



DAWBEE Station

Hardware and Software Specification

Author: Anthony Patchett



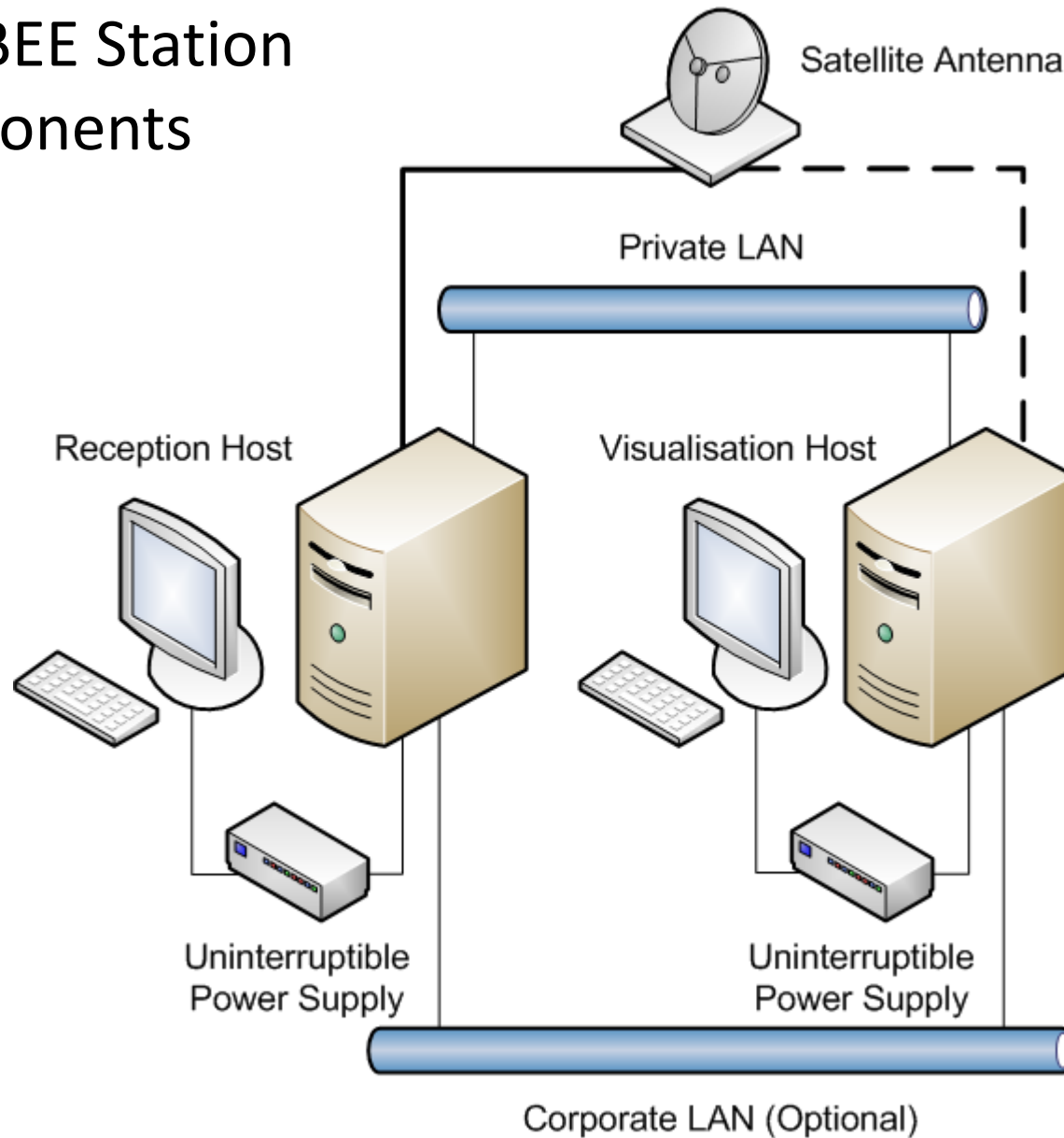
Overview

- DAWBEE Station Components
 - Satellite Antenna
 - Reception and Visualisation Hosts
 - Uninterruptible Power Supplies
 - Local Area Networks
- Operating Configurations

