RESERVE BANK INFORMATION AND TRANSFER SYSTEM

RITS Low Value Feeder Project

Information Paper

Clearing Interconnector Service

June 2009

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1. INTRODUCTION

The forthcoming withdrawal of Telstra's low-speed DDN leased line infrastructure means that most of the existing web of bilateral links between financial institutions for payments clearing will need to be replaced.[1] This provides a unique opportunity for the Australian payments system to move to a single logical network for the low-value payment systems. A new network architecture with a single point of entry offers key advantages over the legacy infrastructure in terms of operational efficiency, improved resilience and access to new entrants, and will place the low value payments industry in a better position for innovation and development.

In December 2008, the APCA Board selected an industry IP network known as a Community of Interest Network (COIN) as the default network for file exchanges (primarily CS1 and CS2) currently sent over the bilateral links, and for the real time messaging used in CS3. This document is only concerned with file exchanges. Many members of APCA's CS1 and CS2 also use the SWIFT network for messaging and some are considering using SWIFT's file transfer service known as FileAct. It is therefore likely that some industry participants will choose to use the COIN and others SWIFT FileAct for their clearing file transfers.

The RBA believes that the migration from bilateral links to COIN/SWIFT is of critical importance and will help the industry cater for these different network preferences by establishing connections to both the COIN and SWIFT FileAct. Using these connections the RBA will build a facility to accept within day settlement requests from different networks (the Settlement Interconnector[2]) and another facility to allow the transfer of clearing files from one network to the other. The latter facility will be known as the RBA's Clearing Interconnector Service. The Clearing Interconnector Service will also be able to be used by two clearing participants on the COIN that have different file transfer protocol preferences.

This Information Paper contains details on how the RBA's Clearing Interconnector Service will operate. It contains important information for all clearing participants regardless of their own network preference as other participants may have alternative network/file transfer protocol preferences which may necessitate the use of the Clearing Interconnector.

The Reserve Bank welcomes your feedback on the content of this document. Please complete the feedback form attached and either fax or e-mail back to the RBA.

1 Telstra previously announced the service would be withdrawn at the end of 2009. An extension to this deadline may be sought by the industry on the basis of a firm industry commitment and agreed timetable.

2 Refer to separate Reserve Bank documentation.

2. OVERVIEW OF CLEARING INTERCONNECTOR

The Clearing Interconnector will connect to both the COIN and SWIFT's FileAct Service. It will be able to send and receive files over both networks. Where two APCA clearing participants wish to use different networks to exchange files, they will be able to use the Clearing Interconnector as a link between the two. Once set up, the sending participant will send a file over its preferred network to the Clearing Interconnector, that will on-forward the file to the recipient over the recipient's preferred network. The details of participants' network preferences and file transfer technical configuration information will need to be set up in advance.

Where two members of the COIN prefer to use different file protocols for the COIN, they will be able to use the Clearing Interconnector to facilitate their file exchanges, as long as both file transfer protocols have previously been advised by the RBA as being supported by the Clearing Interconnector.

It is also possible that a clearing participant would prefer to send all clearing files to a single address (the Clearing Interconnector), rather than keep track of which counterparties are using which network or file transfer protocol, and have to determine which can be sent directly and which need to be sent to the Clearing Interconnector. The Clearing Interconnector service will support this activity.

