

# Third Session

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**Bash Scripting for Audio-Visual Preservation**  
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# Checksums

## cryptographic

- MD5
- SHA-1
- SHA-256
- SHA-512

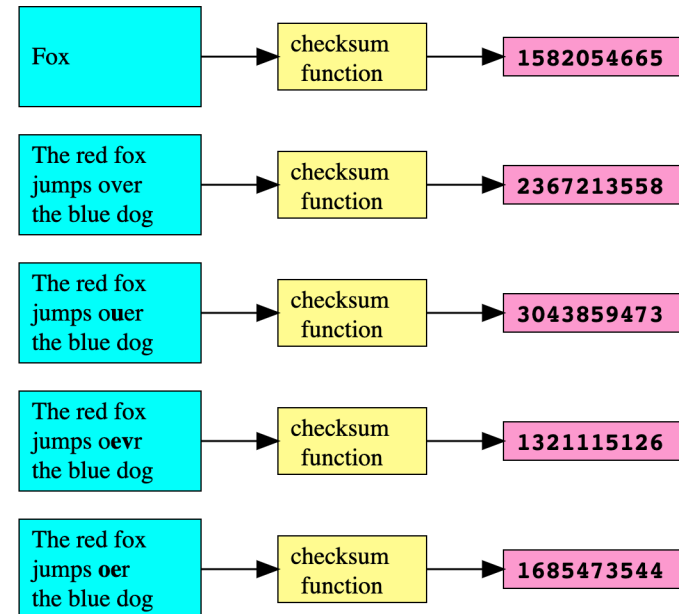
## non-cryptographic

- CRC-32
- xxHash 32
- xxHash 64
- xxHash 128

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## Input

## Checksum



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```

-----
machine hardware: x86_64
processor architecture: i386
operating system: Darwin 18.7.0
Mac OS X 10.14.6 (build 18G6032)
-----
Installed MD5 checksum tool:
md5
md5sum
Installed generic SHA checksum tool:
shasum
Installed SHA-1 checksum tool:
sha1sum
Installed SHA-256 checksum tool:
sha256sum
Installed SHA-512 checksum tool:
sha512sum
Installed CRC-32 checksum tool:
crc32
cksum
Installed historic CRC-16 checksum tool:
sum
Installed xxHash checksum tool:
xxhsum
-----

```

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```

-----
machine hardware: x86_64
processor architecture: x86_64
operating system: Linux 4.4.0-19041-Microsoft
NAME="Ubuntu"
VERSION="20.04.3 LTS (Focal Fossa)"
-----
Installed MD5 checksum tool:
md5sum
md5deep
Installed generic SHA checksum tool:
shasum
Installed SHA-1 checksum tool:
sha1sum
sha1deep
Installed SHA-256 checksum tool:
sha256sum
sha256deep
Installed SHA-512 checksum tool:
sha512sum
Installed CRC-32 checksum tool:
cksum
Installed historic CRC-16 checksum tool:
sum
Installed xxHash checksum tool:
xxhsum
-----

```

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```

Terminal - bash
Copyright (C) 2002 Free Software Foundation, Inc.
Castor:/Volumes/TEST rk$ ./inst_cksum_tools.sh

-----
machine hardware: Power Macintosh
processor architecture: powerpc
operating system: Darwin 8.11.0
Mac OS X 10.4.11 (build 8S165)
-----
Installed MD5 checksum tool:
md5
Installed generic SHA checksum tool:
Installed SHA-1 checksum tool:
Installed SHA-256 checksum tool:
Installed SHA-512 checksum tool:
Installed CRC-32 checksum tool:
crc32
cksum
Installed historic CRC-16 checksum tool:
sum
Installed xxHash checksum tool:
-----
Castor:/Volumes/TEST rk$

```

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```

Terminal - bash
[13:13:51]imac01@iMac01:~/Desktop$ ./cksum_algorithms.sh

Algorithm  Checksum
-----
SHA-512 = 76084784c4b383cda2a87c365bab7036c087908aa2b6c92d25b0a06500fa96f622e
6a59abf15ebc09199a568989737289017a6626806df0b263ac1d2ec99fdd9
SHA-256 = aa4d67226d0461bba0ceadb7cba5de3ee4b4ce8062f381424691f33b3f983dfe
SHA-1 = fcb08a1b07463787a4162379222862d25e5e63f6
MD5 = de7c3526f876e8d8df7bfe541c0931a6
xxHash 128 = dea2a8574a73282b1fa3602333182e47
xxHash 64 = 271338390873dc93
xxHash 32 = 8e2c2d4a
CRC-32 = 6ca403f3
-----

[13:13:58]imac01@iMac01:~/Desktop$ █

```

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## Cryptographic checksums

MD5

**md5sum** file

SHA-1

**sha1sum** file

SHA-256

**sha256sum** file

SHA-512

**sha512sum** file

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## Non-cryptographic checksums

CRC-32

**cksum** file

xxHash 32

**xxhsum -H32** file

xxHash 64

**xxhsum -H64** file

xxHash 128

**xxhsum -H128** file

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## Install xxHash (xxhsum)

Linux/Mac/Windows Terminal or WSL:

**brew install xxhash**

Ubuntu/Debian:

**apt-get install xxhash**

Windows:

<https://github.com/Cyan4973/xxHash/releases>

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