Full details can be found in the following document:

DAWBEE Station – Hardware and Software Configuration (EUM/OPS/TEN/10/1994)

DAWBEE Station Components





Satellite Antenna



- The actual size of the antenna depends on the geographical location.
- The antenna is pointed at Eurobird 9 to receive the DVB-S signal that contains the EUMETCast data.
- The antenna is equipped with a dual LNB to which the reception host and, for redundancy, the visualisation host are connected via two high-quality coax cables.
- The installation and pointing of the antenna along with the laying of the coax cables is performed by a local company that has experience in antenna installation.
- In some locations it may be necessary to install a heating element to protect the antenna from snow and ice (this is the responsibility of the local site).
- If the immediate surroundings of the antenna do not provide sufficient lightning protection it may also be necessary to install a suitable lightning protector (this is also the responsibility of the local site).



Satellite Antenna Specification

- Offset-fed parabolic dish (minimum diameter is 1.0m)
- Low-noise universal dual LNB¹
- Two high-quality, low-loss, shielded coax cables
- Heating element (optional)
- Lightning protector (optional)

¹ If the antenna is to be shared with other reception equipment (e.g. a RETIM reception station) then a universal quad LNB is recommended. The use of splitters can lead to reception problems and is therefore strongly discouraged.



Reception and Visualisation Hosts

- In order to provide the maximum flexibility and redundancy the reception and visualisation hosts are both implemented using the same hardware and software platform.
- Both hosts consist of a commodity PC each with a DVB-S2 PCI card installed and two Gigabit Ethernet network interfaces.
- In order to protect them from power spikes, fades and outages they are both connected to dedicated uninterruptible power supplies.
- The operating system is Windows for both the reception and the visualisation hosts because the processing/visualisation software only runs on Windows.
- The EUMETCast Client software is used to receive the EUMETCast data from the satellite antenna and store it as data files on the local hard disk drive. This software is installed on both hosts, however, it will only be active on one of the two hosts at any given time.
- In order for the EUMETCast Client software to be able to decrypt the encrypted EUMETCast data each host is equipped with a USB dongle known as an EKU (EUMETCast Key Unit).
- The MSGProc and ViewMSGProc software are used together to process and visualise the received EUMETCast data. This software is installed on both hosts.



Reception and Visualisation Hosts Specification

- DELL OptiPlex 380:
 - Chassis: Mini-Tower with 255W (88% efficient) PSU
 - CPU: Intel Core 2 Duo E7500 (2.93GHz)
 - RAM: 4GB DDR3 SDRAM
 - HDDs: 2x 750GB 3.5" SATA (7200 RPM)
 - Graphics: 256MB NVIDIA GeForce 9300GE (PCI card)
 - USB: 8x USB 2.0 ports (on-board)
 - Network: Broadcom BCM 57780 Gigabit (on-board)
Netgear GA311 Gigabit Ethernet Adapter (PCI card)
 - DVD: DVD-Writer (16x DVD +/- RW)
- SkyStar S2 (DVB-S/DVB-S2 PCI card)
- Dell P2310H 23" Wide HAS monitor (1920x1080 pixels)
- Dell Quitekey USB keyboard (US/Euro layout)
- Dell USB optical mouse
- EKU (EUMETSAT Key Unit)



Reception and Visualisation Hosts Specification

- OS:
 - 64-bit Windows 7 Professional (English)
- Applications:
 - Adobe Acrobat Reader >= 9.3
 - JRE >= 6 update 20
 - DVB Driver >= 4.5.1
 - PKI Client >= 4.5
 - Tellicast Client >= 2.4.4a
 - EFTS Agents >= 3.00
 - FileZilla Server >= 0.9.36
 - ImageMagick >= 6.6.1-4
 - MSGProc >= 2.1.244
 - ViewMSGProc >= 2.1.4

