Connect:Direct for UNIX V4.2.0.2 Release Notes

OVERVIEW

The FASP network protocol is ideal for transferring files over high bandwidth/high latency network connections. At low latency it performs similarly to TCP/IP. However, as latency and packet loss increase, unlike TCP/IP, its performance does not degrade, and FASP continues to be able to take advantage of all the available bandwidth.

Note: Secure+ is used to secure FASP transfers exactly the same way it's used for TCP/IP transfers.

By default, FASP is not enabled. To enable FASP, follow the steps outlined below.

STEPS TO ACTIVATE

1) Obtain an Aspera license for your Connect:Direct node from Passport Advantage.

2) Rename the file *aspera-license.*

3) Save the renamed license file to the *<d_dir>*/ndm/bin directory.

4) Download and install the Connect:Direct for UNIX V4.2.0.2 fix pack from Fix Central. See the install guide for more information.

   Note: The install package includes the Aspera FASP file (aspera.conf*).* This is the FASP configuration file and contains the minimum necessary basic configuration statements for FASP. It is always installed even if you do not purchase FASP. Do NOT make any changes to this file.

ENABLE FASP

FASP configuration settings are not added to the Connect:Direct configuration files during install. To enable FASP transfers, you must manually configure FASP in the initparm.cfg and netmap.cfg files. Follow these steps:

1. Configure the initparm.cfg file by specifying a FASP listen port or port ranges. Format is
   ```
   listen.ports=(nnnnn, nnnnn-nnnnn)
   ```
   Example:
   ```
           # FASP listen ports
           fasp:\
                :listen.ports=(44001, 33002-33005):
   ```
   Note: The number of concurrent FASP processes is limited to the number of ports designated in this file. If you attempt to use more concurrent FASP processes than there are ports available fails, FASP fails.

2. Configure the netmap.cfg file by specifying FASP values for the local node and remote node records.

   * Local Node record: set the values according to the following chart.
     Example:
     ```
     local.node:\
     ```

```
…
    :fasp=yes:\
    :fasp.policy=fair:\
    :fasp.bandwidth=500MB:\
    :fasp.filesize.threshold=2GB:\
```

Parameter	Value
fasp	Optional. Default is no if the parameter is not present. Enables FASP. • If set to no, FASP is disabled. • If set to yes, FASP is enabled. This sets the default for all Connect:Direct File transfers. • These settings can be overridden by the remote node record or process parameters. • The remote server must have FASP enabled.
fasp.filesize.threshhold	Optional. Used to restrict small files from being sent using FASP. • If file is greater than or equal to the stated value, the Connect:Direct server sends the file using FASP. Otherwise, it is sent using TCP/IP. • Default is 1G. • You can use KB, MB or GB designators. If no designator used, bytes are assumed. • This setting can be overridden by the remote node record or process parameters.
fasp.bandwidth	Optional. Default is as stipulated in the FASP license. Specifies how much bandwidth each transfer can use. • Default value can be changed, but cannot exceed the bandwidth specified in the license. • You can use KB, MB or GB designators. If no designator used, bits are assumed. • Setting can be overridden by the remote node record or process parameters, but cannot exceed the bandwidth specified in the license.

fasp.policy	Optional. Specifies the fairness of each transfer. Default is fair.
	• This setting can be overridden by the remote node record or process parameters.
	• Valid values are:
	  ➢ Fixed – FASP attempts to transfer at the specified target rate, regardless of the actual network capacity. This policy transfers at a constant rate and finishes in a guaranteed time. This policy will typically occupy a majority of the network's bandwidth, and is not recommended in most file transfer scenarios. In this mode, a maximum (target) rate value is required.
	  ➢ Fair – FASP monitors the network and adjusts the transfer rate to fully utilize the available bandwidth up to the maximum rate. When other types of traffic builds up and congestion occurs, FASP shares bandwidth with other traffic fairly by

| | transferring at an even rate. In this mode, both the maximum (target) and the minimum transfer rates are required. This is usually the best option. |
| | ➢ Low - Similar to Fair mode, the Low (or Trickle) policy uses the available bandwidth up to the maximum rate, but much less aggressive when sharing bandwidth with other network traffic. When congestion builds up, the transfer rate is decreased all the way down to the minimum rate, until other traffic retreats. |

- (Optional) Remote Node record: set the values according to the following chart. Configure the remote node if you need to override your local node settings. For example, if you want to exclude a trading partner from using FASP. You can also configure the remote node record later.

Example:

```
myRmtNodePartner:\
     …
     :fasp=yes:\
     :fasp.policy=fair:\
     :fasp.bandwidth=1GB:\
     :fasp.filesize.threshold=1GB:\
```

Parameter	Value
fasp	Optional. Valid values are yes and no. Enables FASP. • If set to no, files sent to this remote node will not use FASP. • If set to yes, files sent to this remote node will default to use FASP instead of TCP/IP. This setting can be overridden by the process parameters. • The remote server must have FASP enabled.
fasp.filesize.threshhold	Optional. Used to restrict small files from being sent using FASP. • If file is greater than or equal to the stated value, the Connect:Direct server sends the file using FASP. Otherwise it is sent using TCP/IP. • Default is 1G. • You can use KB, MB or GB designators. If no designator used, bytes are assumed. • This setting can be overridden by the process parameters.
fasp.bandwidth	Optional. Default is as stipulated in the FASP license. Specifies how much bandwidth each transfer can use. • Default value can be changed, but cannot exceed the bandwidth specified in the license. • You can use KB, MB or GB designators. If no designator used, bits are assumed. • Setting can be overridden by the process parameters, but cannot exceed the bandwidth specified in the license.

