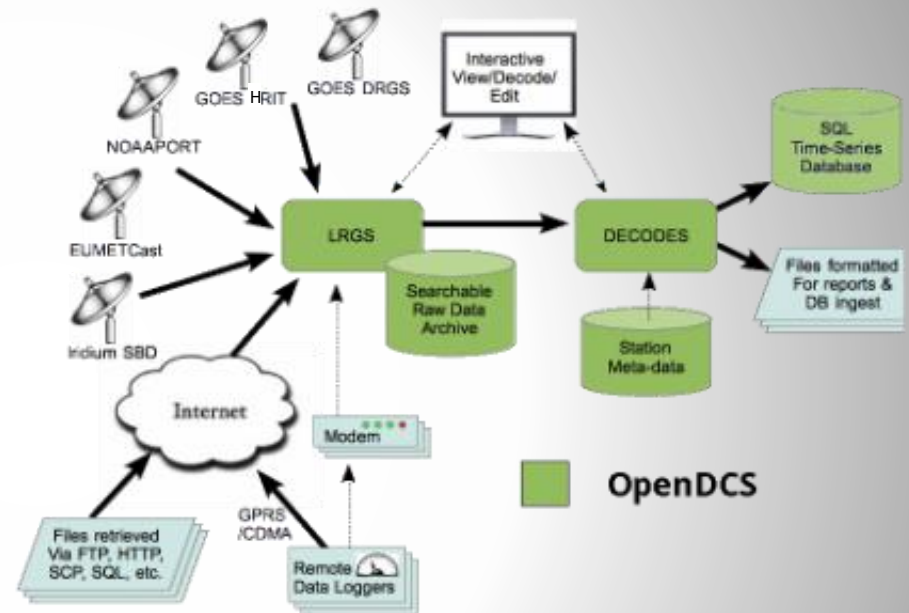


# OpenDCS Primer

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Technical Working Group  
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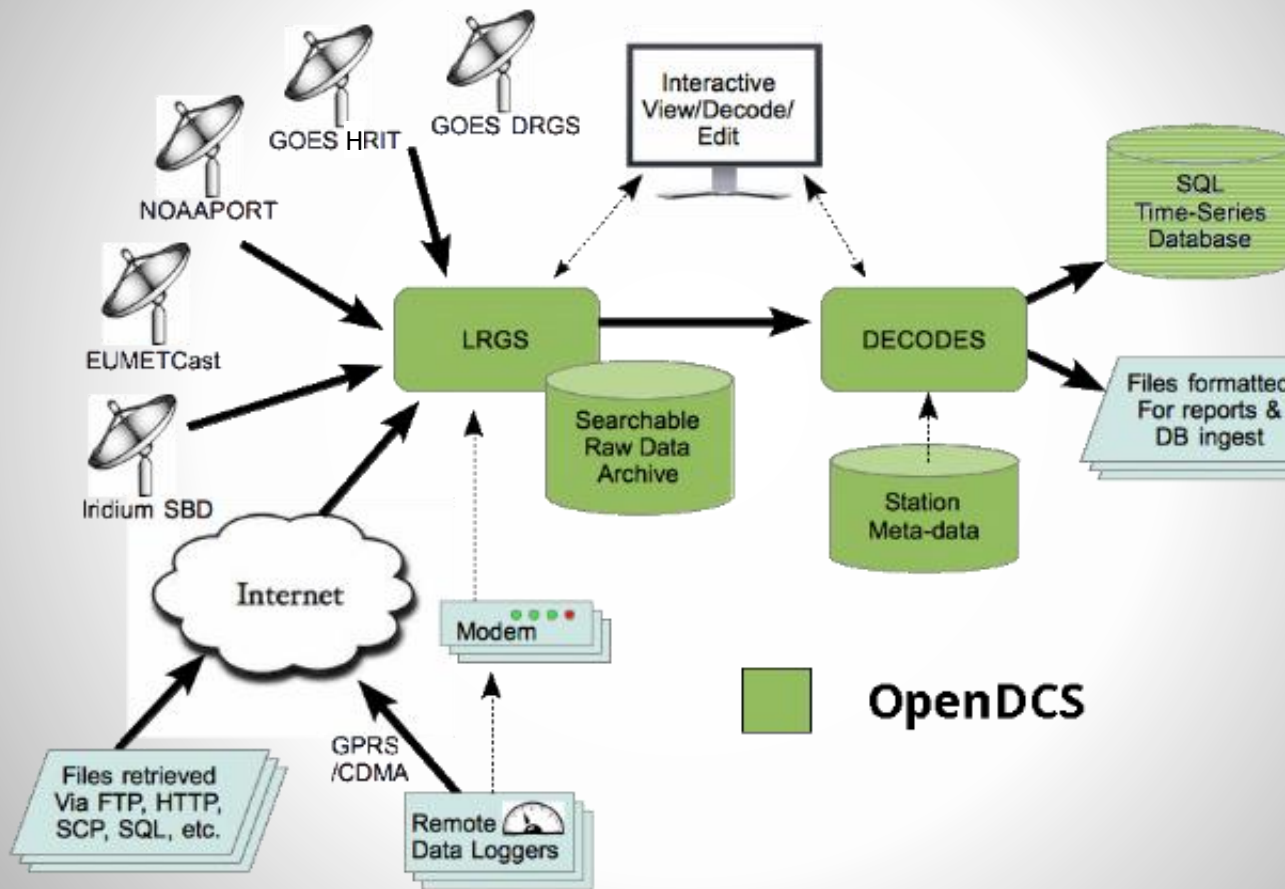