Operating Configurations

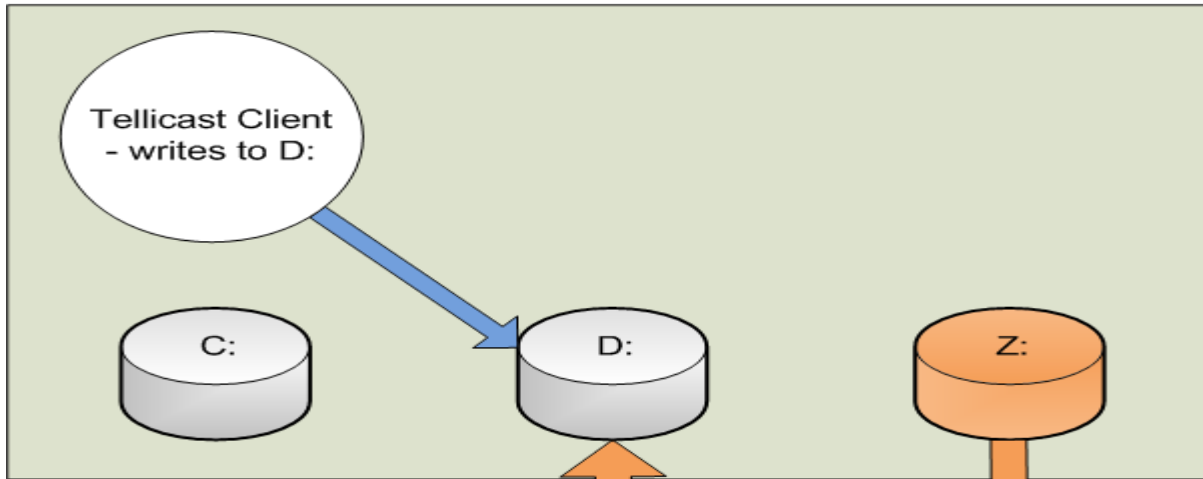
Configuration	Reception Host	Visualisation Host
Nominal	EUMETCast Client	MSGProc ViewMSGProc
Distributed-Data-Processing ¹	EUMETCast Client MSGProc	ViewMSGProc
Degraded ²	EUMETCast Client MSGProc ViewMSGProc	Offline
Degraded ²	Offline	EUMETCast Client MSGProc ViewMSGProc

¹ Although the distributed-data-processing configuration is technically possible, it is not foreseen to use it initially.

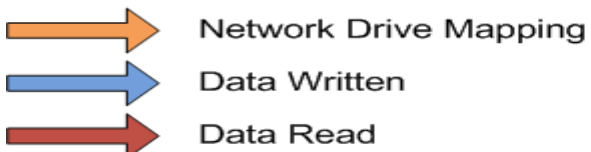
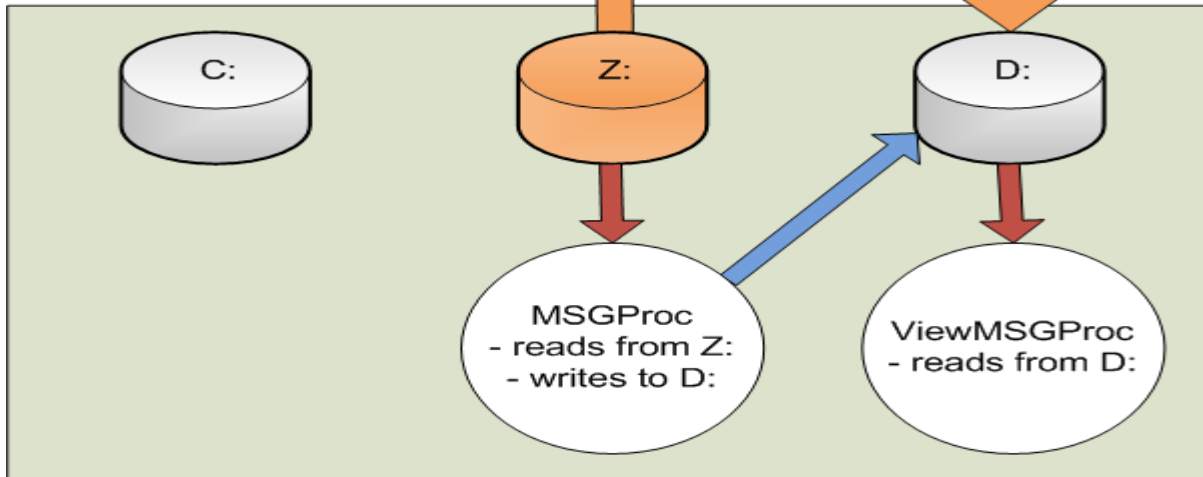
² In the degraded configuration it may not be possible to process the full set of data that is normally processed in the nominal or distributed-data-processing configurations.

