Measuring Privacy Violation of IoT Devices via Traffic Analysis

Enze Liu, TJ Smith, Zesen Zhang University of California, San Diego {alexliu0809,anakanishi,davidcash,blase}@uchicago.edu,maximilian.golla@rub.de

ABSTRACT

Your abstract should go here. You will also need to upload a plaintext abstract into the web submission form.

CCS CONCEPTS

• Security and privacy → Use https://dl.acm.org/ccs.cfm to generate actual concepts section for your paper;

KEYWORDS

template; formatting; pickling

1 INTRODUCTION

This is a sample! It does not have a lot of fancy stuff in it, but if you want to see a more complex sample, look at the original ACM templates.

To fill up enough text to fill up 3 pages, we've included the CCS Call for Papers three times. It is always a good idea to include some gratuitious citations to recent CCS papers [1–4].

2 CALL FOR PAPERS

The conference seeks submissions presenting novel research results in all aspects of computer and communications security and privacy, including both practical and theoretical contributions.

2.1 Paper Submission Information

Submissions must be received at https://ccs17.hotcrp.com/ by the strict deadline of 19 May 2017 at 8:59 PM PDT (UTC-7). Submitted papers must not substantially overlap with papers that have been published or that are simultaneously submitted to a journal, conference, or workshop. Submissions must be anonymized and avoid obvious self-references.

CCS has traditionally required that authors submitting papers guarantee that an author will be able to present their paper at the conference. We recognize, however, that the current travel restrictions and screening processes may make it impossible or uncomfortable for some authors to travel to the conference. The venue for CCS 2017 was selected several years ago, and we do not wish to exclude any potential authors who may have difficulty traveling due to recent changes in US immigration practices. CCS welcomes submissions by authors of all nationalities, and will make allowances for presenting papers electronically or with non-author presenters in cases where paper authors are unable to travel to the United States.

Submissions will be evaluated based on their scientific merit, novelty, importance, presentation quality, and relevance to computer and communications security and privacy. If a paper includes work that raises ethical concerns it is up to the authors to convince the reviewers that appropriate practices were followed to minimize

possible harm and that any harm caused by the work is greatly outweighed by its benefits. The review process will be carried out in two phases and authors will have an opportunity to provide a length-limited response to the first-phase reviews.

2.2 Paper Format

Submissions must be single PDF files containing at most 12 pages in the required new ACM format (see https://www.sigsac.org/ccs2017/format for details and templates, which you have presumably found if you are reading this!) of body content, with any number of additional pages for the bibliography, well-marked appendices, and any desired supplementary material. When relevant, submitters may include reviews from past submissions and responses to them in the supplementary material.

Reviewers are not required to consider the appendices or supplementary material, however, so submissions need to be intelligible and convincing without them. Submissions not meeting these guidelines, or playing games to work around page limits, will be rejected by the PC chairs without review. In particular, papers should not use squeezing tricks to adjust the (already very dense) ACM paper format, and moving discussion of key related work or important definitions to appendices may be grounds for rejection.

2.3 Practice Talks

Following the lead of USENIX Enigma, we want to improve the quality of the conference and provide a better experience for both presenters and attendees by holding practice sessions before the conference (see https://www.sigsac.org/ccs2017/practicefaq). Presenting authors of accepted papers are expected to participate in an on-line practice session approximately three weeks before the conference.

2.4 Conflicts of Interest

The conference requires cooperation from both authors and program committee members to ensure a process that is both fair in practice and perceived to be fair by everyone. When submitting a paper, authors are required to identify members of the program committee who may not be able to provide an unbiased review. This includes people with strong personal or professional relationships such as advisor/advisee, members of the same organization, and close collaborators (for example, recent or repeated co-authors). In general, this means anyone who a reasonable person with all the relevant information would question as an impartial reviewer. The program co-chairs reserve the right to request a more specific description of a conflict-of-interest declaration from authors.

