
DMP du projet "TIC-TAC-SDN data management plan"

Plan de gestion de données créé à l'aide de DMP OPIDoR, basé sur le modèle "Science Europe - DMP template (english)" fourni par Science Europe.

Plan Details

Plan title	DMP du projet "TIC-TAC-SDN data management plan"
Fields of science and technology (from OECD classification)	Computer and information sciences
Language	eng
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Project Details

Project title TIC-TAC-SDN data management plan

Abstract Software Defined Networking (SDN) and Blockchain are two emerging paradigms in the Internet of Things (IoT). The former greatly simplifies network programmability, the latter provides powerful tamper-proof logging and auditing capabilities that help to solve problems facing distributed SDN (dSDN) such as trust and state consistency issues among SDN controllers. Today's literature has shown that blockchain technologies can introduce significant latency (>100sec), which is clearly inappropriate for time-critical applications. This may become all the more critical in IoT ecosystems in which hundreds to thousands of SDN controllers/apps need to cooperate/interact with one another. TIC-TAC-SDN is committed to study, design and validate a new blockchain consensus protocol that has the ability to self-adapt to find the best trade-off between reducing the system time convergence, without compromising its scalability and security, and without violating the application Service Level Agreements.

Funding

- ANR : ANR-20-CE25-001

Partners

- Université de Lorraine <https://ror.org/04vfs2w97>
- Centre de recherche en automatique de Nancy <https://ror.org/022r5hc56>

Research outputs :

1. Protocole de consensus auto-adaptatif (Logiciel)

Contributors

Name	Affiliation	Roles
Kubler Sylvain - https://orcid.org/0000-0001-7672-7837	- https://orcid.org/0000-0001-7672-7837	<ul style="list-style-type: none">• Coordinateur du projet• DMP manager• Personne contact pour les données

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DMP du projet "TIC-TAC-SDN data management plan"

1. Data description and collection or re-use of existing data

1a. How will new data be collected or produced and/or how will existing data be re-used?

The methodology to collect data is twofold:

1. New data will be collected based on an experimental platform that is going to be set up during the project
2. Datasets from the literature might be used for benchmarking purposes

1b. What data (for example the kind, formats, and volumes), will be collected or produced?

Herebelow are given some details about the data collected and processed during the project:

- **Data description:** Networking-related data will be mainly collected and processed (i.e., data related to network communications such as latencies, number of packets lost, throughput, etc.), meaning that no sensitive data (implying privacy issues) are going to be collected;
- **Data Format:** Such data will be collected and formatted in open and widely adopted data formats such as CSV or JSON;
- **Data Volume:** The volume of data that is going to be collected is in the order of Megabytes

2. Documentation and data quality

2a. What metadata and documentation (for example the methodology of data collection and way of organising data) will accompany the data?

The data generated during the project will be published and documented using several online tools, including:

- **HAL:** by filling out all the requested Metadata (keywords, DOI, publication URL...)
- **ResearchGate:** by filling out all the requested Metadata (keywords, DOI, publication URL...)
- **ORCID:** by filling out all the requested Metadata (keywords, DOI, publication URL...)
- **my personal website** on which will be hosted my ANR project.

Furthermore, software development will be published in open access on **GitHub**.

2b. What data quality control measures will be used?

Data quality will be measured and controlled based on a two-fold approach:

- a statistical (design of experiment) approach will be applied during the data collection/filtering process in order to make sure that the collected data is of quality to work with;
 - peer review of data will naturally be carried out when publishing scientific articles.
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3. Storage and backup during the research process

3a. How will data and metadata be stored and backed up during the research?

Data will be stored and backup on a Cloud of University of Lorraine in addition of the local laptops of the project members.

3b. How will data security and protection of sensitive data be taken care during the research?

The collected data is not sensitive and does not require any additional protection mechanisms than the one provided by the Cloud of University of Lorraine (requiring the use of Universities' accounts: id/password)

4. Legal and ethical requirements, codes of conduct

4a. If personal data are processed, how will compliance with legislation on personal data and on security be ensured?

No personal data are processed.

4b. How will other legal issues, such as intellectual property rights and ownership, be managed? What legislation is applicable?

The owner of the data is going to be CRAN and University of Lorraine.
Data will be openly accessible via HAL, ResearchGate, GitHub and my personal website.
An Open Licence, namely **Licence publique générale limitée GNU**, will be specified in the source code.

4c. What ethical issues and codes of conduct are there, and how will they be taken into account?

The collected data will be kept on the Cloud of University of Lorraine (requiring the use of Universities' accounts: id/password) and my personal website

5. Data sharing and long-term preservation

5a. How and when will data be shared? Are there possible restrictions to data sharing or embargo reasons?

Data will be shared on a regular basis based on scientific channels such as HAL, ResearchGate, etc.
Datasets published will mainly target developer and researcher communities.

5b. How will data for preservation be selected, and where data will be preserved long-term (for example a data repository or archive)?

Data will be stored on HAL and GitHub-like platforms, which should guarantee long-term storage of the project data.

5c. What methods or software tools are needed to access and use data?

All the software tools and libraries needed to access and re-use project-related datasets will be detailed and explained on my GitHub account.

5d. How will the application of a unique and persistent identifier (such as a Digital Object Identifier (DOI)) to each data set be ensured?

All scientific articles will benefit from a unique and persistent identifier (DOI) which will be referenced in my communication material.

6. Data management responsibilities and resources

6a. Who (for example role, position, and institution) will be responsible for data management (i.e. the data steward)?

The principal investigator Sylvain Kubler is responsible for data management.

6b. What resources (for example financial and time) will be dedicated to data management and ensuring that data will be FAIR (Findable, Accessible, Interoperable, Re-usable)?

A dedicated budget has been planned in the project proposal in order to pay for publishing scientific articles in open access and create a kind of animation video to promote the project goal and expected outcomes