DAWBEE Station – Nominal Mode

Reception Host

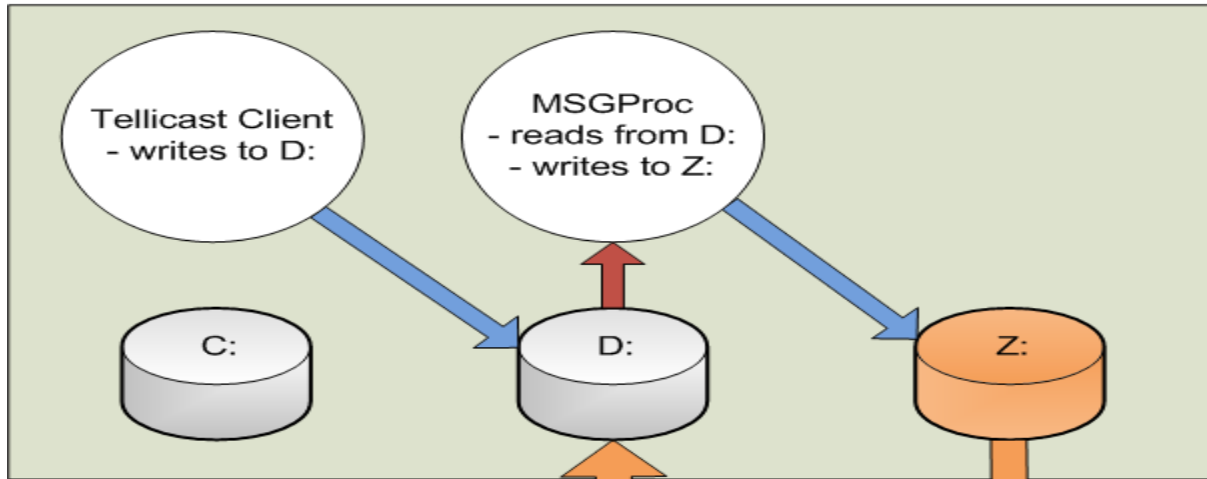


Visualisation Host

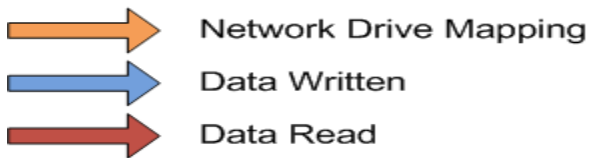
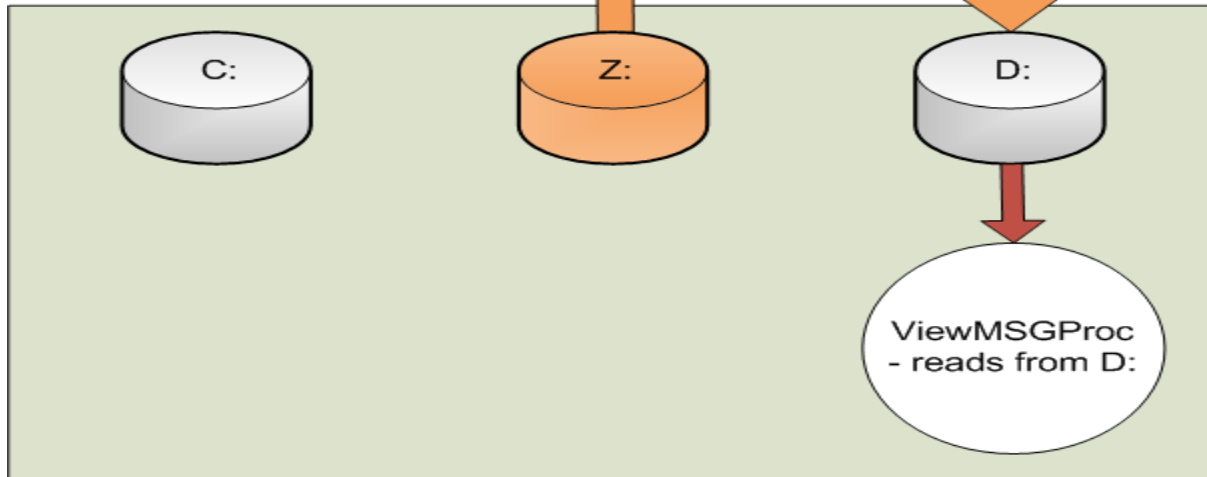