Program committee members who have a conflict of interest with a paper, including program co-chairs, will be excluded from evaluation and discussion of the paper, but because submissions are anonymous to reviewers it is important for submitting authors

1

to identify these conflicts. In the case of a program co-chair, the other co-chairs who do not have conflicts will be responsible for managing that paper. Program co-chairs are not permitted to be involved as co-authors in any submissions.

3 CALL FOR PAPERS

The conference seeks submissions presenting novel research results in all aspects of computer and communications security and privacy, including both practical and theoretical contributions.

3.1 Paper Submission Information

Submissions must be received at https://ccs17.hotcrp.com/ by the strict deadline of 19 May 2017 at 8:59 PM PDT (UTC-7). Submitted papers must not substantially overlap with papers that have been published or that are simultaneously submitted to a journal, conference, or workshop. Submissions must be anonymized and avoid obvious self-references.

CCS has traditionally required that authors submitting papers guarantee that an author will be able to present their paper at the conference. We recognize, however, that the current travel restrictions and screening processes may make it impossible or uncomfortable for some authors to travel to the conference. The venue for CCS 2017 was selected several years ago, and we do not wish to exclude any potential authors who may have difficulty traveling due to recent changes in US immigration practices. CCS welcomes submissions by authors of all nationalities, and will make allowances for presenting papers electronically or with non-author presenters in cases where paper authors are unable to travel to the United States.

Submissions will be evaluated based on their scientific merit, novelty, importance, presentation quality, and relevance to computer and communications security and privacy. If a paper includes work that raises ethical concerns it is up to the authors to convince the reviewers that appropriate practices were followed to minimize possible harm and that any harm caused by the work is greatly outweighed by its benefits. The review process will be carried out in two phases and authors will have an opportunity to provide a length-limited response to the first-phase reviews.

3.2 Paper Format

Submissions must be single PDF files containing at most 12 pages in the required new ACM format (see https://www.sigsac.org/ccs2017/format for details and templates, which you have presumably found if you are reading this!) of body content, with any number of additional pages for the bibliography, well-marked appendices, and any desired supplementary material. When relevant, submitters may include reviews from past submissions and responses to them in the supplementary material.

Reviewers are not required to consider the appendices or supplementary material, however, so submissions need to be intelligible and convincing without them. Submissions not meeting these guidelines, or playing games to work around page limits, will be rejected by the PC chairs without review. In particular, papers should not use squeezing tricks to adjust the (already very dense) ACM paper format, and moving discussion of key related work or important definitions to appendices may be grounds for rejection.

3.3 Practice Talks

Following the lead of USENIX Enigma, we want to improve the quality of the conference and provide a better experience for both presenters and attendees by holding practice sessions before the conference (see https://www.sigsac.org/ccs2017/practicefaq). Presenting authors of accepted papers are expected to participate in an on-line practice session approximately three weeks before the conference.

3.4 Conflicts of Interest

The conference requires cooperation from both authors and program committee members to ensure a process that is both fair in practice and perceived to be fair by everyone. When submitting a paper, authors are required to identify members of the program committee who may not be able to provide an unbiased review. This includes people with strong personal or professional relationships such as advisor/advisee, members of the same organization, and close collaborators (for example, recent or repeated co-authors). In general, this means anyone who a reasonable person with all the relevant information would question as an impartial reviewer. The program co-chairs reserve the right to request a more specific description of a conflict-of-interest declaration from authors.

Program committee members who have a conflict of interest with a paper, including program co-chairs, will be excluded from evaluation and discussion of the paper, but because submissions are anonymous to reviewers it is important for submitting authors to identify these conflicts. In the case of a program co-chair, the other co-chairs who do not have conflicts will be responsible for managing that paper. Program co-chairs are not permitted to be involved as co-authors in any submissions.

4 CALL FOR PAPERS

The conference seeks submissions presenting novel research results in all aspects of computer and communications security and privacy, including both practical and theoretical contributions.