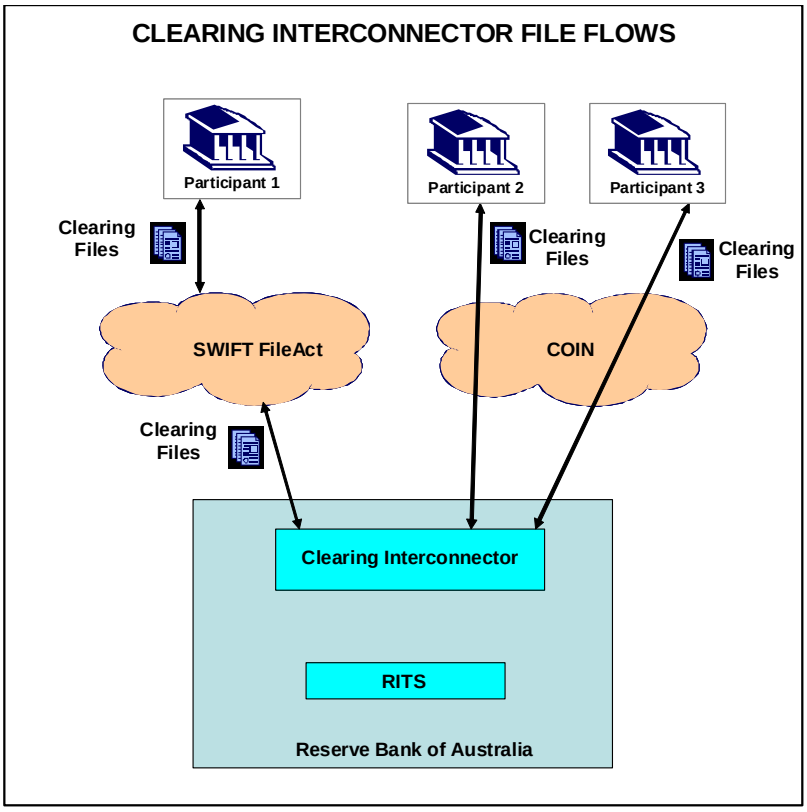
The RBA does not intend to support bilateral connections to the Clearing Interconnector. The Clearing Interconnector will only accept files transferred to it via the COIN or SWIFT FileAct (or potentially another APCA approved network if one was to be approved in the future).

The RBA will not open, inspect or interrogate the files in order to send them on to recipients. Determining the appropriate routing rules to be applied will be achieved via file names and file transfer destinations. If desired by participants, files may also be encrypted before being sent to the Clearing Interconnector, for example for privacy or for authentication of the file sender. Encryption arrangements will need to be agreed bilaterally between clearing counterparties.

RBA staff will monitor the system. Online access for participants to monitor their file transfers is not proposed at this time; the RBA is considering developing a series of acknowledgements on the status of file transfers. Participants will be able to contact the RBA if they need information on the status of their clearing files.

3. FILE AND MESSAGE FLOWS

The following diagram shows the potential different file flow paths that can occur via the Clearing Interconnector. Two COIN participants are shown to demonstrate where Participant 2 and Participant 3 have elected to use different file transfer protocols.



The Clearing Interconnector will cater for the following file flows:

- Sender uses SWIFT FileAct → Recipient uses COIN
- Sender uses COIN → Recipient uses SWIFT FileAct
- Sender uses COIN and File Transfer Protocol 1 (FTP1) → Recipient uses COIN and File Transfer Protocol 2 (FTP2)
- Sender uses COIN and FTP2 → Recipient uses COIN and FTP1
- Sender uses SWIFT FileAct → Recipient uses SWIFT FileAct
- Sender uses COIN and FTP1 → Recipient uses COIN and FTP1

FTP1 and FTP2 are not defined at this time, as the industry has not yet decided what which file transfer protocol(s) might be used for COIN clearing file transfers. The Clearing Interconnector will support industry agreed protocol(s).

The most common use of the Clearing Interconnector is expected to be file transfers between a SWIFT FileAct participant and a COIN participant. The following steps summarise the basic file flows for a participant on SWIFT to send to a participant on COIN.

1. The two participants need to be set up on the Clearing Interconnector Service for each type of file that they agree to exchange via the Service. This is a one-off activity.

2. Participant 1 sends a file (identified as being for Participant 2) through SWIFT FileAct addressed to the Clearing Interconnector.

3. The Clearing Interconnector accepts the file and performs basic validations (including checking that the file type is valid between this participant pair). These validations will be against a "profile" set up by the RBA for each file transfer arrangement.

