ASX SFTP

EXTERNAL USER GUIDE

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Solution Overview

To facilitate the delivery of ASX generated files and reports to customers (ASX Participants and their clients), a Secure File Transfer Protocol (SFTP) service is available at ASX. Reports will need to be collected by the customer from the SFTP service.

SFTP provides end to end encryption of data between the SFTP client and server. Authentication to the SFTP server will require the creation of SSH keys that are registered in the SFTP server.

The production SFTP solution domain name is FTP.ASX.COM.AU
ASX also provides a replica solution for testing purposes which has a domain name of FTPTEST.ASX.COM.AU

Business Continuity Solution

The ASX production SFTP solution has a replicated Business Continuity instance. The SFTP service has a single presentation of the domain name, meaning that ASX customers will not need to make any changes in the event of an ASX site issue.

It is the responsibility of the ASX customer to validate access from their primary and secondary sites and ensure that the SSH keys are configured correctly. Customers are also responsible for ensuring that access to the ASX SFTP is regularly tested.

User Manual Audience

The ASX SFTP External User Guide intends to provide technical administrators of ASX customers the necessary details to connect to the ASX SFTP server to retrieve files. This includes the process for requesting access, account types and the generation of SSH keys.

Requesting SFTP Access

ASX Customer Technical Support provides support for the SFTP service. Customers requesting access to the SFTP environment will be required to submit a completed SFTP account request form with a SSH Public key to ASX Customer Support at cts@asx.com.au.

SFTP Accounts

The naming convention utilised for SFTP accounts is:

- A three character customer code
- The ASX product/service

    Example: XYZ_OTC or XYZ_DBOR

The following account types are available:

Multiple Service Account - This is a generic account to access multiple ASX services (e.g. both ASX OTC and ASX Clear Futures)

The naming convention utilised for this SFTP account will be a three character customer code followed by 'Download' (e.g. XYZ_Download)

Single Service Account - This is an account to access a specific ASX service, i.e. specific accounts for when different business units require segregated access to particular ASX Services.

The naming convention utilised for this SFTP account will be a three character customer code followed by the product/service:

XYZ_OTC – OTC Clearing Service
XYZ_ETD – ASX Clear (Futures)
ASXENERGY_XYZ – ASX Energy Reporting
XYZ_DBOR – Daily Beneficial Ownership Reporting
XYZ_WMI – Warrants Management Interface
XYZ_MKTDATA – ASX Market Data (ITCH/MDP)

Additional Accounts - Multiple customer defined accounts can be requested for a particular service, i.e. accounts for automated processes and an account for an operational team to troubleshoot the service via an SFTP client.

Each connecting device (i.e. primary and backup server) will require an SSH key, however one account can have more than one SSH key. Alternately, more than one instance of a Multiple Service Account may be requested.

Additional information to be provided includes:

- The specific accounts IDs requiring configuration for additional services
- The SSH public key to account relationship where multiple public keys are provided.

Authentication – SSH Key Usage and IP Whitelist

The SFTP service utilises SSH public and private key combinations for secure access. The requestor (ASX customer) generates the SSH key combination. The SSH private key is retained by the requestor and the public SSH key is provided to ASX. An SSH key combination can be utilised by more than one account. The key provides security for connection to the SFTP and removes the need to manually input a password. ASX requires the use of 2048-bit generated SSH-2 RSA keys.

For ASX customers to be able to download reports from the SFTP server, customers will need to provide ASX with their public key and public IP address in addition to the SFTP account username. Username does not need to be supplied when requesting a new account. ASX Customer Technical Support must be informed of any changes to public key or public IP address for an account.

OS X or Linux users can generate a key pair by utilising the "ssh – keygen" command. E.g., ssh – keygen – t dsa (example only).

Microsoft users can refer to the instructions set out in Appendix 1 – Windows SFTP for key generation and usage guidelines.

Account Permissions

Accounts provided to approved ASX customers will have the following access rights/permissions on the SFTP server:

- Download reports
- View their own folders
- Resume transfers

ASX customers will not be able to write files to or delete files from SFTP folders accessible to them.

Simultaneous Login

Multiple simultaneous logins are limited to a maximum of five sessions per user. Subsequent attempts to login will be rejected once an account is currently logged in and in use. To avoid issues regarding simultaneous logins, additional accounts may be requested.

