Windows Server 2012
Certified

Works with **Windows Server® 2008 R2**

ONE-WAY COMMUNICATION WITH WINDOWS SERVERS

Fox DataDiode
Windows Core

There are critical scenarios where networks are disconnected for security reasons. For example in government infrastructures there is secret information stored in disconnected classified networks to prevent data leakage. In industrial environments networks are disconnected to prevent people from sabotaging critical control networks. In other words, air gaps are used to either keep the bad stuff out or the good stuff in, rigorously.

The Fox DataDiode is essentially an automated high-speed certified airgap. It physically enforces one-way traffic of data. This prevents data from going in the wrong direction, intentionally or by accident. Most network protocols assume bi-directional flow of information. In one-way scenarios these protocols don't work out of the box. In order to make them work you need software that converts bi-directional protocols to one-way protocols and vice versa. The Windows Core software does exactly that.

DATADIODE
BY FOX IT

Basic Protocol Support

The functionalities provided by the Windows Core software are:

- **TCP:** A transparent TCP socket to which you can write information that arrives in the downstream domain (IPv4 & IPv6)
- **UDP:** Forward UDP datagrams to the downstream domain (IPv4 & IPv6)
- **Files, Directories:** Transfer files and directories dropbox-style to the downstream domain
- **High Availability:** Create a redundant setup that is resistant to hardware and software failures

Prerequisites:

- One Fox DataDiode
- Two Windows servers, with installed:
  - » Microsoft Windows Server
    - » 2012
    - » 2008 or 2008 R2
    - » 2003 or 2003 R2
  - » Microsoft.NET framework version 3.5 SP1
  - » WinPCAP version 4.1 or later
- Minimal server hardware requirements:
  - » Intel Xeon E5500 series processor
  - » 2GB DDR3 RAM
  - » 40GB free disk space
  - » IEEE-802.3z Gigabit Ethernet 1000Base-SX NIC
  - » 1 additional network interface

Fox-IT prevents, solves and mitigates the most serious threats as a result of cyber-attacks, fraud and data breaches with innovative solutions for government, defense, law enforcement, critical infrastructure, banking, and commercial enterprise clients worldwide. Our approach combines human intelligence and technology into innovative solutions that ensure a more secure society. We develop custom and packaged solutions that maintain the security of sensitive government systems, protect industrial control networks, defend online banking systems, and secure highly confidential data and networks.

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The Fox DataDiode guarantee

To transfer information from the upstream domain to the downstream domain generally the following things happen


1. Computers in the upstream domain submit information to the upstream proxy server.
2. The Windows Core installed on the upstream proxy server transmits the information to the downstream proxy server through the Fox DataDiode using an optimized, forward error correcting, integrity preserving, reliable one-way protocol.
3. The Fox DataDiode does not alter the information but enforces one-way traffic at the most fundamental level of the protocol stack; the physical layer.
4. The Windows Core software installed on the downstream proxy reassembles the received data, checks its integrity and makes it available to systems in the downstream domain.

The assurance of the "one-wayness" of the connection is warranted in the Fox DataDiode hardware. The integration between the up- and downstream networks is provided by the Fox DataDiode software. Apart from Windows, this software is also available for Linux and as a turn-key appliance.

Architecture

Both proxy servers run Microsoft Windows Server. On top of this the Fox DataDiode Windows Core software is installed as a service. The software is distributed as an easily installable package. Configuration is done using a wizard.

With the basic protocols supported by the Windows Core software you can build any one-way solution. Fox-IT offers a rich collection of case studies and application sheets for varying solutions which include: database mirroring, Windows Server Update Services mirroring, antivirus definition updates, industrial protocols like Modbus, historians like PI, e-mail and many others.
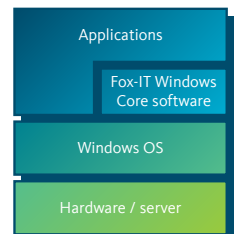
Benefits

Choosing for the Fox DataDiode means no more worries about data leakage and unauthorized manipulation of sensitive data. You may benefit from using the Fox DataDiode together with the Windows Core software in the following ways:

- **Reduce cost.** You can use existing servers to run Windows Core in addition to your applications. This allows you to have a uniform server hardware ecosystem.
- **Be in control.** Manage the Windows Core proxy servers the same way as the rest of your Windows environment. You don't need to manage a different OS.
- **Easy and flexible.** You can easily integrate your middleware to leverage the automated air gap. This applies to everything from basic applications to the most complex enterprise systems, from mainstream software to tailor made solutions. Installation and configuration only takes a few minutes.

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