



Monetary Authority
of Singapore

On Boarding Guide for MASNET Access

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1. REVISION NOTE

Revision Number	Date
1.0	Oct 2018

2. ABBREVIATIONS

Abbreviation	Full Text
AES	Advanced Encryption Standard
C:D	Connect Direct
FAQ	Frequently Asked Questions
HTTPS	Hypertext Transfer Protocol Secure
IKE	Internet Key Exchange
IP	Internet Protocol
IPsec	Internet Protocol Security
LO	Liaison Officer
MPLS	Multi-Protocol Label Switching
SFTP	Secured File Transfer Protocol
SMTP	Simple Mail Transfer Protocol
SO	Subscribing Organization
UAT	User Acceptance Testing

3. INTRODUCTION

This document specifies the requirements and procedures to on board the MASNET Access service.

3.1 OVERVIEW

MASNET Access is a centralized data exchange platform for secure data file transfer among Financial Institutions and counterparties.

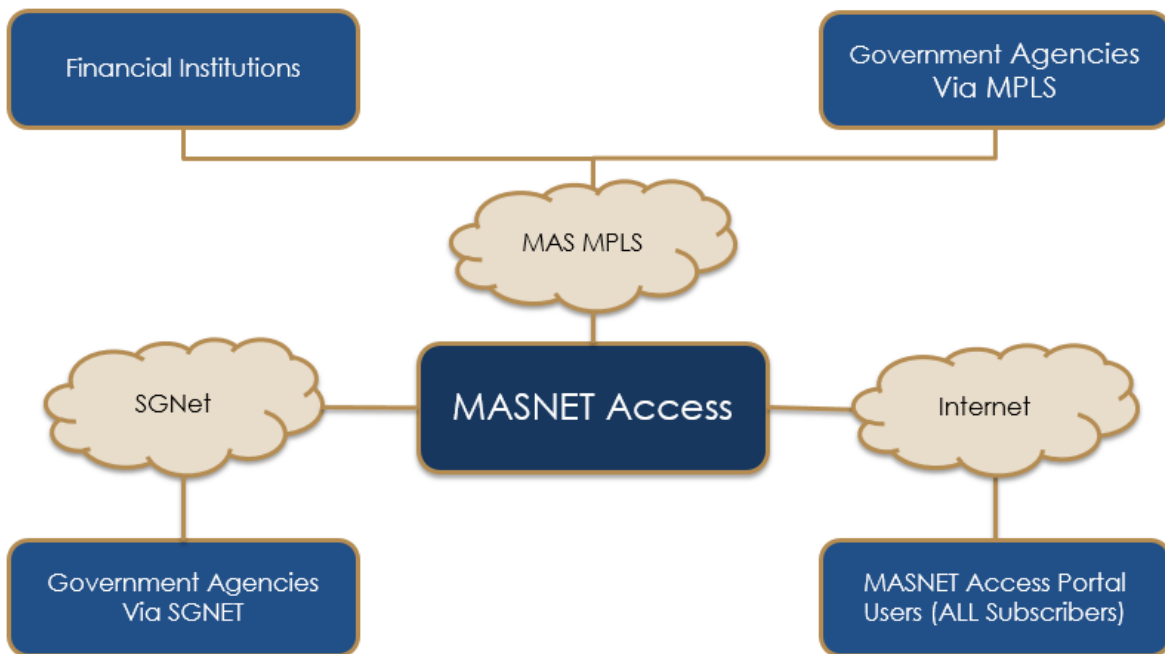


Figure 1 MASNET Access Architecture Overview

3.2 MASNET ACCESS SERVICES

- a) File Transfer (One-to-One) – a service that allows one file received from one sender to be immediately delivered to one file recipient. The file must be registered to set the file details such as file name and file path.
- b) Concatenation (Many-to-One) – a service that allows multiple files from multiple senders to be consolidated into one single file before delivering to the file recipient. A concatenation project must be created to set the authorised file senders, mode of file receipt and the schedule of the concatenation.
- c) Distribution (One-to-Many) – a service that allows one file to be split into multiple files and to be distributed to different file recipients. A distribution project must be created to set the authorised sender of the file.