4.1 Paper Submission Information

Submissions must be received at https://ccs17.hotcrp.com/ by the strict deadline of 19 May 2017 at 8:59 PM PDT (UTC-7). Submitted papers must not substantially overlap with papers that have been published or that are simultaneously submitted to a journal, conference, or workshop. Submissions must be anonymized and avoid obvious self-references.

CCS has traditionally required that authors submitting papers guarantee that an author will be able to present their paper at the conference. We recognize, however, that the current travel restrictions and screening processes may make it impossible or uncomfortable for some authors to travel to the conference. The venue for CCS 2017 was selected several years ago, and we do not wish to exclude any potential authors who may have difficulty traveling due to recent changes in US immigration practices. CCS welcomes submissions by authors of all nationalities, and will make allowances for presenting papers electronically or with non-author presenters in cases where paper authors are unable to travel to the United States.

Submissions will be evaluated based on their scientific merit, novelty, importance, presentation quality, and relevance to computer and communications security and privacy. If a paper includes work that raises ethical concerns it is up to the authors to convince the reviewers that appropriate practices were followed to minimize possible harm and that any harm caused by the work is greatly outweighed by its benefits. The review process will be carried out in two phases and authors will have an opportunity to provide a length-limited response to the first-phase reviews.

4.2 Paper Format

Submissions must be single PDF files containing at most 12 pages in the required new ACM format (see https://www.sigsac.org/ccs2017/format for details and templates, which you have presumably found if you are reading this!) of body content, with any number of additional pages for the bibliography, well-marked appendices, and any desired supplementary material. When relevant, submitters may include reviews from past submissions and responses to them in the supplementary material.

Reviewers are not required to consider the appendices or supplementary material, however, so submissions need to be intelligible and convincing without them. Submissions not meeting these guidelines, or playing games to work around page limits, will be rejected by the PC chairs without review. In particular, papers should not use squeezing tricks to adjust the (already very dense) ACM paper format, and moving discussion of key related work or important definitions to appendices may be grounds for rejection.

4.3 Practice Talks

Following the lead of USENIX Enigma, we want to improve the quality of the conference and provide a better experience for both presenters and attendees by holding practice sessions before the conference (see https://www.sigsac.org/ccs2017/practicefaq). Presenting authors of accepted papers are expected to participate in an on-line practice session approximately three weeks before the conference.

4.4 Conflicts of Interest

The conference requires cooperation from both authors and program committee members to ensure a process that is both fair in practice and perceived to be fair by everyone. When submitting a paper, authors are required to identify members of the program committee who may not be able to provide an unbiased review. This includes people with strong personal or professional relationships such as advisor/advisee, members of the same organization, and close collaborators (for example, recent or repeated co-authors). In general, this means anyone who a reasonable person with all the relevant information would question as an impartial reviewer. The program co-chairs reserve the right to request a more specific description of a conflict-of-interest declaration from authors.

Program committee members who have a conflict of interest with a paper, including program co-chairs, will be excluded from evaluation and discussion of the paper, but because submissions are anonymous to reviewers it is important for submitting authors to identify these conflicts. In the case of a program co-chair, the other co-chairs who do not have conflicts will be responsible for

managing that paper. Program co-chairs are not permitted to be involved as co-authors in any submissions.

5 CONCLUSIONS

In conclusion, it is rarely a good idea to include the same section three times in a paper, or to have a conclusion that does not conclude.

A LOCATION

Note that in the new ACM style, the Appendices come before the References.

B CALL FOR PAPERS

The conference seeks submissions presenting novel research results in all aspects of computer and communications security and privacy, including both practical and theoretical contributions.

B.1 Paper Submission Information

Submissions must be received at https://ccs17.hotcrp.com/ by the strict deadline of 19 May 2017 at 8:59 PM PDT (UTC-7). Submitted papers must not substantially overlap with papers that have been published or that are simultaneously submitted to a journal, conference, or workshop. Submissions must be anonymized and avoid obvious self-references.

