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## 2019 CORRUPTION BINARY TOOL - CRASHANALYZE.EXE

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## 2019 Corruption Binary Tool – CrashAnalyze.exe

### Abstract

The purpose of the tool is to identify returned ROM hang at which driver or component Extra COST of maintaining multiple BIOS images on one PCA. CrashAnalyze.exe can check the ROM and analyze binary to find out the reason more efficiently, improve quality for product and enhance the process of checking the ROM issues at the same time. Depends on those advantages, the company can reduce the debug time and the waste of labor resource.

### Tool Features

Command	Features	Example
(NULL)	Analyze crash rom file	CrashAnalyze.exe filename1.bin
(NULL)	Analyze crash rom file with xml file	CrashAnalyze.exe romfile.bin xmlfile.xml
/cmp	Comparing crash rom file with original binary	CrashAnalyze.exe /cmp filename1.bin filename2.bin (filename1.bin is source binary, filename2.bin is crash binary)
/me	Check ME AFS region	CrashAnalyze.exe /me filename1.bin
/dvar	Dump all variables and check if any duplicated valid and analyze state field.	CrashAnalyze.exe /dvar filename1.bin
/snvs	Switch Binary1's 16M ME Region with Binary2's and delete Binary1's lab production mode	CrashAnalyze.exe /snvs filename1.bin filename2.bin (filename1.bin is crash binary, filename2.bin is source binary)
/allf	Search all Binaries in the folder and analyze rom file.	CrashAnalyze.exe /allf

The table shows features command, and give examples about how to use commands to analyze the binary. CrashAnalyze.exe provides variety features for user to analyze the binary more efficiently. As Figure#1, User can use command “CrashAnalyze.exe” to call the guide for tool.

```

Administrator: Developer Command Prompt for VS2015
C:\Katrina\Tools\Crash_Tool_Ver015>CrashAnalyze.exe
-----
CrashAnalyze tool version 14 for 32M/16M BIOS ROM
-----
Crash ROM Analyze Helper
Below example for analyze crash rom file
Example: CrashAnalyze.exe filename.bin

Below example for analyze crash rom file with xml file
Example: CrashAnalyze.exe romfile.bin xmlfile.xml

/cmp to comparing crash rom file with original binary.(filename1.bin is source binary, filename2.bin is crash binary)
Example: CrashAnalyze.exe /cmp filename1.bin filename2.bin

/me to check ME AFS region:
Example: CrashAnalyze.exe /me filename.bin

/dvar to dump all variables
Example: CrashAnalyze.exe /dvar filename.bin

/sme to switch Binary1's 16M ME Region with Binary2's and delete Binary1's lab production mode for test.(filename1.bi
n is crash binary, filename2.bin is source binary)
Example: CrashAnalyze.exe /sme filename1.bin filename2.bin

/snvs to switch Binary1's NV storage region to Binary2's and delete Binary1's & Binary2's lab production mode for test
.(filename1.bin is crash binary, filename2.bin is source binary)
Example: CrashAnalyze.exe /snvs filename1.bin filename2.bin

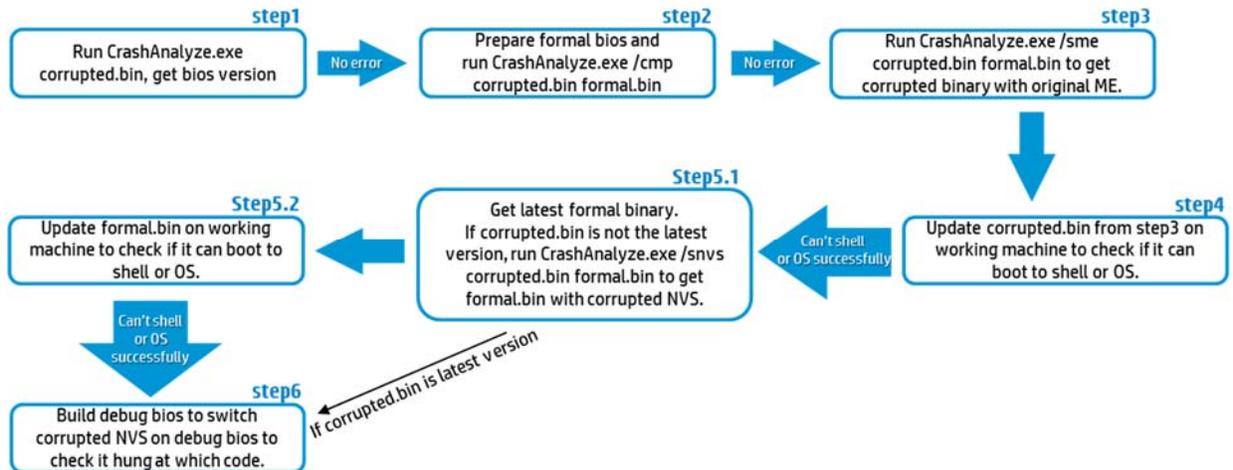
/allf to search all Binaries in a folder and analyze rom file.
Example: CrashAnalyze.exe /allf

C:\Katrina\Tools\Crash_Tool_Ver015>_

```

Figure#1

### Steps



Figure#2

Due to policy of ODM 2.0, it's essential for ODM help us on analyzing corrupted binaries and following Steps about Figure#2. First, running CrashAnalyze.exe to get BIOS version and start preparing formal binary. Next step, using formal binary to compare with corrupted binary. After last processes, use command /sme to switch ME region to get corrupted binary with original ME. If shell or OS still cannot boot successfully, check corrupted binary is latest or not. Get latest formal binary and update on working machine if corrupted binary is not the latest version. Build debug BIOS to switch corrupted NVS on debug BIOS to check process hung at which code when driver still cannot boot successfully.

## Error conditions

- The files cannot be open.
- BIOS size is not correct if the binary size neither 16M nor 32M.
- Descriptor region is corrupted if the header is not 0x55AA.
- Memory type info is over size.
- Show if ME AFS corrupt.
- Reclaim fail if NVS address is not next to FvMain.
- If this failed binary is invalid ROM, it can't get this failed binary's project ID.
- BIOS update fail due to BIOS version is different between FvMain and PEIB&A.
- The address of region is incorrect if the region in ROM is crash.
- Compare and show if the variables names are duplicated.
- After enable VTx/VTd/TXT and set Video Memory Size to 64MB, system got hang up problem.
- Rom crash in others region.
- Projects can't compare if Projects ID are different.
- ME region has been switched to the assigned version.
- Projects are different can't switch NVS region.
- The tool can't find FvMain in binaries.

*Disclosed by Jenny Lin, Dan-Dan Yin and Katrina Hsiung, HP Inc.*