

FAQ

Unless otherwise noted, answers apply to both the Arbit Data Diode (non-HighSpeed variant) and the Arbit HighSpeed Data Diode.

Integrity

Q. I need to place the pitcher and the catcher widely separated resulting in package loss through the fiber. Can I increase the error correction level to compensate?

A. Yes. The Arbit Data Diode can increase the error correction level by several factors, but this increase will of course reduce the throughput of the data diode.

Q. The fiber cable has been damaged. Will I loose data unless I stop the pitcher?

A. No. The Arbit Data Diode has a strict transaction control which ensures that no data will be lost, even if the fiber is damaged or cut. When the fiber is replaced you will be able to retransmit the affected transactions directly from the pitcher web interface. The catcher will inform you about which transactions are missing.

Q. Due to a damaged fiber I need to retransmit 300 transactions.

Can I do that in one go or am I forced to repeat the same action 300 times?

A. You can retransmit 1000 transactions at the same time by specifying an interval of transaction ids.

Q. Does the data diode support automatic retransmission?

A. Yes and no. The data is always transmitted more than once. How many times it is transmitted is configurable. However, once a transaction has failed due to a damaged fiber or some other problem it will not be retransmitted until a retransmission is initiated by the administrator.

Data channels

Q. Can I have more than one data channel through the diode?

A. Yes. The Arbit Data Diode supports 32 data channels through each diode. However, they all share the same bandwidth through the data diode.

Q. Can I prioritize which data channels should be transported first?

A. Yes. On the Arbit Data Diode (non-HighSpeed variant) all data channels can either have a strict priority order or use round robin. Prioritized data channels ensure that a waiting transaction in a higher prioritized data channel is transmitted before any waiting transactions in lower prioritized data channels. Using the Arbit HighSpeed Data Diode, all transfers are occurring simultaneously.

Q. The diode is currently transmitting a DVD image on a low priority data channel. I have an urgent transmission inbound on a higher prioritized data channel.

Can it suspend the lower priority transaction and pass through the urgent transmission without delay?

A. Yes. Using the Arbit HighSpeed Data Diode, all transfers are occurring simultaneously.

On the Arbit Data Diode (non-HighSpeed variant), all transactions are performed in serial, so on that system the urgent transmission would have to wait for the lower prioritized transmission to complete.

Overload

Q. Do I have to protect the diode from data overload?

A. No. The Arbit Data Diode has a back pressure mechanism which enables it to shut down incoming traffic from the low side network, if its disk space runs low. The traffic is automatically re-enabled when disk space no longer is critical.

Q. Due to extraordinary circumstances the data flow through the diode has increased significantly. Can I avoid the pitcher exerting back pressure?

A. Yes, by manually activate safe points at regular intervals, the pitcher will be able to safely clear its cache and avoid critical disk space.

Administration

Q. Do I need to check the diode on a daily basis?

A. No. The Arbit Data Diode sends an email to the administrator if a problem is detected.

Q. How do I get statistics?

A. The Arbit Data Diode emails daily statistics to the administrator including number of transactions, amount of data transported and number of transmission errors during the last 24 hours.

Customization

Q. Is the diode a black-box or can I customize it in any way?

A. Both pitcher and catcher are based on standard linux servers. You can customize software firewall, data send/receive methods, remote logging etc.

Q. Can the diode be modified to handle special tasks that my business requires?

A. Yes. The Arbit Data Diode has an open API where methods for receiving or sending new data can be implemented for each data channel. The natively supported protocols also use the API and can be changed as needed.

Bandwidth and streaming

Q. What is the sustained throughput of the data diode on continuous transmissions?

A. The Arbit Data Diode (non-HighSpeed variant) has a speed of approximately 25 mbit/s of sustained throughput with full transaction control (250 GiB/day). The Arbit HighSpeed Data Diode has a speed of approximately 380 mbit/s of sustained throughput with full transaction control (4 TiB/day).

Q. Does the sustained throughput bandwidth also apply to more regular network traffic?

A. No. The Arbit Data Diode (non-HighSpeed variant) has a special burst feature which enables the data diode to increase the bandwidth of small transactions (with a combined size of 160 MiB or less), if the pitcher assesses that the catcher has not processed any other large transactions within the last few minutes.

The pitcher makes this assessment based on the amount of data it has recently sent to the catcher. The Arbit HighSpeed Data Diode runs a full speed continuously.

Q. What is the streaming bandwidth of the diode?

A. In UDP streaming mode the data diode delivers the full bandwidth of the diode connection (1 Gbit/s). In TCP streaming mode the data diode delivers half bandwidth (512 mbit/s). In both cases, this will be reduced if the diode connection is shared with other data channels.

Q. Can I transport files and emails through the diode while streaming?

A. Yes, but streaming runs in parallel with the transaction controlled transports. Heavy use of streaming will result in a higher retransmission rates.

Q. Can I forward a TCP/IP stream through the diode?

A. Yes, but the data is transported using UDP through the data diode. It is recommended that no other data is passed through the diode while forwarding TCP/IP streams, as the high side receiver of the stream may fail to process the information if it is partial. Of course, no answers will pass back through the data diode from the receiving side.

Q. Can I have more than one data channel through the diode?

A. Yes. The Arbit Data Diode supports any number of data channels through each diode. However, they all share the same bandwidth through the data diode.