Account Policies

Accounts are configured to:

- Ban an attacker IP for a period of time when a number of unsuccessful attempts are detected. During this lock out, login can still be established from a different whitelisted source IP address.

- Be expired if they if it has been inactive for a period of 90 days. A customer may request for an account to be re-activated through ASX Customer Technical Support. Accounts that have been inactive for 3 months will be deleted.

SFTP Folder Structures

The reports for each ASX service will be contained within a set structure for Customers (ASX Clear (Futures) Clearing Participants (OTC and / or Futures) and their Clients) to download. Readers of this manual should refer to the section or sections that are relevant to them

For further details on the reports contained within the folders, customers should refer to the relevant provided report specifications.

ETD Folder Structure

ETD Clearing Participant Reports

The following structure will be accessible for the ETD Clearing Participants on the SFTP server:

- ETD_REPORTS_<Three character Clearing Participant entity code>
  - YYYMMDD
    - ETD_<frequency>_[<source system if applicable>]_<Three character Clearing Participant entity code>
    - ETD_<frequency>_[<source system if applicable>]__CLIENT_<Three character firm or client entity code>

Note: unlike the OTC structure, these files will not be zipped.

ETD Client Clearing Reports

For direct ETD Client reporting, the structure will be the same however reduced:

- ETD_REPORTS_<Three character client entity code>
  - YYYMMDD
    - ETD_<frequency>_[<source system if applicable>]_<Three character client entity code>

Note: unlike the OTC structure, these files will not be zipped.

OTC Folder Structure
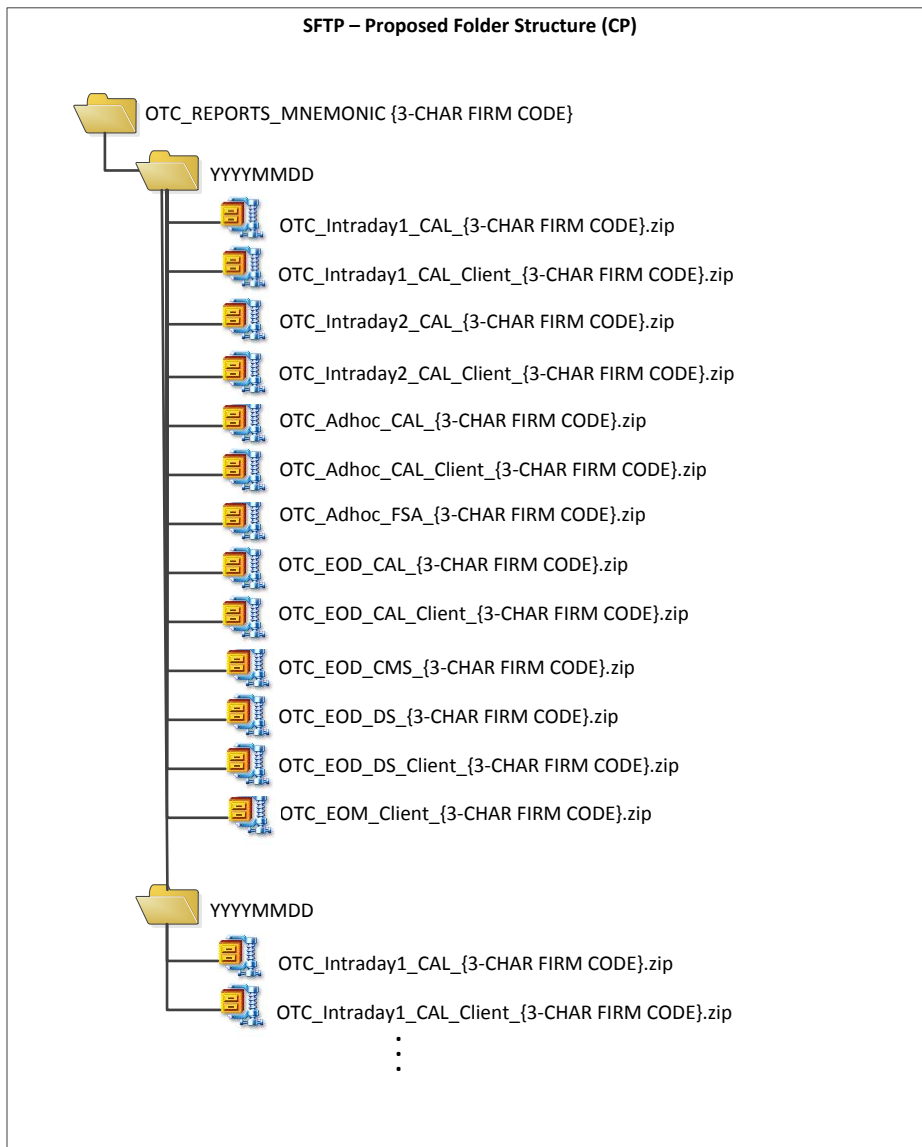
OTC Clearing Participant Reports