# Agenda

- What is OpenDCS?
- Why choose OpenDCS?
- OpenDCS Requirements (How to OpenDCS?)
- Where to get OpenDCS?
- Raw/Decoding Demonstration
- Review/Conclusion

# What is OpenDCS?

## 1. Data Acquisition and Decoding



2. Computation Processor and Database- Out of scope for this training!

# Why choose OpenDCS?

- Shared Scripts, especially from DCP owners!
- Open Source Community Support
- Wide adoption in GOES community
  - USACE
  - NOAA
  - Bureau of Reclamation
  - States and Provinces
  - Many others
- Long History

# OpenDCS Requirements

- Java 8+ running anywhere
- Data Source
  - LRGS (Local Readout Ground Station)
    - Internet from NOAA, USGS
    - Host your own
      - feed from Internet, HRIT, DRGS, Iridium, etc.
  - Data Files and Web Sources
- Configuration
  - Decode scripts, platform knowledge, scheduling
- Data Sink
  - Databases, Files, etc.

# Where to get OpenDCS?

GitHub for code, discussions, issues and releases

- <https://github.com/opendcs/opendcs>
- <https://github.com/opendcs/opendcs/releases>

OpenDCS mailing list

- <https://www.freelists.org/list/opendcs>

Documentation installed as PDF, also online at

- <https://opendcs-env.readthedocs.io/en/7.1/>

# Configure Decoding

- Database Editor
  - Data storage in XML files or SQL databases
  - Sites - Metadata including Lat/Long/Elevation
  - Platforms - Can be aggregate of sites
  - Config - Can be shared between Platforms
  - Decoding Scripts - Specific to Config
    - Should be tested

# LRGS Message Header

## Before Message Display Format Hint:

NESDISIDYYDDHHMMssCdbFOMQchnSCDTXLEN\n  
3475742A22213210742G46+0NN172WUP00122<DCP message data>

DCP ID	Julian Date	Time	Failure ?	Signal Strength	Freq. Offset	Modulation Quality	Data Quality	Channel	Spacecraft	UplinkCarrier Status	Message Length
NESDISID	YYDD D	HHMMs s	C	db	FO	M	Q	chn	S	CD	TXLEN
3475742A	22213	210742	G	46	+0	N	N	172	W	UP	00122