4. If the file transfer does not match with a known profile, the RBA will notify the sender.

5. If the file matches a known profile (i.e. is valid), the Clearing Interconnector will attempt to deliver the file to Participant 2 via the COIN. If it is not able to deliver the file, after several attempts over several minutes, it will cease attempting to send the file. The RBA will contact Participant 2 to discuss why the file(s) cannot be delivered. An appropriate course of action will then be agreed with Participant 1.

A similar series of steps applies for files transferred from a COIN participant to a SWIFT FileAct participant:

1. The two participants need to be set up on the Clearing Interconnector Service for each type of file that they agree to exchange via the Service. This is a one-off activity.

2. Participant 1 sends a file (identified as being for Participant 2) via the COIN to the Clearing Interconnector's IP address.

3. The Clearing Interconnector accepts the file and performs basic validations (including checking that the file type is valid between this participant pair). These validations will be against a "profile" set up by the RBA for each file transfer arrangement.

4. If the file transfer does not match with a known profile, the RBA will notify the sender.

5. If the file matches a known profile (i.e. is valid), the Clearing Interconnector will attempt to deliver the file to Participant 2 via SWIFT FileAct. The details that are required to be included in the SWIFT FileAct File Transfer Request header are added by the Clearing Interconnector and do not need to be advised by the file sender. If the Clearing Interconnector is not able to deliver the file, after several attempts over several minutes, it will cease attempting to send the file. The RBA will contact Participant 2 to discuss why the file(s) cannot be delivered. An appropriate course of action will then be agreed with Participant 1.

3.1 Notifications

A file sender using a direct file transfer arrangement with its counterparty will know via its file transfer facility whether or not a file was successfully transferred to the recipient. In contrast, the users of the Clearing Interconnector Service will deliver files to the Clearing Interconnector, not directly through to their counterparty. They will therefore only know from their own systems that the file was delivered to the Clearing Interconnector, not whether it was successfully delivered from the Clearing Interconnector to their counterparty.

The RBA will closely monitor the Clearing Interconnector Service (see Section 5.6). Initially, the RBA will notify the sending participant (via email/telephone) if a file is unable to be delivered to the recipient. The development of more extensive notification messaging will be considered for future enhancements if the industry perceives a need for these notifications. The RBA notes that in some clearing systems, acknowledgement files are used to positively notify senders of successful delivery.

4. APPROVED CLEARING INTERCONNECTOR ACTIVITY

The Clearing Interconnector Service will be available to all direct clearers eligible to exchange files for CS1, CS2 and other approved systems. The RBA will also permit direct clearers to nominate third parties (or agents) to send and receive clearing files on their behalf. All parties involved in the file transfer process will need to be governed by the RITS Regulations (which will be updated to incorporate this service).

4.1 Approved networks

The RBA does not intend to support bilateral connections to the Clearing Interconnector. It will only accept files transferred from an approved network, and will only send files to approved networks. The RBA will advise which networks will be supported by the Clearing Interconnector. Only SWIFT FileAct and the Telstra COIN will be supported in the initial implementation. If APCA was to approve another IP network for clearing exchanges in the future, the RBA would consider supporting that network. The Clearing Interconnector may also assist industry participants to migrate from one network to another if required in the future.

4.2 Approved file transfer protocols

APCA is currently considering participants' preferred file transfer protocols with a view to agreeing on a single industry protocol. If there is not consensus, the Clearing Interconnector could potentially act as a translator service between two file transfer protocols, so that, for example, a COIN member may send a file to the Clearing Interconnector using the Connect:Direct file transfer protocol and have the Clearing Interconnector deliver the file to its counterparty, also on COIN, using its preferred file transfer protocol, say Secure FTP. The Clearing Interconnector will support industry agreed protocol(s).

