

Exchange Client Network Bandwidth Calculator 0.48 PUBLIC BETA4 + TimeZone v5

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Latest version available at:

<http://gallery.technet.microsoft.com/Exchange-Client-Network-8af1bf00>

IMPORTANT

This calculator is in Beta development stage. Values provided by this tool should be treated as approximations only.

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Instructions: Fill in the **blue variables**. Choose the appropriate drop-downs for the **red variables**. Change to the **Client Mix sheet** to enter details of user numbers, client types and to obtain bandwidth predictions.

Important: This tool is designed to provide network bandwidth approximations based on user usage profile data. The approximtions provided are only as good as the user usage profile data provided. All approximations are based on the assumption that the user usage pattern is similar to a 9am-5pm normal distribution profile.

Exchange Organisation Data		TimeZone Configuration	
Exchange Service	On-premises	Setting	Value
Working Day (Hours)	8 Hours	Morning Peak Time (24hr clock)	10:00
Bandwidth Headroom	100%	Morning Peak Duration (hours)	2
% Mobile Device Full Syncs Per Month	0.5%	Afternoon Peak Time (24hr clock)	14:00
Mobile Device Days to Sync	3	Afternoon Peak Duration (hours)	4
Offline Address Book Size	100 MB		
% GAL Changes per Day	0.5%		
Availability Protocol Type	Availability Service		
% OST Resync Per Month	0.5%		
User Profile 1 (Light)		User Profile 2 (Medium)	
Average Message Size (KB)	50 KB	Average Message Size (KB)	50 KB
Messages Sent Per Mailbox Per Day	5	Messages Sent Per Mailbox Per Day	10
Messages Received Per Mailbox Per Day	20	Messages Received Per Mailbox Per Day	40
Avg Mailbox Size (GB)	1.00 GB	Avg Mailbox Size (GB)	2.00 GB
Avg Recipients Per Meeting	3	Avg Recipients Per Meeting	3
Average Meetings Per Mailbox Per Day	0.5	Average Meetings Per Mailbox Per Day	1.0
Web Client/Online Mode Attachment Read %	125%	Web Client/Online Mode Attachment Read %	125%
Mobile Client Attachment Read %	20%	Mobile Client Attachment Read %	20%
Ensure OST download in 1 Working Day	Yes	Ensure OST download in 1 Working Day	Yes
User Profile 3 (Heavy)		User Profile 4 (Very Heavy)	
Average Message Size (KB)	50 KB	Average Message Size (KB)	50 KB
Messages Sent Per Mailbox Per Day	20	Messages Sent Per Mailbox Per Day	30
Messages Received Per Mailbox Per Day	80	Messages Received Per Mailbox Per Day	120
Avg Mailbox Size (GB)	3.50 GB	Avg Mailbox Size (GB)	3.00 GB
Avg Recipients Per Meeting	3	Avg Recipients Per Meeting	3
Average Meetings Per Mailbox Per Day	2.0	Average Meetings Per Mailbox Per Day	3.0
Web Client/Online Mode Attachment Read %	125%	Web Client/Online Mode Attachment Read %	125%
Mobile Client Attachment Read %	20%	Mobile Client Attachment Read %	20%
Ensure OST download in 1 Working Day	Yes	Ensure OST download in 1 Working Day	Yes

Last Update / modification

[illegible]

The chart displays network bandwidth usage over a 24-hour period. The 'Exchange to Client' direction (blue line) shows a significant peak of 23.97 Mbps/Sec at hour 9, while the 'Client to Exchange' direction (red line) remains consistently low, peaking at 1.08 Mbps/Sec at hour 9. Both directions show a similar trend of increasing bandwidth from 00:00 to a peak around 09:00, followed by a steady decline.