CCS has traditionally required that authors submitting papers guarantee that an author will be able to present their paper at the conference. We recognize, however, that the current travel restrictions and screening processes may make it impossible or uncomfortable for some authors to travel to the conference. The venue for CCS 2017 was selected several years ago, and we do not wish to exclude any potential authors who may have difficulty traveling due to recent changes in US immigration practices. CCS welcomes submissions by authors of all nationalities, and will make allowances for presenting papers electronically or with non-author presenters in cases where paper authors are unable to travel to the United States.

Submissions will be evaluated based on their scientific merit, novelty, importance, presentation quality, and relevance to computer and communications security and privacy. If a paper includes work that raises ethical concerns it is up to the authors to convince the reviewers that appropriate practices were followed to minimize possible harm and that any harm caused by the work is greatly outweighed by its benefits. The review process will be carried out in two phases and authors will have an opportunity to provide a length-limited response to the first-phase reviews.

B.2 Paper Format

Submissions must be single PDF files containing at most 12 pages in the required new ACM format (see https://www.sigsac.org/ccs2017/format for details and templates, which you have presumably found if you are reading this!) of body content, with any number of additional pages for the bibliography, well-marked appendices, and any desired supplementary material. When relevant, submitters may include reviews from past submissions and responses to them in the supplementary material.

Reviewers are not required to consider the appendices or supplementary material, however, so submissions need to be intelligible and convincing without them. Submissions not meeting these guidelines, or playing games to work around page limits, will be rejected by the PC chairs without review. In particular, papers should not use squeezing tricks to adjust the (already very dense) ACM paper format, and moving discussion of key related work or important definitions to appendices may be grounds for rejection.

B.3 Practice Talks

Following the lead of USENIX Enigma, we want to improve the quality of the conference and provide a better experience for both presenters and attendees by holding practice sessions before the conference (see https://www.sigsac.org/ccs2017/practicefaq). Presenting authors of accepted papers are expected to participate in an on-line practice session approximately three weeks before the conference.

B.4 Conflicts of Interest

The conference requires cooperation from both authors and program committee members to ensure a process that is both fair in practice and perceived to be fair by everyone. When submitting a paper, authors are required to identify members of the program committee who may not be able to provide an unbiased review. This includes people with strong personal or professional relationships such as advisor/advisee, members of the same organization, and close collaborators (for example, recent or repeated co-authors). In general, this means anyone who a reasonable person with all the relevant information would question as an impartial reviewer. The program co-chairs reserve the right to request a more specific description of a conflict-of-interest declaration from authors.

Program committee members who have a conflict of interest with a paper, including program co-chairs, will be excluded from evaluation and discussion of the paper, but because submissions are anonymous to reviewers it is important for submitting authors to identify these conflicts. In the case of a program co-chair, the other co-chairs who do not have conflicts will be responsible for managing that paper. Program co-chairs are not permitted to be involved as co-authors in any submissions.

ACKNOWLEDGMENTS

REFERENCES

- Ross Anderson. 1993. Why cryptosystems fail. In Proceedings of the 1st ACM Conference on Computer and Communications Security. ACM, New York, 215–227.
- [2] Mihir Bellare and Phillip Rogaway. 1993. Random oracles are practical: A paradigm for designing efficient protocols. In Proceedings of the 1st ACM Conference on Computer and Communications Security. ACM, New York, 62–73.
- [3] Matt Blaze. 1993. A cryptographic file system for UNIX. In Proceedings of the 1st ACM Conference on Computer and Communications Security. ACM, New York, 9–16.
- [4] Gennady Medvinsky and Clifford Neuman. 1993. NetCash: A design for practical electronic currency on the Internet. In Proceedings of the 1st ACM Conference on Computer and Communications Security. ACM, New York, 102–106.