The Clearing Interconnector is likely to support a limited number of protocols. Where a participant wishes to use a file transfer protocol for COIN file transfers that its counterparties do not support, it could approach the RBA to have that file transfer protocol added to the Clearing Interconnector's supported range of file transfer protocols. The RBA can not guarantee that all requests will be able to be met. The RBA will advise which file transfer protocols will be supported by the Clearing Interconnector in the initial implementation once more information becomes available on the preferences of participants.

4.3 Approved file types

APCA will determine which clearing files are approved for transfer over the COIN. The Clearing Interconnector will accept all of these files. At this stage, it is envisaged that the following files will be approved:

CS1 – all Electronic Presentment & Dishonour (EP&D) related files, including presentments, dishonours, dishonour refusals, technically invalid dishonours and all acknowledgements.

CS2 – transaction and summary files for normal and government direct entry payments (including transaction files that contain return/refusal/reversal items).

CS3 – interchange settlement reports. The Clearing Interconnector can be used for these but will **not** be used for CS3 transaction approval messaging.

The RBA would also consider transfer of other files if participants can show a need and a nexus to payments clearing and/or settlement. All file transfer types will need to be configured in the system in advance.

4.4 File naming and other transfer conventions

File naming

Best practice would be that files exchanged via the Clearing Interconnector are named according to a standardised file naming convention. This would ensure that there is no conflict between files in the Clearing Interconnector that might otherwise share the same name. It may also be useful to recipients for their internal processing. One potential naming convention is outlined in the Appendix to this paper.

The adoption of a file name convention would allow users of the Clearing Interconnector to more easily identify files with their counterparties, particularly if troubleshooting is required. However, even using a file naming convention, file names will not necessarily be unique. If a file needs to be re-sent, it will have the same name as the original file.

The RBA seeks your feedback on whether or not a unique file reference or ID number should be included in the file name.

Although an agreed standardised naming convention is desirable, the Clearing Interconnector Service will support file names that do not comply with an agreed file name convention. This is to assist the industry in achieving a timely migration off the existing bilateral links. The RBA will continue to work with the industry to agree a naming convention that participants could migrate to over time.

Duplicate files

The Clearing Interconnector service will not check for duplicate files. This is because many existing clearing files use the same naming conventions. Recipients' systems usually identify the receipt of duplicate files.

Contingency exchanges

Participants should also note that if a clearing stream participant needs to fall back to contingency arrangements for file exchange under existing APCA procedures (whether resulting from an inability of the Clearing Interconnector to deliver files or otherwise), these file transfers will occur directly between participants and will not involve the Clearing Interconnector.[3] However, if some COIN participants wish to use SWIFT as their contingency option, they make take advantage of the Clearing Interconnector. This would require pre-advice to the RBA (refer to Section 5.1).

[3] PGP email is the generally agreed industry fallback arrangement. The RBA notes this method of fallback is presently being reconsidered by APCA and participants.

5. ADMINISTRATION AND CONTROLS

5.1 Administration

The Clearing Interconnector Service will only allow transfers between two participants that have agreed to use it, and only for specified file types. Sending and receiving pairs of users will have to be configured in the system bilaterally for each file type, and this configuration will require information from both parties. This profile will ensure that participants will only receive files from counterparties and for file types that they have agreed to receive. Configuration will be by file type (APCS, BECS etc) so that participants will be able to control their migration to the Service.

Participants will need to meet certification requirements (including connectivity testing with the RBA) before commencing sending test files across the Clearing Interconnector to other participants. This will include the ability to send files to the RBA primary and secondary test IP addresses for COIN members, or to the RBA's SWIFT distinguished name for SWIFT FileAct users.

5.2 Migration

Participants will be able to control the timing of the migration of file transfers from their current bilateral links. This migration will require close co-ordination between the sending/receiving participants and the RBA and can only occur when both participants are ready to use one of the new networks (COIN or SWIFT FileAct). As previously mentioned, the Clearing Interconnector will not receive or send files via participants' existing bilateral links with the RBA.