3.3 MASNET ACCESS FILE TRANSFER MODE

MASNET Access supports multiple file transfer mode/protocols. The supported protocols are as below:

- a) Via MPLS Leased Line or SGNet
 - SFTP
 - Connect:Direct

Notes:

- The maximum allowable data file size is 320MB.
- This file transfer mode is server-to-server (automated file transfer) for higher frequency of data exchange and/or higher volume of data files.

- b) Via Internet
 - HTTPS (Web Upload/Download via MASNET Access Portal)

Notes:

- The maximum allowable data file size is 20MB.
- This file transfer mode is manual upload/download of files and is only suitable for ad-hoc file transfer with low data file size and frequency of file transfer.

3.4 PREREQUISITES

The Subscribing Organisation (SO) must be an existing MASNET subscriber.

3.5 MINIMUM SYSTEM REQUIREMENTS

3.5.1 Via MAS MPLS (ALL)

- a) The router equipment connecting to MASNET Access MPLS leased-line should support IPSec/IKE encryption with minimum of Advanced Encryption Standard (AES 256).
- b) The network router should support either static IP routing or BGP dynamic network routing protocol as required.
- c) The SO's site address must be in Singapore.

3.5.2 Via MAS MPLS (Government Agencies Only)

- a) Government agencies are required to subscribe to MPLS leased line on Next Generation Nationwide Broadband Network (NGNBN) platform. Depending on your agency's needs, you may wish to subscribe to a non-NGNBN link for redundancy.
- b) Singtel provide MPLS leased lines on both NGNBN and non-NGNBN platforms, agency can approach their Singtel Account Manager for details.

3.5.3 Via Internet (MASNET Access Portal)

For supported web browsers, please refer to [MASNET FAQ – Web Browser](#)

4. ON BOARDING VIA MPLS LEASED LINE/SGNET

4.1 ONBOARDING OVERVIEW










01 Application and setting up of MPLS leased line	1.1		Submit MASNET Access Forms	1 month
	1.2		Setup Leased-line	
02 On Boarding to MASNET Access	2.1		Firewall Configuration	1-1.5 months
	2.2		Certificate/Key Exchange	
	2.3		Subscribing Organization's Profile Creation in Test environment	
	2.4		File Registration in Test environment	
	2.5		Connectivity Testing	
03 UAT	3		UAT	1-1.5 months
04 Go-Live	4		Subscribing Organization's Profile and Portal Accounts Creation in Prod environment	1 week

Figure 2 MASNET Access On Boarding Via MPLS Leased Line/SGNet Overview

4. On Boarding Via MPLS Leased Line/SGNet

4.2 ONBOARDING STAGES

Stage	Description	Involved parties	Estimated duration	Notes	Required Forms
1	Application and setting up of MPLS leased line	MAS, SO, SingTel	1 month	SingTel needs 3-4 weeks to set up the MPLS leased line Setting-up of MPLS Leased line is not applicable to SGNet	MAC-01
2	On boarding to MASNET Access (includes SO's setting up of servers, accounts, MAS' configuration and connectivity testing)	MAS, SO	1 – 1.5 months	This is the typical time required by SO to set up and test their servers. MAS would complete the configuration setup within a week.	MAC-02
3	UAT (Testing of the actual exchanges between SO and counterparties)	MAS, SO and counterparties exchanging with the SO	1 – 1.5 months	The duration depends on the SO's need and extent of testing required by FIs with their counterparties.	MAC-03 MAC-04 MAC-07
4	Go-live	MAS, SO and counterparty exchanging with the SO	1 week		MAC-05

Notes:

- The maximum allowable file size is 320MB.
- MAS MPLS leased-line set-up is thru SingTel and payable to SingTel.

4.3 ONBOARDING PROCEDURE

4.3.1 Stage 1 – Application and setting up of MPLS leased line

4.3.1.1 Submit MASNET Access Forms

Please login to [MASNET Portal](#) to download the relevant MASNET Access forms and email the completed forms to helpdesk@mas.gov.sg.

Please refer to the table below for the form list.

