



Advenica Data Diode Engine

Purpose-built proxy software for unidirectional network solutions



Key features and benefits

- Optimised for performance and secure data transfer over ethernet-based data diodes.
- Manage and run data diode services from Advenica.
- UDP and TCP services included. Additional services available on request.
- Runs on standard server or PC.
- Easy to scale installations.
- Intuitive system management and configuration tools supporting multiple installations.

Technical brief

- Support for Linux (Debian and Ubuntu distributions).
- Integrated forward error correction for minimal data loss.
- Always-on data encryption between up- and downstream Data Diode Engines.
- Containerized solution using Docker.
- Ansible support for automated system setup.
- Developed according to IEC 62443 4-1 product development requirements.

The Data Diode Engine is a standalone proxy software solution that enables efficient and secure data transfer through any ethernet-based data diode from Advenica. In combination with ready-to-use software services it enables use case specific network segmentation solutions for a variety of installation environments.

Powering persistent cybersecurity

Protecting mission critical infrastructure from downtime or classified information from leakage often leaves no option but to isolate the system completely from unsecured networks, using an air gap solution. Air-gapped systems, however, come with several cybersecurity related challenges. All interaction with the isolated network, such as software updates or extraction of data, must be handled manually introducing the risk of human error as well as inconvenience. A data diode is a network device which guarantees unidirectional data flow, achieving the protective characteristics of air gap and at the same time enabling automation of data flow in the allowed direction. Persistent unidirectional data flow is guaranteed in hardware, ensuring a robust solution regardless of how the system is configured.

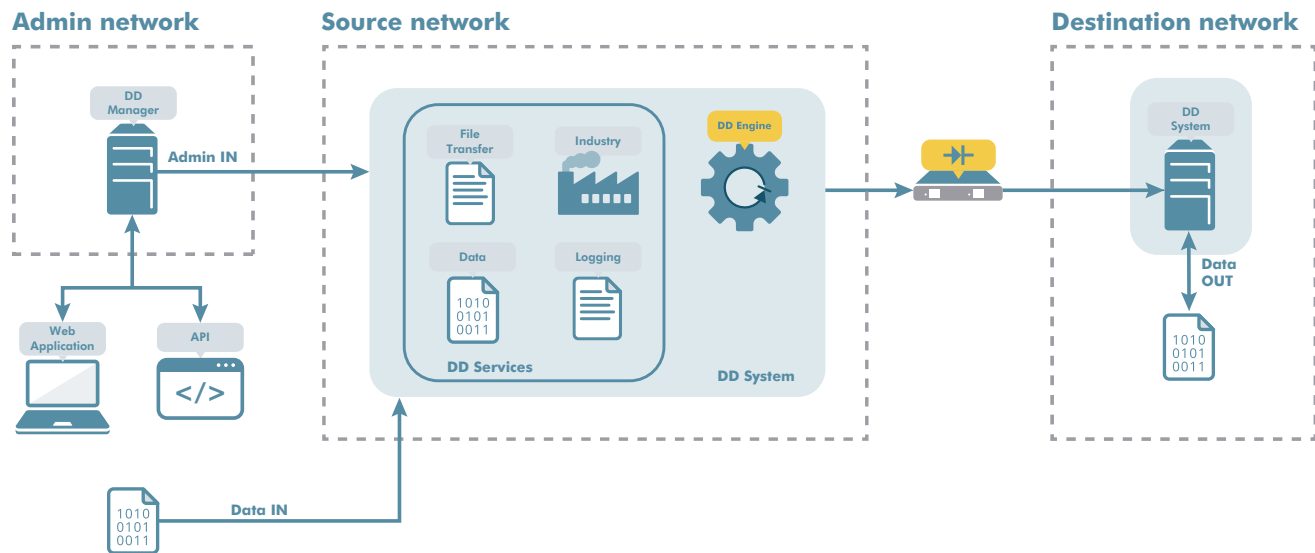
Unidirectional network solutions made easy

A complicating factor when designing unidirectional network solutions is that most applications require bi-directional communication, making data diodes difficult to integrate. The Data Diode Engine is a standalone proxy software which takes care of the conversion between bidirectional and unidirectional data flow. This ability significantly lowers the impact on surrounding systems when integrating data diodes. The Data Diode Engine can be used with any ethernet-based (layer 2) data diode and combined with all application specific services from Advenica, enabling the creation of unidirectional network segmentation solutions that are both scalable and cost efficient.

Seamless integration

The Data Diode Engine can seamlessly be designed into a new system, be an additional component in an integrated solution, or extend an existing installation of ethernet-based (layer 2) diodes with more functionality. Supported on established Linux-based operating systems, and different types of hardware – a Data Diode Engine installation can easily be optimized for your specific system requirements.

System overview



Technical data

Purpose-built proxy software for unidirectional network solutions.

Supported operating systems

Linux (Debian, Ubuntu)
Arm/Raspbian

Hardware & performance

The following recommendations assume optimising for performance. For more information, please see the online documentation.

CPU alternatives

Intel Haswell based (Xeon v3, Core 4xxx) or newer
AMD Zen based (Epyc, Ryzen 1xxx) or newer

Networking

1 Gbps interfaces

Memory

4GB (service dependent)

Performance

Compatible with 1Gb ethernet-based (layer 2) data diodes using recommended hardware.

Software requirements

Docker for Linux
Ansible



Configuration & management

System setup

Ansible playbook collection for automated system setup.

Configuration

Configuration and management of Data Diode Engine systems including services using DD Manager.

Options:

- Web application
- REST API

Related products/combine with

Data Diodes

Advenica DD1G/DD1G gen2
Advenica SecuriCDS DD1000A

Data Diode Services

The Data Diode Engine comes with a growing library of services covering a large number of use cases. UDP and TCP services are included. For a complete list of available services, please see our online documentation.

Advenica provides expertise and world-class high assurance cybersecurity solutions for critical data in motion up to Top Secret classification. We enable countries, authorities and companies to raise information security and digitalise responsibly. Founded in 1993, we are EU approved to the highest level of security. Our unique products are designed, developed and manufactured in Sweden.

[Read more at advenica.com](https://advenica.com)

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