5.3 Testing

It is expected that participants will wish to exchange test files with their counterparties before commencing live file transfers. Also, participants may in the future apply patches, upgrade versions or change to new file transfer applications or file transfer protocols and need to test file transfers as part of these system changes.

The Clearing Interconnector Service will support this testing. The Clearing Interconnector Service will have separate Pre-Production and Production applications. These will use separate COIN IP addresses and SWIFT distinguished names. File sender and file recipient details will be configured separately in the Pre-Production and Production Services, allowing participants using proprietary file names to use different test and production file names. If different file names are used, the test file names would be rejected as invalid by the Production Service, and production file names would be rejected as invalid by the Pre-Production Service.

Participants using the file name convention will use a test/production indicator as part of the file name, and this would be validated by the Clearing Interconnector when a file is received. Files received by the Production Service with the test indicator would be rejected, and files received by the Pre-Production Service with the production indicator would be rejected.

This will assist participants to ensure that they do not deliver test files to production systems.

5.4 Security

It is expected that the APCA COIN governance will introduce standardised network level security requirements for COIN file transfers. Security arrangements for the Clearing Interconnector will adhere to those standards as a minimum. Participants will be able to agree bilaterally on additional security measures if they wish to do so. For example, participants may wish to encrypt files end to end for authentication purposes, or for privacy reasons.

5.5 Resilience

The hardware and software used for the Clearing Interconnector Service will have a high level of redundancy, commensurate with its important role in payments clearing in Australia. Separate infrastructure will be in place at the RBA's primary and secondary sites, with redundant components at each site. Automated failover arrangements will be in place in the event of a single component outage. The relevant data will be mirrored in real time to the alternate site. The RBA has support and operations staff at both sites. This design seeks to ensure that, as far as practicable, services continue to be provided with minimal impact to users if technical problems occur.

COIN members will be given the IP address of the Clearing Interconnector at both sites and may be able to configure their systems to use the secondary IP address if the primary IP address is not accessible after a certain number of attempts.

COIN members will be able to advise the RBA of a second IP address for their secondary site to be used in the event of failure of their primary site if their systems do not use the same IP address for their secondary site. RBA's systems will automatically divert files to the secondary address if the primary address is down.

The switching of SWIFT connectivity between primary and secondary sites is transparent to other SWIFT FileAct users as the same Distinguished Name is used.

5.6 Monitoring and Support

The operation of the Service will be closely monitored by RBA staff. The sending participant will be contacted if a file fails validation or in the event that a file cannot be delivered.

RBA staff will monitor the systems during normal industry clearing file transfer times. A help desk number will be available 24x7.

In the event of an outage of the Service, the RBA will keep participants informed via email and SMS, with regular updates. Conference calls will be co-ordinated as required. These information flows will be facilitated by the RBA's RITS Communication Facility. The RBA also uses this facility to provide the APCA Crisis Communications Facility.

5.7 Capacity

The RBA will support high capacity network connections to both COIN and SWIFT to ensure timely delivery of files. The RBA will monitor file transmission times. The system can be readily scaled to meet increasing volumes.

Participants should note that SWIFT has a 250MB file size limit for individual FileAct file transfers. This is not expected to affect low value clearing files as the largest of these is currently in the order of around 100MB.

5.8 Cost

The RBA has previously stated that it will assist the industry in moving to a new network platform by absorbing the development costs of providing the Clearing Interconnector; the operational costs of the Clearing Interconnector would thereafter be recovered from participants. Now that the detailed technical design of the Settlement and Clearing Interconnectors has been finalised, the RBA can provide further information on operational costs.

The Clearing Interconnector will use the same infrastructure already required for the RBA's Settlement Interconnector (to facilitate same day settlement of low-value file exchanges). As a result, no additional operational costs (excluding SWIFT message costs - see below) are anticipated for the operation of the Clearing Interconnector.