Hour of the Day	Exchange to Client (Mbps/Sec)	Client to Exchange (Mbps/Sec)
0	1.93	0.08
1	2.39	0.09
2	4.56	0.21
3	7.84	0.39
4	10.70	0.54
5	12.56	0.62
6	14.65	0.71
7	18.05	0.88
8	21.89	1.04
9	23.97	1.08
10	23.11	0.97
11	20.84	0.84
12	19.17	0.76
13	18.55	0.72
14	17.65	0.67
15	15.70	0.62
16	13.31	0.56
17	11.03	0.49
18	9.04	0.42
19	7.56	0.37
20	6.42	0.34
21	5.22	0.28
22	3.89	0.20
23	2.66	0.13

Hour of Day	%
1	0.66%
2	0.82%
3	1.56%
4	2.68%
5	3.66%
6	4.29%
7	5.00%
8	6.17%
9	7.48%
10	8.17%
11	7.90%
12	7.12%
13	6.55%
14	6.34%
15	6.03%
16	5.37%
17	4.55%
18	3.77%
19	3.09%
20	2.58%
21	2.19%
22	1.78%
23	1.33%
24	0.91%

Exchange Clients Data Usage Per Client (Exchange to Client)

User Profile 1 (Light) [Sent: 5 Recv: 20 AvgMsg: 50 KB]			
Client	kB/Day	kB/s (Peak)	kbps (Peak)
Outlook 2010 (OA-Cached)	2185.0	0.16	1.29
Outlook 2010 (MAPI-Cached)	2134.2	0.16	1.26
Outlook 2010 (MAPI-Online)	2037.4	0.15	1.20
Outlook 2007 (OA-Cached)	2169.5	0.16	1.28
Outlook 2007 (MAPI-Cached)	2137.4	0.16	1.26
Outlook 2007 (MAPI-Online)	1855.2	0.14	1.09
Outlook 2003 (OA-Cached)	1822.0	0.13	1.07
Outlook 2003 (MAPI-Cached)	1710.5	0.13	1.01
Outlook 2003 (MAPI-Online)	1411.7	0.10	0.83
OWA 2007	2035.0	0.15	1.20
OWA 2010	1838.1	0.14	1.08
Windows Mobile 6.x	336.3	0.02	0.20
Windows Phone 7.x	311.0	0.02	0.18
Outlook 2011 (EWS)	2962.4	0.22	1.75

User Profile 2 (Medium) [Sent: 10 Recv: 40 AvgMsg: 50 KB]			
Client	kB/Day	kB/s (Peak)	kbps (Peak)
Outlook 2010 (OA-Cached)	3674.9	0.27	2.17
Outlook 2010 (MAPI-Cached)	3573.3	0.26	2.11
Outlook 2010 (MAPI-Online)	3783.5	0.28	2.23
Outlook 2007 (OA-Cached)	3644.0	0.27	2.15
Outlook 2007 (MAPI-Cached)	3579.7	0.26	2.11
Outlook 2007 (MAPI-Online)	3416.8	0.25	2.01
Outlook 2003 (OA-Cached)	2949.0	0.22	1.74
Outlook 2003 (MAPI-Cached)	2831.0	0.21	1.67
Outlook 2003 (MAPI-Online)	2634.8	0.19	1.55
OWA 2007	3964.3	0.29	2.34
OWA 2010	3635.1	0.27	2.14
Windows Mobile 6.x	597.2	0.04	0.35
Windows Phone 7.x	546.5	0.04	0.32
Outlook 2011 (EWS)	5249.7	0.39	3.10

User Profile 3 (Heavy) [Sent: 20 Recv: 80 AvgMsg: 50 KB]			
Client	kB/Day	kB/s (Peak)	kbps (Peak)
Outlook 2010 (OA-Cached)	6542.9	0.48	3.86
Outlook 2010 (MAPI-Cached)	6341.6	0.47	3.74
Outlook 2010 (MAPI-Online)	7273.3	0.54	4.29
Outlook 2007 (OA-Cached)	6480.8	0.48	3.82
Outlook 2007 (MAPI-Cached)	6354.4	0.47	3.75
Outlook 2007 (MAPI-Online)	6539.9	0.48	3.86
Outlook 2003 (OA-Cached)	5094.9	0.38	3.00
Outlook 2003 (MAPI-Cached)	4963.6	0.37	2.93
Outlook 2003 (MAPI-Online)	5081.0	0.37	3.00
OWA 2007	7822.9	0.58	4.61
OWA 2010	7229.3	0.53	4.26
Windows Mobile 6.x	1119.0	0.08	0.66
Windows Phone 7.x	1017.7	0.08	0.60
Outlook 2011 (EWS)	9660.1	0.71	5.70