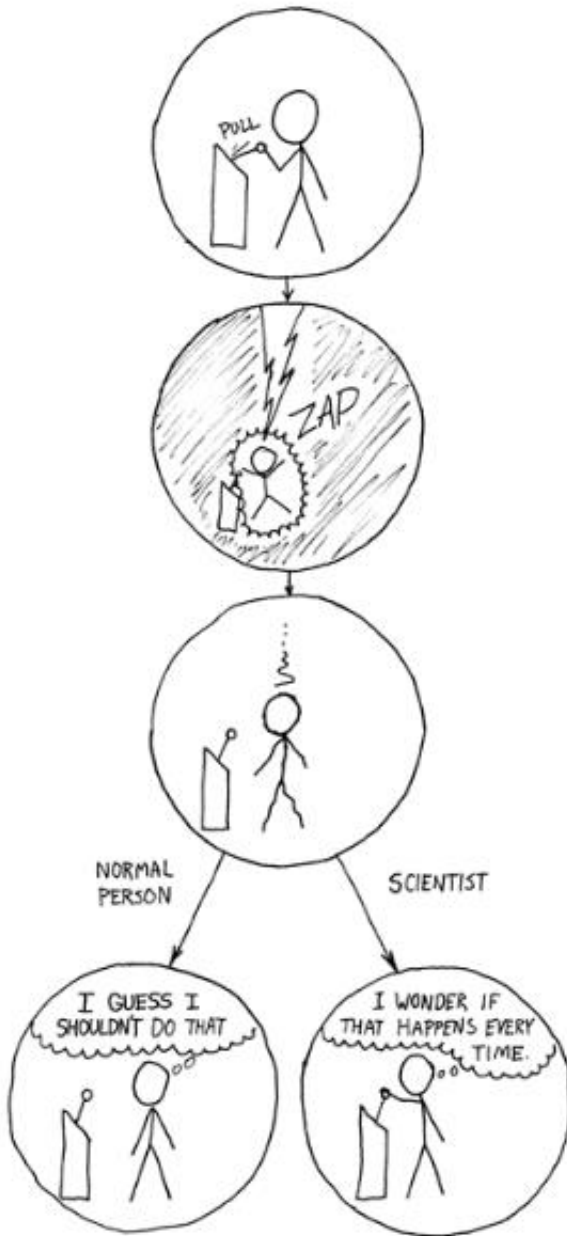
More details in

[LRGS Message Header Reference](https://opendcs-env.readthedocs.io/en/7.1/lrgs-userguide.html#dcp-message-content)

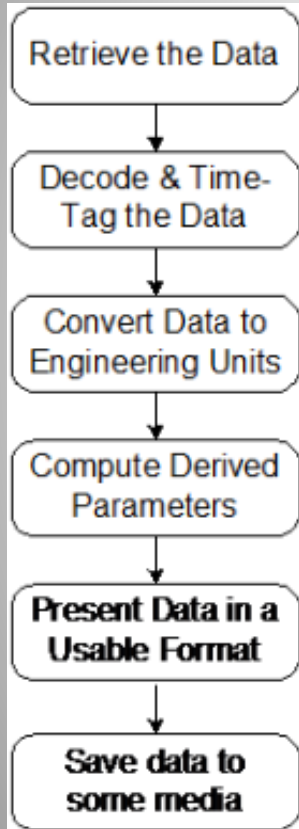
<https://opendcs-env.readthedocs.io/en/7.1/lrgs-userguide.html#dcp-message-content>



# Warning: Live Demonstrations Ahead



# Metadata and Decoding Demo



## Raw:

DD71A01E22211075154G47-3NN164WXW00078  
BST@Du@HYAUZ@Du@HYAUb@Du@HYAR{@Du@HYATp@Du@HYATz@Du@HYAWt@Du@HYAYe@  
Du@HYAN|h

## Decoded:

Message for Platform 06620000-SU8200D-1

	STAGE	BATVT	Precip	ATemp
	00065	70969	72192	00021
UTC	ft	volt	in	deg F
07/30/2022 06:00:00	3.09		5.37	50.52
07/30/2022 06:15:00	3.09		5.37	57.33
07/30/2022 06:30:00	3.09		5.37	56.2
07/30/2022 06:45:00	3.09		5.37	54.34
07/30/2022 07:00:00	3.09	12.8	5.37	54.24
07/30/2022 07:15:00	3.09		5.37	53.07
07/30/2022 07:30:00	3.09		5.37	54.74
07/30/2022 07:45:00	3.09		5.37	54.66

# Conclusion

- OpenDCS
  - Decoding scripts are the real crux of the solution
  - Heavily used in many forms
    - Computation Processor and SQL Database storage
  - Java Open Source project
  - Community support and contributions welcome

# Questions?

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