Accordingly, there will be no charge for use of the Clearing Interconnector for at least the first two years.

These arrangements will be reviewed prior to the conclusion of this two year period.

Any network-related charges associated with file transfers through the Clearing Interconnector will be borne by the user of that network (regardless of whether they are sender or receiver) and not by the user of the other network. For instance, SWIFT messaging costs will be the responsibility of the clearing participant using the SWIFT service and not the user of the COIN. SWIFT has recently announced its intention to waive messaging costs that would normally be incurred by the RBA for passing files to SWIFT users for a period of two years. After that time, the RBA is likely to implement a reverse billing arrangement, charging the receiving SWIFT user.

6. RBA AND PARTICIPANT PREPARATIONS

This section provides an overview of the initial steps that each party will need to take or consider as they begin preparations for implementing file transfers using the Clearing Interconnector service.

All CS1 and CS2 direct clearing participants who have nominated the COIN as their preferred network should note that ANZ has committed to using SWIFT FileAct for their CS1 and CS2 file exchanges. This means all COIN direct clearers will need to use the Clearing Interconnector to exchange files with ANZ (unless they also elect to use SWIFT FileAct).

6.1 RBA Preparations

i) COIN

The RBA is in the process of establishing its COIN connections and associated infrastructure. Once established the RBA will advise its IP addresses to COIN participants. These will consist of separate primary and secondary production addresses for use by both Clearing and Settlement Interconnectors. There will also be separate primary and secondary test IP addresses. [Note that separate IP addresses will be advised for the RBA's banking business.]

The RBA will advise COIN participants which file transfer protocols will be supported by the Clearing Interconnector service. [Note that it is the RBA's intention to use the file transfer protocol agreed with each participant for all COIN file transfers involving the RBA; i.e. Collator, Clearing Interconnector, Settlement Interconnector, transactional banking, and government agency banking report and sweeping files.]

The RBA will configure its file management system to interface with its SWIFT Alliance Gateway infrastructure and the COIN using the necessary protocols and adaptors. An end to end test environment will also be established.

ii) SWIFT

The RBA is in the process of determining the SWIFT service that will be established to encompass the Clearing and Settlement Interconnector initiatives. This has involved close liaison with SWIFT and relevant participants.

It is expected that a FileAct based Closed User Group (CUG) will be established and that a number of "Request Types" will be defined for use in this CUG. These request types will cater for the various types of clearing file exchanges that presently take place in CS1, CS2 and CS3, as well as allowing for Collator and government agency banking file exchanges. As previously advised, one of the request types will allow the use of FileAct Copy once same day settlement capability is delivered. The RBA will advise further information relating to the use of the SWIFT service as soon as details are finalised.

The RBA will also advise the Distinguished Name (DN) it will use for the sending and receiving of files over FileAct as well as details on how the File Transfer Request (which accompanies each FileAct transmission) will be used.

6.2 COIN participant preparations

Each participant who has nominated to use the COIN for its CS1 and CS2 file transfers will need to define their connectivity requirements and complete the necessary commercial arrangements with Telstra. Other internal infrastructure changes will need to take place to enable files to be exchanged via this new IP-based network. For many participants, the move away from mainframe-based processes linked to the SNA protocol will need careful planning.

In terms of sending and receiving files via the Clearing Interconnector, each COIN member will need to agree with the RBA the file transfer protocol to be used for these file transfers with the RBA. Other technical information that will need to be exchanged with the RBA will include:

- Sending and receiving IP address details.
- User-IDs to be used as part of the file transmission.
- Node names (as applicable).
- Destination mailbox/directory addresses (as applicable).
- Filenames that will be sent to the Clearing Interconnector (listed by receiving Clearing Interconnector participant).
- Filenames that the Clearing Interconnector will send to (listed by sending Clearing Interconnector participant).

