



NASDAQ NORDIC BANDWIDTH RECOMMENDATIONS (V3.6)

This document specifies the bandwidth recommendations for INET Nordic (Cash Equity trading), Genium INET (Equity Derivatives and Fixed Income clearing), Nordic Derivatives Trading System (Equity Derivatives trading) Genium Consolidated Feed (GCF/TIP market data) and FUSION FI (Fixed Income trading) Production environments.

For INET Nordic, Nordic Derivatives Trading System, GCF and FUSION FI (Fixed Income), the bandwidth recommendation is based on the type of port that a server connects to over a member network. The bandwidth is specified per port basis.

For Genium INET the bandwidth recommendation is specified based on server access rather than on a session basis.

NOTE: The figures specified in this document are only recommendations based on an average trading day during continuous trading. Unforeseen or unusual market behavior may result in higher bandwidth requirements. As an example, during market open/uncross, the bandwidth requirement may temporarily be significantly higher than the average bandwidth recommendation. Microbursts should also be considered when calculating bandwidth requirements.

NOTE: The calculations in this document refer only to production systems and additional bandwidth must be allocated for potential ITCH multicast re-requests. Additional bandwidth should also be allocated for accessing the test systems.

Cash Equity Nordic – Order Management and Market Data

Transportation protocol	Application protocol	Filtering (if applicable)	Recommended bandwidth (Mbps)	Comments
TCP	OUCH	N/A	0,1 – 0,4 *	Order management, based on a peak order/sec < 40 – < 225
TCP	FIX	N/A	0,2 – 0,8 *	Order management, based on a peak order/sec < 40 – < 225
UDP	ITCH	Nordic and Baltic Equities and Warrants	50 **	Market data (multicast)
TCP	ITCH	Nordic and Baltic Equities and Warrants	40	Market data (unicast)
TCP	ITCH	Nordic Equities	10	Market data (unicast)
TCP	ITCH	Stockholm Warrants	40	Market data (unicast)
TCP	ITCH	Stockholm Equities	10	Market data (unicast)
TCP	ITCH	Copenhagen Equities and Warrants	10	Market data (unicast)
TCP	ITCH	Helsinki Equities and Warrants	10	Market data (unicast)
UDP	NLS	Nordic and Baltic Equities and Warrants	5 **	Trade ticker feed (multicast), Nordic Equity Last Sale
TCP	NLS	Nordic and Baltic Equities and Warrants	5	Trade ticker feed (unicast), Nordic Equity Last Sale
TCP	TIP	Nordic Equities and Warrants	30 ***	Market data (unicast)

* The bandwidth recommendations for FIX and OUCH are based on the estimated peak order rate sent over that specific port. The bandwidth requirement for a drop port should be based on the recommendations above and the actual filtering of that drop port

** Additional UDP bandwidth might be needed for ITCH and NLS re-requests.

*** Please note that for TIP (GCF), multiple asset classes can be transmitted over a single connection or port. Consequently, the recommended bandwidth should be scaled proportionally based on the number of asset-classes/data-products configured on that connection

Nordic Derivatives – Order Management, Clearing and Market Data

Transportation protocol	Application protocol	Filtering (if applicable)	Recommended bandwidth (Mbps)	Comments
TCP	OMnet	N/A	4	Clearing only
TCP	OUCH	N/A	0,1 – 0,4	Order management, based on a peak order/sec < 40 – < 225
TCP	FIX	N/A	1	Order management
UDP	ITCH	Equity Derivatives	50 *	Market data (multicast)
UDP	AMD	Equity Derivatives	10 *	Market data (multicast)
TCP	TIP	Equity Derivatives	5	Market data (unicast)

* Additional UDP bandwidth might be needed for ITCH and AMD re-requests.

Fixed Income – Order Management, clearing and Market Data

Transportation protocol	Application protocol	Filtering (if applicable)	Recommended bandwidth (Mbps)	Comments
TCP	OMnet	N/A	2	Clearing only
TCP	FIX	N/A	1	Order management
TCP	TIP	Fixed Income	2	Market data (unicast)
UDP	ITCH	Fixed Income	10	Market data (multicast)

Contact

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