The following structure will be accessible for the OTC Clearing Participants on the SFTP server:

- OTC_REPORTS_<Three character Clearing Participant entity code>
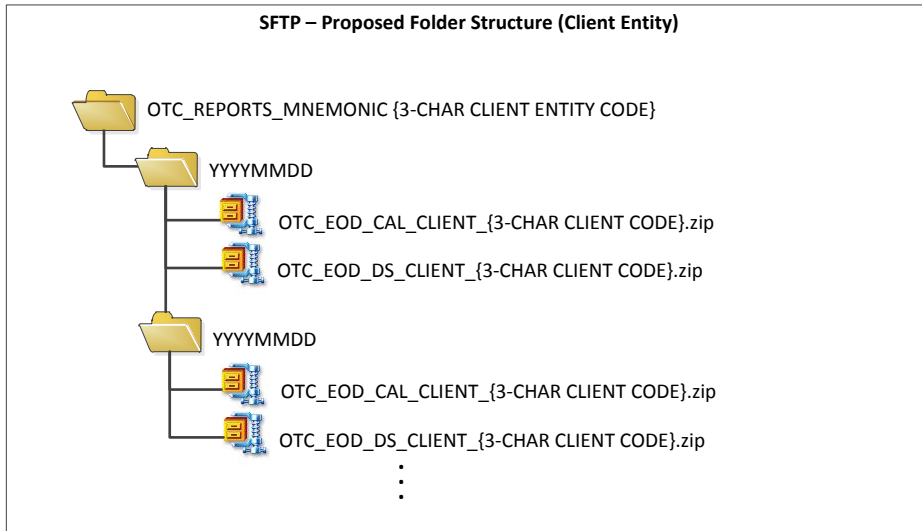 - YYYYMMDD
    - OTC_<frequency>_[<source system if applicable>]_<Three character Clearing Participant entity code>.zip

- OTC_<frequency>_[<source system if applicable>]_CLIENT_<Three character Clearing Participant entity code>.zip

SFTP – Proposed Folder Structure (CP)

📁 OTC_REPORTS_MNEMONIC {3-CHAR FIRM CODE}

    📁 YYYYMMDD

        OTC_Intraday1_CAL_{3-CHAR FIRM CODE}.zip

        OTC_Intraday1_CAL_Client_{3-CHAR FIRM CODE}.zip

        OTC_Intraday2_CAL_{3-CHAR FIRM CODE}.zip

        OTC_Intraday2_CAL_Client_{3-CHAR FIRM CODE}.zip

        OTC_Adhoc_CAL_{3-CHAR FIRM CODE}.zip

        OTC_Adhoc_CAL_Client_{3-CHAR FIRM CODE}.zip

        OTC_Adhoc_FSA_{3-CHAR FIRM CODE}.zip

        OTC_EOD_CAL_{3-CHAR FIRM CODE}.zip

        OTC_EOD_CAL_Client_{3-CHAR FIRM CODE}.zip

        OTC_EOD_CMS_{3-CHAR FIRM CODE}.zip

        OTC_EOD_DS_{3-CHAR FIRM CODE}.zip

        OTC_EOD_DS_Client_{3-CHAR FIRM CODE}.zip

        OTC_EOM_Client_{3-CHAR FIRM CODE}.zip

    📁 YYYYMMDD

        OTC_Intraday1_CAL_{3-CHAR FIRM CODE}.zip

        OTC_Intraday1_CAL_Client_{3-CHAR FIRM CODE}.zip

        ⋮

OTC Client Clearing Reports

For direct OTC Client reporting, the structure will be the same however reduced:

- OTC_REPORTS_<Three character client entity code>
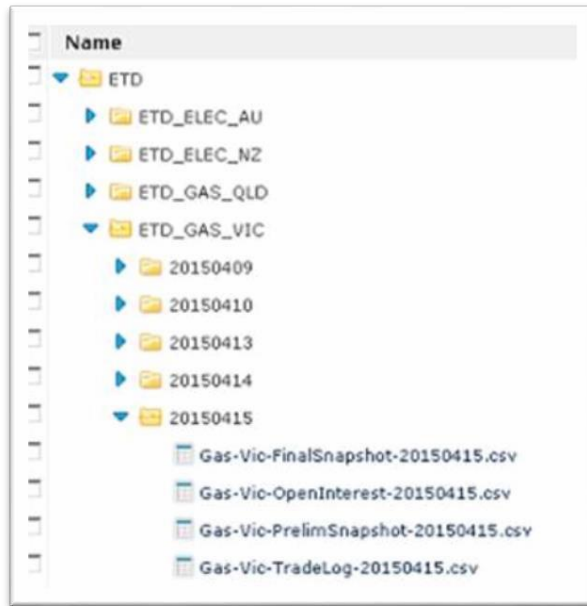
  - YYYYMMDD

    - OTC_<frequency>_[<source system if applicable>]_<Three character client entity code>.zip

SFTP – Proposed Folder Structure (Client Entity)

OTC_REPORTS_MNEMONIC {3-CHAR CLIENT ENTITY CODE}

YYYYMMDD

OTC_EOD_CAL_CLIENT_{3-CHAR CLIENT CODE}.zip

OTC_EOD_DS_CLIENT_{3-CHAR CLIENT CODE}.zip

YYYYMMDD

OTC_EOD_CAL_CLIENT_{3-CHAR CLIENT CODE}.zip

OTC_EOD_DS_CLIENT_{3-CHAR CLIENT CODE}.zip

ASX Energy Data Centre Folder Structure

OTC Client Clearing Reports

There are two (2) report structures for ASX Energy Reports via SFTP.

The following structure will be accessible for the ETD ASX Energy Data Centre subscribers who have developed to a dated (YYYYMMDD) sub-folder structure on the SFTP server.

- ETD_<Market>_<Region>

  - YYYYMMDD

    - <Market>_<Region>-PrelimSnapshot-YYYYMMDD.csv

    - <Market>_<Region>-FinalSnapshot-YYYYMMDD.csv

    - <Market>_<Region>-TradeLog-YYYYMMDD.csv

    - <Market>_<Region>-OpenInterest-YYYYMMDD.csv

The following structure will be accessible for the ETD ASX Energy Data Centre subscribers who have developed to a non-dated sub-folder structure on the SFTP server.

- ETD_<Market>_<Region>_Reports

    - <Market>_<Region>-PrelimSnapshot-YYYYMMDD.csv

    - <Market>_<Region>-FinalSnapshot-YYYYMMDD.csv

    - <Market>_<Region>-TradeLog-YYYYMMDD.csv

    - <Market>_<Region>-OpenInterest-YYYYMMDD.csv

Warrant Management Interface Folder Structure

Warrant Management Interface Reports

The following structure will be accessible for the Warrant Management Interface (WMI) Participants on the SFTP server:

- ARCHIVE
    - INPUT
        - CREATE_SERIES_<YYYYMMDD>_<Three character Participant code>_<Sequence>.csv
        - EDIT_SERIES_<YYYYMMDD>_<Three character Participant code>_<Sequence>.csv
    - OUTPUT
        - CREATE_SERIES_RECEIPT_<YYYYMMDD>_<Three character Participant code>_<Sequence>.csv
        - EDIT_SERIES_RECEIPT_<YYYYMMDD>_<Three character Participant code>_<Sequence>.csv
        - WARRANT_CODES_INTERIM_<YYYYMMDD>.csv
        - WARRANT_CODES_FINAL_<YYYYMMDD>.csv

ASX Market Data Folder Structure

ASX Trade Market Data

ASX Trade market data is divided at a partition level and provided on a daily basis:

- ItchInterface_<Partition>_<YYYYMMDD>.log.7za

ASX 24 Market Data

ASX 24 market data is provided on a weekly basis:

- NTP_<YYMMDD>_<FileNumber>.zip

Reports Distribution Schedule

The distribution of reports will vary between services. Customer should refer to the service specific reporting specification to confirm the report distribution schedules.

Accessing Reports

The ASX SFTP solution is standard. ASX customers can access the FTPTEST.ASX.COM.AU site from the command line or from any SFTP client that supports SSH connections.