Each of these steps is similar in nature to the steps required to establish direct connectivity with other COIN participants. In other words a COIN participant does not have to take additional steps to establish connectivity to the Clearing Interconnector Service because its counterpart participant has decided to use SWIFT FileAct or another file transfer protocol.

6.3 SWIFT participant preparations

Each participant who has nominated to use SWIFT FileAct for its CS1 and CS2 file transfers will need to provision each of their SWIFTnet links (SNLs) to use the FileAct service. By default, this allows use of the Store and Forward transfer method. [The RBA will advise SWIFT participants whether or not the real-time service also needs to be provisioned as soon as service definitions are finalised.]

As with COIN participants, internal infrastructure changes will need to be take place to enable files to be exchanged via the SWIFT network.

Other information that will need to be exchanged with the RBA will include:

- The Distinguished Name (DN).
- Filenames that will be sent to the Clearing Interconnector (listed by receiving Clearing Interconnector participant).
- Filenames that the Clearing Interconnector will send to (listed by sending Clearing Interconnector participant).

7. REQUEST FOR FEEDBACK

The RBA would appreciate any feedback you have on these proposed arrangements so that the design of the Clearing Interconnector can be finalised. Since, the time frame for readiness is quite tight, so we would appreciate your feedback by cob 22 June.

To assist in getting feedback on some specific areas, we have designed a feedback form (attached) for you to complete and return to the RBA via email. We also welcome any other feedback you may wish to provide.

If you would like to discuss any aspects of the design of the Clearing Interconnector, please contact Warren Wise on 02 9551 9894 (wisew@rba.gov.au) or Peter Gallagher on 02 9551 8941 (gallagherp@rba.gov.au).

APPENDIX

A SUGGESTED FILE NAMING CONVENTION FOR CLEARING FILES ACCEPTED BY THE CLEARING INTERCONNECTOR

A file naming convention for files sent to the Clearing Interconnector could take the following form:

Sender.Receiver.FileType.FileSubType.Description.Date.Test/ProdIndicator

For example: BK1.BK2.BECS.DET.1000.16032009.P

The following table set out the allowable combinations of file type and file sub-types.

Item	Valid Values	Description
Sender	As setup	APCA 3 digit clearer code. Only those bilateral pairs of sender and receiver that have been set up in the System will be accepted.
Receiver	As setup	APCA 3 digit clearer code. Only those bilateral pair of sender and receiver that have been set up in the System will be accepted.
File Type	APCS BECS CECS	APCA clearing system, or other payment service, for which the data in the file is being sent.
File Sub-Type	 For APCS: EPD For BECS DET DES DGT DGS For CECS ISR	Depends on Clearing System: All APCS files will be file type Electronic Presentment and Dishonour. BECS files fall into two file types – transaction (including files containing return/refusal/reversal items) and summary, for each of normal direct entry and government direct entry: Direct Entry Transaction Direct Entry Summary Direct entry Government Transaction Direct entry Government Summary There is only one type of file exchange envisaged for CECS, the interchange settlement report.

Item	Valid Values	Description
Description	 For APCS: A B C D E F For BECS: Normal 1000 1300 1600 1830 2015 Govt 0700 1815 2000	Depends on Clearing System: Cheque electronic presentment and dishonour files, sub-types as per the APCA APCS contingency file naming conventions: EP presentment file EP acknowledgement and TI file TI acknowledgement file (EP) Dishonour, Dishonour refusal and V/R file Dis, etc acknowledgement and TI file TI acknowledgment file (Dis, etc) Sub-type is time of exchange. Official exchange times are listed here, participants with other bilaterally agreed file exchange times would need to show that time in the same 24 hour format (eg 2230). Alternatively this could be a count of file exchanges for the day.
Date	YYYYMMDD	Date of file exchange in date format YYYYMMDD.
Test/Production	T P	Will be validated against the Clearing Interconnector address to which the file was sent. Test files sent to the Production Service will be rejected, as will production files sent to the Pre-Production Service.