DAWBEE Station – Distributed Mode

Reception Host

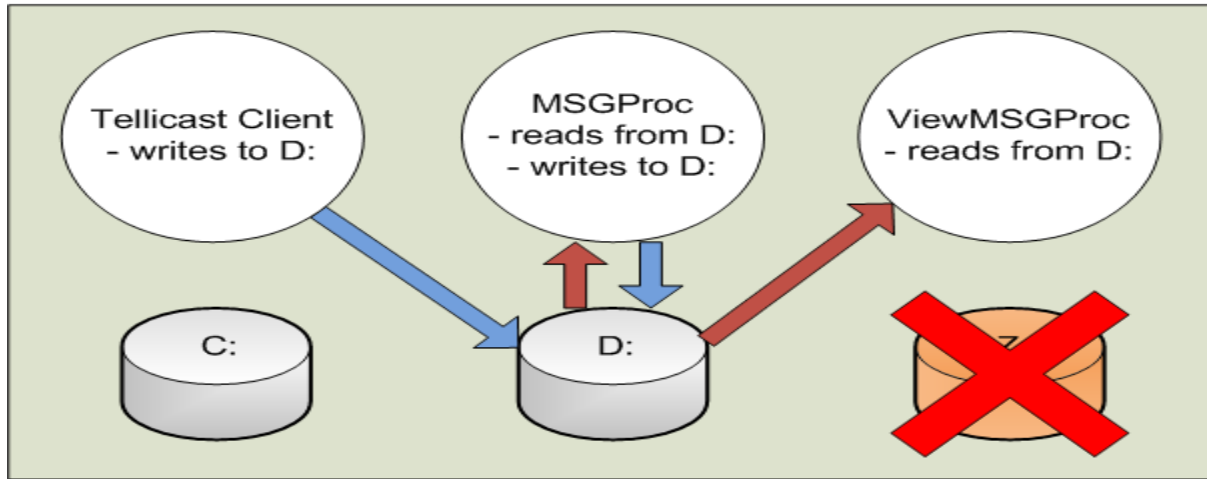


Visualisation Host

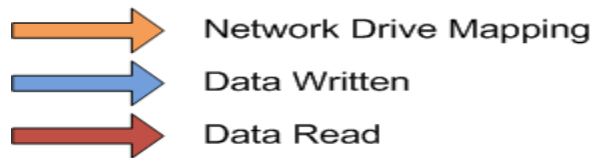
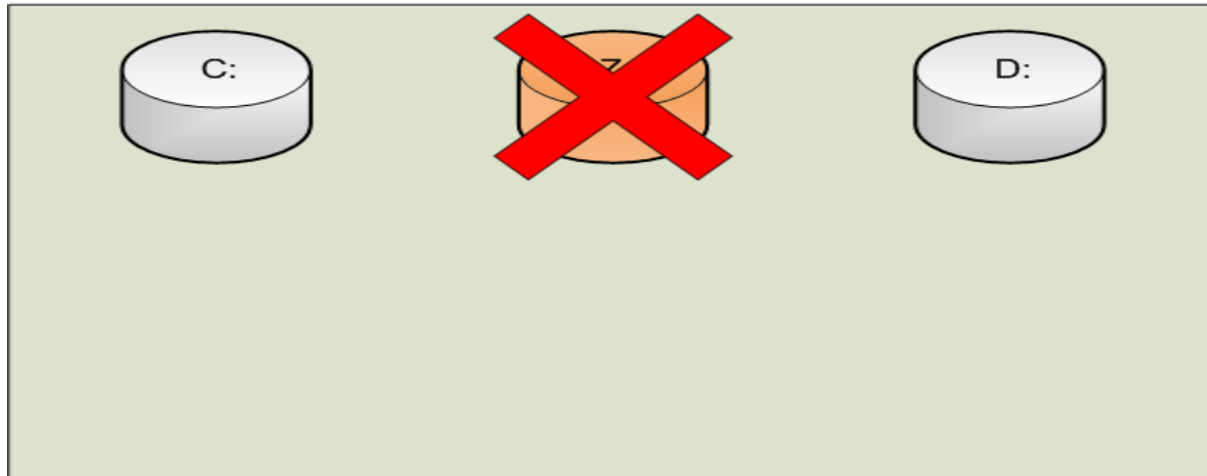


DAWBEE Station – Degraded Mode

Reception Host



Visualisation Host





Uninterruptible Power Supplies

- The reception and visualisation hosts are each connected to an uninterruptible power supply (UPS) to protect them from power spikes, fades and outages.
- In order for the UPS to communicate information to the host about the status of the power supply it is connected via a USB cable to the host.
- In the event of a prolonged power outage (e.g. > 30 minutes) the hosts will automatically perform a graceful shutdown.
- Each UPS should be connected to a separate commercial power supply socket.



Uninterruptible Power Supplies Specification

- The two uninterruptible power supplies are both APC BACK-UPS RS 800VA 230V with the following specification:
 - Input:
 - Nominal Input Voltage: 230V
 - Input Frequency: 47 - 63 Hz
 - Input Connections: IEC-320 C14
 - Input voltage range: 175 - 295V
 - Input voltage adjustable range: 160 - 300V
 - Output:
 - Output Power Capacity: 540 Watts / 800 VA
 - Max Configurable Power: 540 Watts / 800 VA
 - Nominal Output Voltage: 230V
 - Output Connections: (2) IEC 320 C13 (Surge Protection)
(4) IEC 320 C13 (Battery Backup)
 - Communications:
 - Interface Port(s): USB
 - Control Panel: LED status (On-Line, On-Battery, Overload)
 - Audible Alarm: On-Battery, Low Battery



Local Area Networks

- Connectivity between the reception and visualisation hosts is provided via a private LAN that is implemented using a cross-over network cable that is connected directly to both hosts.
- The reception and visualisation hosts may also be optionally connected to the corporate LAN thus providing connectivity to other hosts and/or the Internet.
- This connectivity could also be used for providing remote access to both of the hosts.
- The provision of the connectivity to the corporate LAN is the responsibility of the local site.



Local Area Networks Specification

- The minimum specification for the private LAN is 100Mbps, full-duplex connectivity.
- The minimum specification for the corporate LAN is 100Mbps, full-duplex connectivity.