Customers using UNIX or LINUX customers are able to utilise native SCP commands.

Microsoft environments do not natively support secure copy commands. Appendix 1 – Windows SFTP provides a guideline for copying files.

Alternate solutions to retrieving files are available to customers and it is the customer's responsibility to choose a solution appropriate to them and to licence appropriately.

Customer Firewall Configurations

ASX customers connecting to the ASX SFTP solutions will need to allow the following configuration on their firewalls.

Environment	Domain Name	IP address	Port
Test (IWT)	FTPTEST.ASX.COM.AU	203.15.146.210	22
Production	FTP.ASX.COM.AU	203.15.145.110	22

ASX strongly recommends the use of domain name when accessing the SFTP instead of the IP address.

Frequently Asked Questions

Setting Up

Can we use the same public keys for our Test and Production accounts?

No, to ensure the controls are in place (at the CP and the ASX) that enforce separation of test and production data we require separate keys for the test and production environments.

Can the ASX make a static folder for my files that doesn't change with the date?

No, this is currently not feasible with the ASX SFTP solutions.

Can I supply 1024 bit generated public keys?

No, ASX enforces use of 2048 bit generated SSH-2 RSA keys.

Do I need a particular Operating System to use SFTP?

SFTP is a network protocol for secure file transfer. It does not depend on what OS is running on each side. Customers can access ASX SFTP server from any SFTP client that supports SSH connection, no matter it is running on Windows, Linux or other OS.

Is the ASX SFTP solution available over existing ASX leased lines?

No, the SFTP solution is currently only available via the internet.

Troubleshooting

If you are experiencing issues with the ASX SFTP service, please see the below Frequently Asked Questions and if this does not help to resolve your query, please contact ASX Customer Technical Support cts@asx.com.au and provide as much detail as possible on the error messages you are receiving.

I am unable to log in to SFTP due to Firewall issues

Firewall settings will need to be configured with your network support administrator. See section 'Customer Firewall Configurations' for further details.

I am able to log in but unable to access my reports

Please ensure that the folder path name is correct – please see user guide for specific file names and refer to section 'SFTP Folder Structures'

I am no longer able to connect to ASX and download files error message "Connection Closed by remote host" or "Connection reset by peer"

ASX has imposed restrictions on the server to limit multiple simultaneous attempts to access the folders by the same CP. This is particularly common during testing. This can result in an automatic ban on certain applications. Please contact ASX detailing the error message and we will assist.

The ASX SFTP solution is standard. ASX customers can access the FTPTEST.ASX.COM.AU site from the command line or from any SFTP client that supports SSH connections.

Customers using UNIX or LINUX customers are able to utilise native SCP commands.

Microsoft environments do not natively support secure copy commands. Appendix 1 – Windows SFTP provides a guideline for copying files.

ASX SFTP Contacts

Account set ups

ASX Customer Support provides support for the SFTP service. Customers requiring access to the SFTP environment will be required to submit an SFTP Account Request Form to:

ASX Customer Technical Support
Phone: +61 2 9227 0372
Email the completed form to cts@asx.com.au

Connectivity Issues

If you are experiencing issues with establishing connectivity to your ASX SFTP folders, please contact ASX Customer Technical Support providing as many details as possible. Where possible and relevant, please provide specific error messages and logs.

Report Queries

Queries regarding the ASX Clear Futures (OTC or ETD) reports that are available on the ASX SFTP service should be directed to:

ASX Clearing Operations
Phone: + 61 2 8298 8479
asxclearfut@asx.com.au

Appendix 1 – Windows SFTP

This section provides details on the creation of private and public SSH keys as well as the retrieval of files from the ASX SFTP using Windows. Please note that there are alternate SFTP client solutions available and it is the customer's responsibility to choose a solution appropriate for them and to licence appropriately. The details below are provided as an example only. ASX will not provide support PuTTY utilities. PuTTY support calls should be directed to the vendor.

Generating an SSH key on Windows using PuTTY

The following details are provided as an example only. ASX does not support the PuTTY utility and support calls should be directed to the vendor. Additional details regarding the tool can be found at PuTTY.