Form Number	Form Name Title	Document Type
MAC-01	APPLICATION FORM FOR SUBSCRIBING TO MAS MPLS NETWORK	Doc
MAC-02	APPLICATION FORM FOR SUBSCRIPTION TO MASNET ACCESS	Doc
MAC-03	APPLICATION FORM FOR MASNET ACCESS FILE REGISTRATION	Doc
MAC-04	APPLICATION FORM FOR MASNET ACCESS FILE REGISTRATION (WITH COMPLETE FILE DETAILS)	Xls
MAC-05	APPLICATION FORM FOR MASNET ACCESS PORTAL	Doc
MAC-07	APPLICATION FORM FOR MASNET ACCESS TESTING	Doc

Notes:

- Government Agencies using SGNet are not required to submit Form MAC-01 for the subscription of MAS MPLS Network.
- All forms must be approved by the SO's MASNET Liaison Officer.
- Please refer to the instructions available in the forms for more details.
- All SOs are required to have at least one MASNET user with access to MASNET Access Portal to monitor their organisation's file transmissions. SOs may request to grant existing MASNET users access to MASNET Access Portal by submitting the same Form MAC-05. MAS recommends that the effective date of the MASNET Access Portal access is aligned with the go-live date.

For subscribers on boarding via SGNet, please skip Step 4.3.1.2.

4.3.1.2 Setup Leased-line (Not Applicable for SGNet)

For SOs subscribing to MAS MPLS Network, the SO is required to apply for the leased-line connection via Singtel. Upon receiving the Form MAC-01 submitted by the SO, MAS will assess and approve the requirement. If the application is approved, MAS will provide an email consent as well as the other details required for MPLS network setup (e.g. IP range details, VPN Reference Number) to be provided by the SO to Singtel for their leased line application.

Notes:

4. On Boarding Via MPLS Leased Line/SGNet

- Singtel will advise the SOs on the available connectivity options, service level and other commercial arrangements based on the SO's requirements.
- Singtel supports both static IP and BGP dynamic network routing protocols for connection to MAS MPLS network. Dynamic network routing protocol is recommended if subscribers require redundant MPLS network links at subscriber's site.
- The estimated lead time for Singtel to install the MPLS leased-line is 3-4 weeks.
- SOs shall check the leased line set-up and subscription fees with Singtel.

4.3.2 Stage 2 – On boarding to MASNET Access

4.3.2.1 Firewall Configuration

Once the details required for MPLS network (e.g. IP range details, VPN Reference Number) setup are available, both MAS and SO need to configure firewall rules to allow the incoming/outgoing traffic depending on the SO's requirements (e.g. bidirectional or unidirectional) provided in the Form MAC-02.

4.3.2.2 C:D Certificate or SFTP Public Key Exchange

MAS will liaise with the SO's contact person for key exchange provided in the Form MAC-02 for the Connect:Direct certificate or SFTP public key for file transfer connection setup.

4.3.2.3 Creation of new MASNET Access Subscribing Organization

MAS will create the new SO's partner profile on MASNET Access Pre-Production (Test) environment based on the requirements provided by the SO in the Form MAC-02.

4.3.2.4 File Registration

MAS will register the new files with the details indicated in Forms MAC-03 & MAC-04 submitted by the SO.

4.3.2.5 Connectivity Testing

MAS and SO will conduct connectivity testing (telnet) once the firewall rules are already created. Once the basic connectivity testing is successful, MAS and SO will then conduct the file transfer testing in the Pre-Production (Test) environment. SO must submit Form MAC-07 for the testing request and complete the testing within 1 month.

4.3.3 Stage 3 – UAT

SO and SO's counterparties will conduct UAT. SO must submit Form MAC-07 for the testing request and complete the testing within 1-1.5 months.

4.3.4 Stage 4 – Go-Live

Once the file transfer testing and UAT are completed, MAS will apply the necessary changes to the Production MASNET Access. MAS and SO will conduct the connectivity and functional testing (telnet and file transfer) to verify the on boarding.

Notes:

- The Go-live schedule must be arranged and approved by both SO and MAS.
- MAS recommends to have at least 2 weeks lead time before the SO's scheduled live data exchange with counterparties to ensure that there will be ample time to resolve issues should there be any issues encountered during the on boarding in production environment.
- The MASNET Access monthly subscription fee will kick-start once the SO is on boarded in production environment.