fasp.policy	Optional. Specifies the fairness of each transfer. Default is fair.
	• This setting can be overridden by the process parameters.
	• Valid values are:
	   ➢ Fixed – FASP attempts to transfer at the specified target rate, regardless of the actual network capacity. This policy transfers at a constant rate and finishes in a guaranteed time. This policy will typically occupy a majority of the network's bandwidth, and is not recommended in most file transfer scenarios. In this mode, a maximum (target) rate value is required.
	   ➢ Fair – FASP monitors the network and adjusts the transfer rate to fully utilize the available bandwidth up to the maximum rate. When other types of traffic builds up and congestion occurs, FASP shares bandwidth with other traffic fairly by transferring at an even rate. In this mode, both the maximum (target) and the minimum transfer rates are required. This is usually the best option.
	   ➢ Low - Similar to Fair mode, the Low (or Trickle) policy uses the available bandwidth up to the maximum rate, but much less aggressive when sharing bandwidth with other network traffic. When congestion builds up, the transfer rate is decreased all the way down to the minimum rate, until other traffic retreats.

PROCESS OVERRIDE HIERARCHY

Once the FASP parameters for both trading partners have been set up properly, you can override the default settings on a process by process basis to perform exception processing. The system uses the following hierarchy to process overrides:

1. Remote node record overrides local node record

2. Process parameters override remote node record

3. Submit statement overrides the process parameters

4. Each Copy statement overrides the effective settings of the session established by the Node record settings. PROCESS or SUBMIT overrides for the duration of the COPY statement.

FASP MESSAGES

Note: Long text message files for these message IDs can be found in the msgfile.

Non-Detailed Statistics Mode (Message ID only)	Detailed Statistics Mode (Short text is shown in addition to message ID)
XFAS001E	XFAS001E: FASP server session creation failed.
XFAS002E	XFAS002E: FASP client session creation failed.
XFAS003E	XFAS003E: FASP could not be initialized.

XFAS004E	XFAS004E: Lock timeout.
XFAS005E	XFAS005E: Memory allocation failure.
XFAS006E	XFAS006E: Condition wait timed out.
XFAS007E	XFAS007E: No FASP listen ports available.
XFAS008E	XFAS008E: FASP disabled due to file size &FILESIZE < threshold &THRESHOLD
XFAS009E	XFAS009E: FASP session terminated unexpectedly.
XFAS010E	XFAS010E: SNODE refused FASP, FASP disabled.
XFAS011E	XFAS011E: FASP CRC verification failed.
XFAS020E	XFAS020E: Session Manager received invalid FASP control message.
XFAS021E	XFAS021E: FASP control message fragmented or invalid.
XFAS022E	XFAS022E: Session Manager failed to receive FASP control message.
XFAS023E	XFAS023E: The FASP control message to send exceeds the buffer size.
XFAS024E	XFAS024E: Session Manager failed to send FASP control message.
XFAS030E	XFAS030E: FASP license file not found.
XFAS031E	XFAS031E: FASP license file expired.
XFAS032E	XFAS032E: FASP license in error.
XFAS033E	XFAS033E: Malformed FASP license.
XFAS034E	XFAS034E: FASP license is malformed.
XFAS035E	XFAS035E: FASP License file at &LOCATION will expire in &VALUE day(s).
XFAS036E	XFAS036E: FASP initialization failed - remote &TYPE &NODE. Error=&ERROR.
XFAS041E	XFAS041E: FASP initialization failed - local &TYPE &NODE. Error=&ERROR.
XFAS042E	XFAS042E: FASP initialization failed.

MONITORING

You can view the Copy Termination Record (CTRC) for detailed statistics. For example, you can verify FASP was used, what bandwidth was used, and which policy was used.

In the example below, note the following explanations:

- FASP=>Y indicates that FASP was used to transfer this file.
- FASP=>N indicates TCP/IP was used.
- FSPL=>FAIR is the policy negotiated for this file transfer.

- FSBW=>1000000000 is the bandwidth negotiated for this file transfer.

Example:

```
PROCESS RECORD    Record Id =>   CTRC
Completion Code  => 0
Message Id        => SCPA000I
Short Text        => Copy step successful.
Ckpt=>Y  Lkfl=>N  Rstr=>N  Xlat=>N  Scmp=>N  Ecmp=>N CRC=>N
FASP=>Y  FSPL=>FAIR  FSBW=>1000000000  FMBC=>2  FBCS=>16777216
```

Note: The FSBW value is in bits.

LICENSED BANDWIDTH

The bandwidth available to a file transfer is limited by, among other things, the bandwidths specified in the sender's and receiver's Aspera licenses. Available licenses include an Endpoint license and four Datacenter licenses: 10gpbs, 1gbps, 300mbps and 100mbps. When both sender and receiver have Endpoint licenses, file transfer over FASP is not supported. When either the sender or receiver has an Endpoint license and the other has a Datacenter license, the available bandwidth is limited to the value in the Datacenter license. When both sender and receiver have Datacenter licenses, the bandwidth is limited to the larger of the two values in the Datacenter licenses.

LIMITATIONS

The following features cannot be used with FASP and Connect:Direct for UNIX:
- Silent installation does not support the FASP configuration parameters
- Firewall navigation source ports should not be used with FASP
- Connect:Direct for UNIX cannot use Sterling Secure Proxy for the FASP protocol