1. Download and start the PuTTY Key Generator (puttygen.exe)
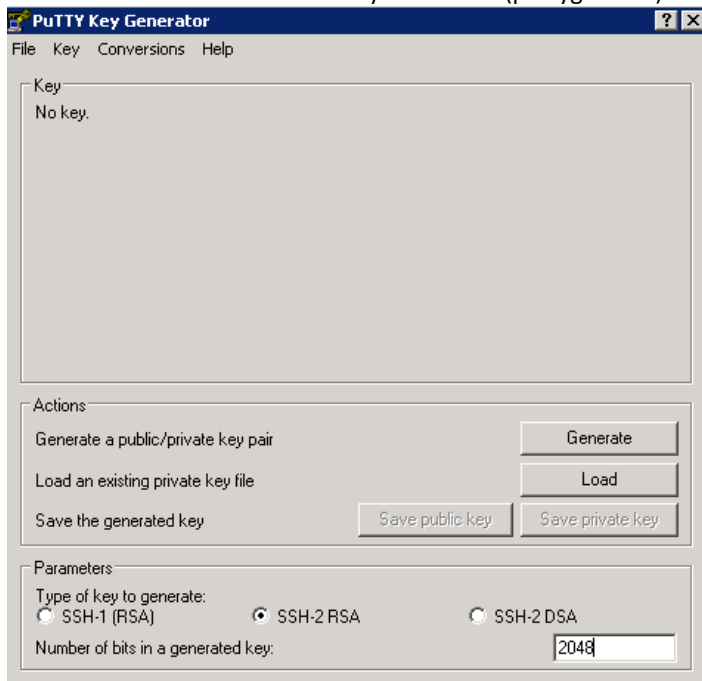
2. In the Parameters frame, select SSH2 RSA

3. Set the number of bits in a generated key to 2048

4. In the Actions frame, select Generate

5. You will then see a progress bar appear in the Key frame with a request to generate randomness.
    At this point you should move your mouse pointer around the blank area under the bar in the Key frame to
    generate the key pairs.
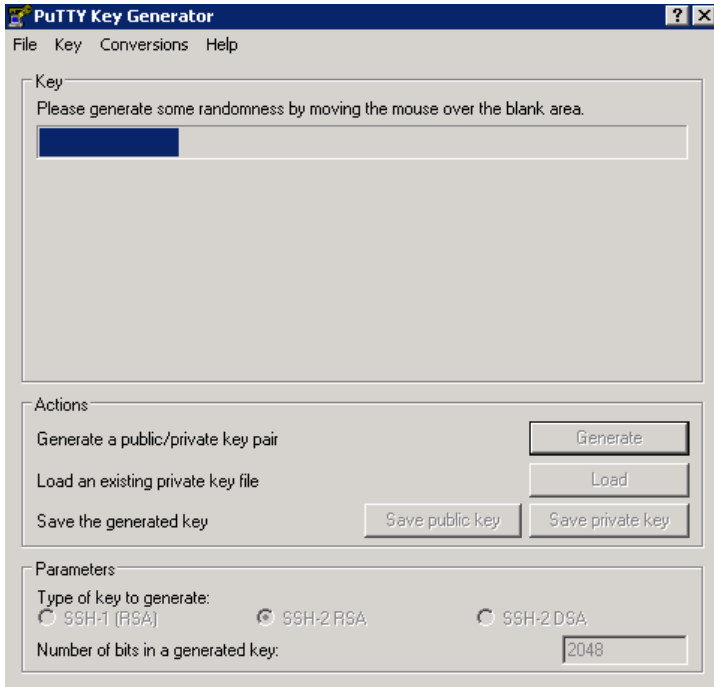
6. Fill in the Key comment field with something that you can use to identify the key. This is particularly helpful
    when you have multiple keys.
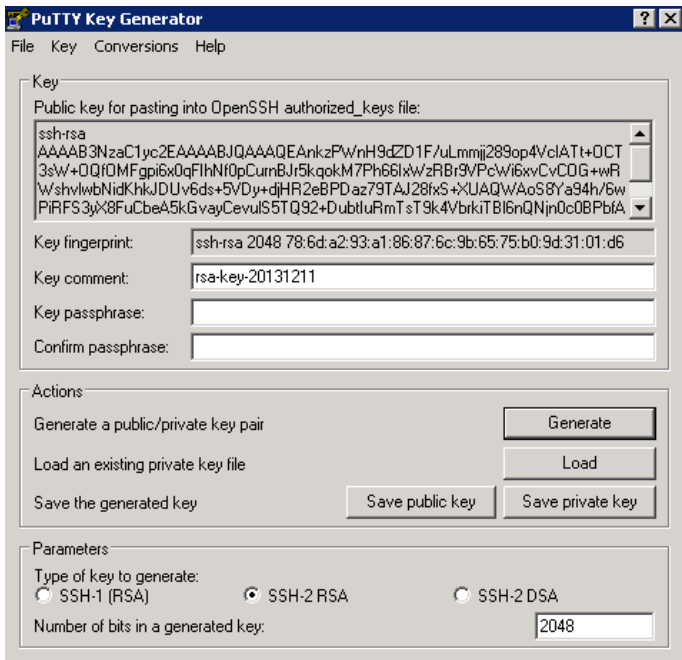
7. The Key passphrase fields are optional to fill in. The passphrase is used to protect your key, however you will
    be asked for it when you connect via SSH.