User Profile 4 (Very Heavy) [Sent: 30 Recv: 120 AvgMsg: 50 KB]			
Client	kB/Day	kB/s (Peak)	kbps (Peak)
Outlook 2010 (OA-Cached)	8963.3	0.66	5.28
Outlook 2010 (MAPI-Cached)	8670.1	0.64	5.11
Outlook 2010 (MAPI-Online)	10763.1	0.79	6.35
Outlook 2007 (OA-Cached)	8869.3	0.65	5.23
Outlook 2007 (MAPI-Cached)	8689.5	0.64	5.12
Outlook 2007 (MAPI-Online)	9663.0	0.71	5.70
Outlook 2003 (OA-Cached)	6808.9	0.50	4.01
Outlook 2003 (MAPI-Cached)	6662.6	0.49	3.93
Outlook 2003 (MAPI-Online)	7527.2	0.55	4.44
OWA 2007	11681.5	0.86	6.89
OWA 2010	10823.4	0.80	6.38
Windows Mobile 6.x	1640.8	0.12	0.97
Windows Phone 7.x	1488.9	0.11	0.88
Outlook 2011 (EWS)	13413.8	0.99	7.91

Change Log:			
DATE	AUTHOR	VERSION	DETAIL
28/04/2011	Neil Johnson	0.23	Issued as first draft for community review.
06/05/2011	Neil Johnson	0.24	Added Availability Fixed Network Load Map
18/05/2011	Neil Johnson	0.25	Updated Flow Chart
22/05/2011	Neil Johnson	0.26	Added "Ensure OST Download in 1 Working Day"
22/05/2011	Neil Johnson	0.27	Fixed Bug in Ensure OST Download in 1 Working Day
26/05/2011	Neil Johnson	0.28	Added Concurrency option in sites
27/05/2011	Ramon Infante	0.29	Moved Change Log to separate sheet
30/05/2011	Neil Johnson	0.30	Added Multiple User Profiles Mixer
03/06/2011	Neil Johnson	0.31	Added Outlook 2011 Data
06/07/2011	Neil Johnson	0.32	Cosmetic updates for clarity and comments
18/7/2011	Neil Johnson	0.33	Updated messaging platform usage profile chart
22/07/2011	Neil Johnson	0.34	Fixed bug in deletion formula
12/09/2011	Neil Johnson	0.35	Corrected meeting defaults in profiles
09/12/2011	Neil Johnson	0.36	Corrected OAB formula Backported changes from O365 trial
12/01/2012	Neil Johnson	0.37	Prepared for public beta release
18/01/2012	Neil Johnson	0.38	Removed non-microsoft clients from prediction table. Fixed user profile default mailbox quota size to 2GB
07/02/2012	Neil Johnson	0.39	Feedback from internal Beta
07/02/2012	Neil Johnson	0.40	Fixed Excel 2007 bug (Thx. Simon Butler!)
07/02/2012	Neil Johnson	0.41	Fixed another Excel 2007 bug
01/03/2012	Neil Johnson	0.42	Improved Office 365 context help
02/03/2012	Neil Johnson	0.43	Corrected Outlook 2003 Latency values
22/03/2012	Neil Johnson	0.44	Added Outlook 2011 for Mac (Huge thanks to Albert Andersen!)
28/03/2012	Neil Johnson	0.45	Added first draft for TCP Connection Prediction
16/04/2012	Neil Johnson	0.46	Fixed OST download bug for clients without an OST file Increased mix sheet to 99 rows (21-99 are hidden)
23/04/2012	Neil Johnson	0.47	Added ability to set Timezone
22/06/2012	Neil Johnson	0.48	Fixed table bug for timezone calculation
22/06/2012 0.48 PUBLIC BETA4 + TimeZone v5			