738.2020.9110254

Triple S -Secure Sustainable Ships
Autorzy: Peter Rus
Opublikowane w: 2019 22nd International Symposium on Wireless Personal Multimedia Communications (WPMC), 2019, Strona(/y) 1-4, ISBN 978-1-7281-5419-0
Wydawca: IEEE
DOI: 10.1109/wpmc48795.2019.9096199

port2dist: Semantic Port Distances for Network Analytics
Autorzy: Evrard, Laurent; François, Jérôme; Colin, Jean-Noël; Beck, Frédéric
Opublikowane w: https://hal.inria.fr/hal-02345491, Numer 1, 2019, ISBN 978-3-903176-15-7
Wydawca: IEEE

Attacker Behavior-Based Metric for Security Monitoring Applied to Darknet Analysis
Autorzy: J. François (Inria), L. Evrard (Inria, U. Namur), J.-N. Colin (U. Namur)
Opublikowane w: IFIP/IEEE International Symposium on Integrated Network Management 2019, 2019, ISBN 978-3-903176-15-7
Wydawca: IFIP/IEEE

Scalable and Configurable End-to-End Collection and Analysis of IoT Security Data : Towards End-to-End Security in IoT Systems
Autorzy: Aikaterini Roukounaki, Sofoklis Efremidis, John Soldatos, Juergen Neises, Thomas Walloschke, Nikos Kefalakis

Opublikowane w: 2019 Global IoT Summit (GIoTS), 2019, Strona(/y) 1-6, ISBN 978-1-7281-2171-0
Wydawca: IEEE
DOI: 10.1109/giots.2019.8766407

port2dist: Semantic Port Distances for Network Analytics
Autorzy: J. François (Inria), L. Evrard (Inria, U. Namur), J.-N. Colin (U. Namur), F. Bek (Inria)
Opublikowane w: IFIP/IEEE International Symposium on Integrated Network Management 2019 - demo sessions, 2019, ISBN 978-3-903176-15-7
Wydawca: IFIP/IEEE

Passive Inference of User Actions through IoT Gateway Encrypted Traffic Analysis
Autorzy: Pierre-Marie Junges ; Jérôme François ; Olivier Festor
Opublikowane w: IEEE/IFIP Workshop on Security for Emerging Distributed Network Technologies (DISSECT) at IFIP/IEEE NOMS, 2019, ISBN 978-3-903176-15-7
Wydawca: IFIP/IEEE

End-to-end security assessment framework for connected vehicles
Autorzy: David Evans, Daniel Calvo, Adrian Arroyo, Alejandro Manilla, David Gomez
Opublikowane w: 2019 22nd International Symposium on Wireless Personal Multimedia Communications (WPMC), 2019, Strona(/y) 1-6, ISBN 978-1-7281-5419-0
Wydawca: IEEE
DOI: 10.1109/wpmc48795.2019.9096062

Deep Learning Analytics for IoT Security over a Configurable BigData Platform : Data-Driven IoT Systems
Autorzy: Stefanos Astaras, Sofoklis Efremidis, Angela-Maria Despotopoulou, John Soldatos, Nikos Kefalakis
Opublikowane w: 2019 22nd International Symposium on Wireless Personal Multimedia Communications (WPMC), 2019, Strona(/y) 1-6, ISBN 978-1-7281-5419-0
Wydawca: IEEE
DOI: 10.1109/wpmc48795.2019.9096076

A Process Mining Approach for Supporting IoT Predictive Security
Autorzy: Adrien Hemmer, Remi Badonnel, Isabelle Chrisment
Opublikowane w: NOMS 2020 - 2020 IEEE/IFIP Network Operations and Management Symposium, 2020, Strona(/y) 1-9, ISBN 978-1-7281-4973-8

Wydawca: IEEE
DOI: 10.1109/noms47738.2020.9110411

Monographic books (1)

Security Risk Management for the Internet of Things: Technologies and Techniques for IoT Security, Privacy and Data Protection
Autorzy: Nikos Kefalakis | Angela-Maria Despotopoulou | Spyridon Evangelatos | John Soldatos
Opublikowane w: 2020, ISBN 978-1-68083-683-7
Wydawca: now publishers
DOI: 10.1561/9781680836837

Peer reviewed articles (2)

Comparative Assessment of Process Mining for Supporting IoT Predictive Security
Autorzy: Adrien Hemmer, Mohamed Abderrahim, Remi Badonnel, Jerome Francois, Isabelle Chrisment
Opublikowane w: IEEE Transactions on Network and Service Management, 2020, Strona(/y) 1-1, ISSN 1932-4537
Wydawca: Institute of Electrical and Electronics Engineers
DOI: 10.1109/tnsm.2020.3038172

Securing IoT Applications with Smart Objects: Framework and a Socially Assistive Robots Case Study
Autorzy: John Soldatos, Sofoklis Kyriazakos, Pouyan Ziafati
Opublikowane w: Wireless Personal Communications, 2019, ISSN 0929-6212
Wydawca: Kluwer Academic Publishers

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