Simulation of Radar Profiles for Satellites Using Mercury Method of Moments

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Abstract

A brief survey of characterizing the three dimensional radar cross section of satellites.

Contents

1 Overview **1**

2 Mercury Method of Moments **2**
2.1 Copyright Statement by the Author 2
2.2 Legal Statement 2
2.3 Obtaining Software and Documentation 4
2.4 Distribution Contents 4
2.4.1 Executables 4
2.4.2 Documentation 4
2.5 YouTube Videos 4

3 Command Examples **5**
3.1 `ldd` 5

4 Further Reading **5**

1 Overview

Topa 2020b Working with CAF files, producing output, compressing data. Topa 2020c Topa 2020c The goal is to be able to resolve the workings of an executable file exploiting the ELF structure show in figures **??**. The next figure, **??**, shows the relationship between source files, header files, shared objects, and the executable program.

2 Mercury Method of Moments

2.1 Copyright Statement by the Author

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MATRIX COMPRESSION TECHNOLOGIES, LLC

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2.2 Legal Statement

2.3 Obtaining Software and Documentation

Figure 1: Contact information to request Mercury MoM Software and Documentations

2.4 Distribution Contents

2.4.1 Executables

1. Linux 64-bit
2. Windows 64-bit

2.4.2 Documentation

The disctirubtion includes four documents in PDF:

1. User's Guide
2. Pill Tutorial
3. Code Validation Report
4. Benchmark Tests

2.5 YouTube Videos

One can find useful didactic presentations and simulations on YouTube.

1. The Radar cross-section of backscattering objects
2. Basic Concepts of Radar Cross Section (RCS)
3. Mie scattering
4. Mie theory (BME51 Lecture 5)
5. Mie Scattering

3 Command Examples

3.1 `ldd`

The command `ldd` prints shared object dependencies.

```
root@69cb14a32689:/# ldd /bin/bash
        linux-vdso.so.1 (0x00007ffe64317000)
        libtinfo.so.6 => /lib/x86_64-linux-gnu/libtinfo.so.6 (0x00007f842112d000)
        libc.so.6 => /lib/x86_64-linux-gnu/libc.so.6 (0x00007f8420f04000)
        /lib64/ld-linux-x86-64.so.2 (0x00007f84212e3000)
```

4 Further Reading

Radar rudiments

1. Peebles 2007
2. D. K. Barton 1969
3. Kolosov 1987

Radar cross section

1. Yuan, Gu, and Han 2009

2. Fuhs 1982
3. Knott, Schaeffer, and Tulley 2004
4. Crispin 2013
5. Madheswaran and Kumar 2012

Method of Moments

1. Gibson 2021
2. Lu and Luo 2003
3. Yuan, Gu, and Han 2009

Mercury MoM

1. Topa 2020a
2. Lu and Luo 2003
3. Yuan, Gu, and Han 2009

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