8. Click Save private key to save your private key

9. Click Save public key to save your public key

10. Provide the public key to ASX Customer Technical Support

Using PSFTP Commands to SFTP Files with Windows

To download reports from the ASX SFTP server via Windows:

1. Download Pegeant (SSH authentication agent) and PSFTP (SFTP client) from the [PuTTY website](#).

2. Start Pegeant.exe. A Pegeant icon will appear on the system tray.
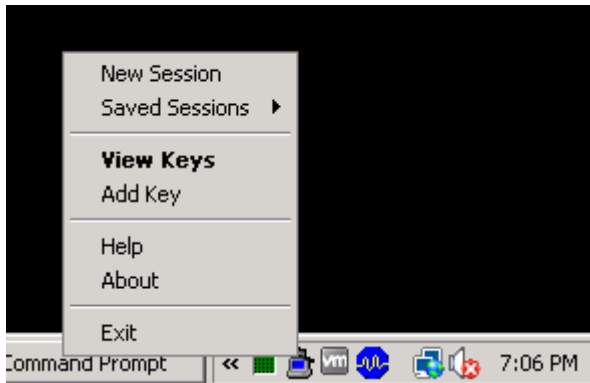
3. Right click the icon and select Add Key. Pegeant will bring up a file dialog, labelled "Select Private Key File".

4. Find your private key file in this dialog, and press Open
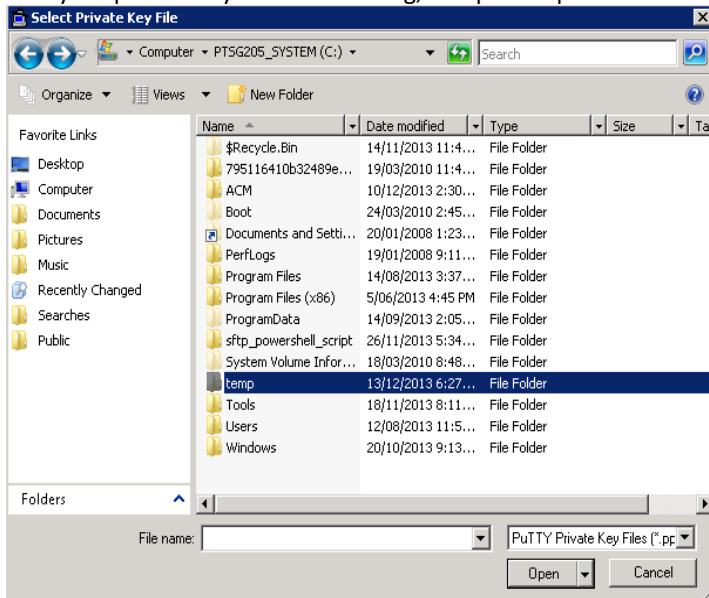
5. Right click the Pegeant icon and select View Key. The selected private key is displayed

6. Start psftp.exe. A PSFTP command window will be launched.

7. psftp > open ftptest.asx.com.au   ---- open a connection to ASX SFTP server

8. For the first time connection PSFTP will ask if you trust the host and add the rsa2 key to cache. Enter "y".

9. Enter username

10. psftp > ls   ---- list directories in remote server

11. psftp > cd 20131213   ---- change directory to where the file copy from e.g., 20131213

12. psftp > ls   ---- list files under directory

13. psftp > lcd c:\temp   ---- change local working directory to where the file copy to e.g., c:\tenp

14. psftp > get OTC_Daily_CCC.zip   ---- copy the zip file e.g., OTC_Daily_CCC.zip from remote server

15. psftp > quit   ---- terminate the session