5. ON BOARDING VIA INTERNET

5.1 OVERVIEW

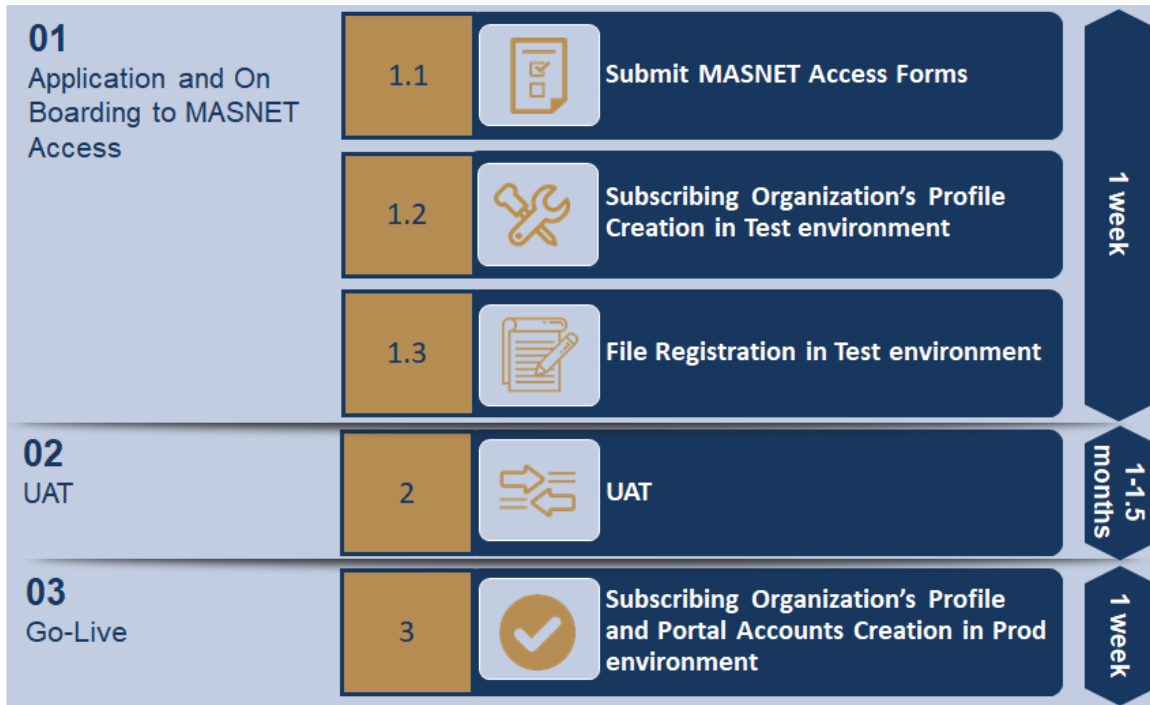


Figure 3 MASNET Access On Boarding Via Internet Overview

5.2 ON BOARDING STAGES

The on boarding activities are generally divided into multiple stages depending on the type of connection or protocol used.

Stage	Description	Involved parties	Estimated duration	Notes	Required Forms
1	Application and on-boarding to MASNET Access	MAS, SO	1 week		MAC-02
2	UAT (Testing of the actual exchanges between FI and counter parties)	MAS, SO and counterparties exchanging with the SO	1 – 1.5 months	The duration depends on the SO's need and extent of testing required by FIs with their counterparties.	MAC-03 MAC-04 MAC-07
3	Go-live	MAS, SO and counterparties exchanging with the SO	1 week		MAC-05

Notes:

- The maximum allowable file size is 20MB.
- For form details, please refer to Section 4.3.1.

5.3 ON BOARDING PROCEDURE

5.3.1 Stage 1 – Application and On Boarding to MASNET Access

5.3.1.1 Submit MASNET Access Forms

Please login to [MASNET Portal](#) to download the relevant MASNET Access forms and email the completed forms to helpdesk@mas.gov.sg.

Please refer to the table below for the form list.

Form Number	Form Name Title	Document Type
MAC-02	APPLICATION FORM FOR SUBSCRIPTION TO MASNET ACCESS	Doc
MAC-03	APPLICATION FORM FOR MASNET ACCESS FILE REGISTRATION	Doc
MAC-04	APPLICATION FORM FOR MASNET ACCESS FILE REGISTRATION (WITH COMPLETE FILE DETAILS)	Xls
MAC-05	APPLICATION FORM FOR MASNET ACCESS PORTAL	Doc
MAC-07	APPLICATION FORM FOR MASNET ACCESS TESTING	Doc

Notes:

- All forms must be approved by the SO's MASNET Liaison Officer.
- Please refer to the instructions available in the forms for more details.
All SOs are required to have at least one MASNET user with access to MASNET Access Portal to monitor their organisation's file transmissions. SOs may request to grant existing MASNET users access to MASNET Access Portal by submitting the same Form MAC-05. MAS recommends that the effective date of the MASNET Access Portal access is aligned with the go-live date.

