

CSGE602055 Operating Systems

CSF2600505 Sistem Operasi

Minggu 02: Protection, Security, Privacy, & C-language

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<http://rms46.vlsm.org/2/207.html>

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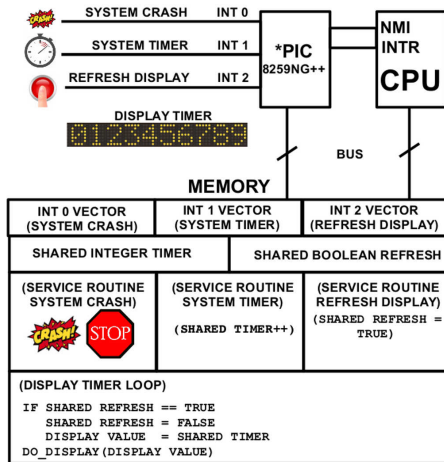
| | | |
|-----------|----------------------|--|
| Minggu 00 | 29 Aug - 05 Sep 2017 | Intro & Review |
| Minggu 01 | 07 Sep - 12 Sep 2017 | IPR, SED, AWK, REGEX, & Scripting |
| Minggu 02 | 14 Sep - 19 Sep 2017 | Protection, Security, Privacy, & C-language |
| Minggu 03 | 26 Sep - 30 Sep 2017 | BIOS, Loader, Systemd, & I/O |
| Minggu 04 | 03 Okt - 07 Okt 2017 | Addressing, Shared Lib, Pointer & I/O Programming |
| Minggu 05 | 10 Okt - 14 Okt 2017 | Virtual Memory |
| Ming. UTS | 15 Okt - 24 Okt 2017 | |
| Minggu 06 | 26 Okt - 31 Okt 2017 | Concurrency: Processes & Threads |
| Minggu 07 | 02 Nov - 07 Nov 2017 | Synchronization |
| Minggu 08 | 09 Nov - 14 Nov 2017 | Scheduling & Network Sockets Programming |
| Minggu 09 | 16 Nov - 21 Nov 2017 | File System & Persistent Storage |
| Minggu 10 | 23 Nov - 28 Nov 2017 | Special Topic: Retreat |
| Cadangan | 30 Nov - 09 Des 2017 | |
| Ming. UAS | 10 Des - 23 Des 2017 | |

Agenda

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- 5 Goals and Principles of Protection
- 6 The Security Problem
- 7 Privacy
- 8 C Language
- 9 The End

Week 02: Protection, Security, & C-language

- Reference: (OSCE2e ch13-4) (ETC 050-1 C001-8) (OLD 01)



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Figure: How to protect and secure this design?

Goals and Principles of Protection

- Principle of Least Privilege
- Domain Structure and Access Matrix
- Domain = set of Access-rights (eg. **user-id**).
- Access-right = <object-name, rights-set> (eg. object: file).

| | File1 | File2 | File3 | Printer |
|-------|-------|-------|---------|---------|
| User1 | Read | | Read | |
| User2 | | | | Print |
| User3 | | Read | Execute | Print |
| User4 | R/W | | R/W | Print |

- Access-right Plus Domain (Users) as Objects

| | F1 | F2 | F3 | Printer | U1 | U2 | U3 | U4 |
|----|-----|----|------|---------|----|----|----|----|
| U1 | R | | R | | | SW | | |
| U2 | | | | Print | | | SW | SW |
| U3 | | R | EXEC | Print | | | | |
| U4 | R/W | | R/W | Print | SW | | | |

Copy Rights

- Start

| | File1 | File2 | File3 |
|-------|-------|-------|--------|
| User1 | Exec | | Write* |
| User2 | Exec | Read* | Exec |
| User3 | Exec | | |

- User3: Read access to File2 (by User2)

| | File1 | File2 | File3 |
|-------|-------|-------------|--------|
| User1 | Exec | | Write* |
| User2 | Exec | Read* | Exec |
| User3 | Exec | Read | |

- Owner Rights

| | File1 | File2 | File3 |
|-------|-------|-------------|------------|
| User1 | O & E | | W |
| User2 | | O & R* & W* | O & R* & W |
| User3 | | W | W |

The Security Problem

- Security Violation Categories
- Security Measure Levels
- Encryption
- Linux Security
- gnupg & sha1sum

- Privacy can mean different things in different contexts; different people, cultures, and nations have different expectations about how much privacy a person is entitled to or what constitutes an invasion of privacy.
- Considering all discussions as one of these concepts
 - Right to be let alone (such as one's own home).
 - Limited access (no information collection).
 - Control over information (in the era of big data).
 - States of privacy: solitude, intimacy, anonymity, and reserve.
 - Secrecy: does not apply for any already publicly disclosed.
 - Personhood and autonomy.
 - Self-identity and personal growth.

- Reference: (Any C Language Tutorial)

The End

- This is the end of the presentation.