5.3.1.2 Creation of new MASNET Access Subscribing Organization

MAS will create the new SO's partner profile on MASNET Access Pre-Production (Test) environment based on the requirements provided by the SO in the Form MAC-02.

5.3.1.3 File Registration

MAS will register the new files with the details indicated in Forms MAC-03 & MAC-04 submitted by the SO.

5.3.2 Stage 2 – UAT

SO and SO's counterparties will conduct UAT. SO must submit Form MAC-07 for the testing request and complete the testing within 1-1.5 months.

5.3.3 Stage 3 – Go-Live

Once the file transfer testing and UAT are completed, MAS will apply the necessary changes to the Production MASNET Access. MAS and SO will conduct the connectivity and functional testing (telnet and file transfer) to verify the on boarding.

Notes:

- The Go-live schedule must be arranged and approved by both SO and MAS.
- MAS recommends to have at least 2 weeks lead time before the SO's scheduled live data exchange with counterparties to ensure that there will be ample time to resolve issues should there be any issues encountered during the on boarding in production environment.
- The MASNET Access monthly subscription fee will kick-start once the SO is on boarded in production environment.

6. FILE REQUIREMENTS

- a) File naming convention
 - File Transfer
 - RT_<senderCode>.<receiverCode>.<projectCode>.<filename>
 - Where:
 - senderCode = MASNET Access partner code of the file sender
 - receiverCode = MASNET Access partner code of the file receiver
 - projectCode = short description of the project
 - filename = short description of the file
 - Sample File Name: RT_INCO.CPFB.PaymentFile.test.txt
 - Concatenation
 - CC_<senderCode>.<receiverCode>.<projectCode>.<filename>
 - Where:
 - senderCode = MASNET Access partner code of the file sender
 - receiverCode = MASNET Access partner code of the file receiver
 - projectCode = Concatenation project code by the file receiver
 - filename = short description of the file
 - Sample File Name: CC_DBS.LTA.VLR_DB.test.txt
 - Distribution
 - No file naming convention*
- b) Executable file type will be rejected (E.g. exe, cmd, bat & sh file extensions)
- c) File shall not contain virus.
- d) Minimum file size is 1 byte.
- e) Maximum file size 320MB for SFTP and CD, 20MB for web upload.
- f) For file transfer service, SOs may use SLIFT, PGP or other encryption mechanism to encrypt the files. However, only SLIFT is currently supported by MASNET Access to decrypt-scan-encrypt the file for more thorough check for any virus or malware. For non-SLIFT encrypted files, MASNET Access will scan the files as-is.
- g) For concatenation and distribution services, files shall only be encrypted using SLIFT.
- h) File content and format are arranged between sender and receiver.
- i) End-to-end file encryption and contingency plan are arranged between sender and receiver.
- j) All new files must be registered/configured (one-time process) on MASNET Access before the file can be used.

7. DATA RETENTION PERIOD

- a) MASNET Access data file retention is 7 days. SOs may request MAS to redeliver the data file, if required, if the file is not older than 7 days. Otherwise, SOs are required to liaise with their counterparties to resend the data files.
- b) MASNET Access historical transaction retention period is 40 days. All file transactions by the respective SOs are viewable via MASNET Access Portal.

8. CONTINGENCY PLAN

Should there any MASNET Access or counterparty's system outage, contingency plan must be arranged and agreed between the 2 parties (sender and receiver) for file transfer alternative. Subscribers are advised to arrange contingency plan as early as possible e.g. prior to setting up data exchange with counterparties.

Sample Contingency Plan

- a) Transmit files thru corporate email
- b) Transmit files thru MASNET Email (up to 50MB)
- c) Transmit files thru digital media e.g. Compact Disc

9. FEES AND CHARGES

Please refer to [MASNET Charges](#) for more details.

10. OPERATING HOURS

Please refer to [MASNET FAQ – Operating Hours](#).

11. CONTACT DETAILS

For other enquiries, please contact MASNET Access team at MASNET_Access@mas.gov.sg