

ACA AUCTION SYSTEM

Auction File Formats

Currency

This document is current at 2 November 1999. This version replaces the first version released on 23 October 1997 and the revision of 4 December 1997, and implements minor editorial corrections which are marked.

Overview

The ACA auction system works by exchanging files containing information. During the bidding period of an auction round, applicants prepare a bid instruction file which contains details of their bidding instructions for the round. These files are then digitally signed and encrypted and transferred using public communications infrastructure to the ACA Auction Centre. Each bid instruction file is processed by the ACA Auction Centre as it arrives. At the conclusion of the bidding round, the ACA Auction system calculates the results for the round and releases onto the internet a results file for the round. This results file then becomes an input to the ACA Auction Software client program, and assists in the creation of the next bid instruction file.

All files conform to the specifications for Microsoft Access 97 database files. No previous variant of the Access database is supported.

Encryption of Bid Instruction Files

The ACA uses PGP encryption version 2.6.x to guarantee the integrity and authenticity of bid files transmitted by applicants. As part of the process of sending bid instructions, the bid instruction file prepared automatically from the High Bids table is digitally signed with the applicant's PGP secret key, and then the file is encrypted with the ACA's public key. All keys will be prepared by the ACA and distributed to applicants by safe hand.

The ACA auction software distributed for use in Australia will contain all of the necessary encryption components to securely encrypt files for transmission over public facilities.

However, the bidding software produced for export to bidders who wish to bid from overseas will NOT contain the encryption components. Applicants wishing to bid from overseas MUST obtain their own copy of the encryption software from their own sources. They MUST install that software in the same directory as the ACA auction software.

Information about availability of PGP in all its variants can be found from:

<http://www.ifi.uio.no/pgppgpi.com/>

“Zip” Compression of Results Files

All results files supplied by the ACA will be supplied in a compressed format fully compatible with archives created by PK Zip 2.04g.

Bid Instruction File

This file contains applicant’s bid instructions. The bid instruction file will conform to the following specifications.

The file follows the following naming convention:

NNNNbRRR.bid

Where: **NNNN** is the bidder identification number of the applicant; and

“b” is a text separator. This continues a feature in a previous version of the software that is not used in this version

RRR is the round number in which the file is created.

“.bid” is a file extension

The bid instruction file contains the following tables:

Table Name: Bidder

Purpose: Contains information about the applicant and the applicant’s instructions regarding waivers and waiver overrides.

Field Name	Data type	Purpose
Waiver	Boolean	Used to denote whether or not the applicant has nominated a waiver
Override	Boolean	Used to denote whether or not the applicant has nominated to override the automatic waiver. Logic tested to ensure that this can only Override can only be true if Waiver is false.

BIN	Integer	Contains the applicants bidder identification number. Logic tested for true comparison with the file name, and with the encryption key used to sign the file.
Round	Integer	The number of the round in which the file was prepared.
Version	Long	Version number of the software used to prepare the file. Allows the ACA to reject files not prepared with the current client.

Table Name: Bids

Purpose: Contains the bidding instructions for each lot where the applicant wishes to make instructions.

Field Name	Data type	Purpose
Lot	Integer	Sets the lot number to which this row of instructions relates.
Bid	Currency	Sets the amount of the applicant's bid. Logic tested to ensure the amount is equal to or exceeds the minimum bid.
Withdraw	Boolean	Denotes "withdraw the bid" (true or false). Logic tested to require that if Bid is greater than zero, withdraw is false, if Withdraw is true, then Bid must be zero.

Autobid limit	Currency	Implements a new feature in the current software version for automatic “bump bidding”. Allows an applicant to automatically “bump” a higher bid by another applicant in the same round, up to this limit set in this field. Logic tested to ensure that Autobid limit is greater than Bid.
---------------	----------	--

Results File

This file contains the results of each round of the auction. The results file will conform to the following specifications.

The file will conform with the following naming convention:

NNNbRRR.auc

Where: **NNN** is the auction number; and

“b” is a text separator. This continues a feature in a previous version of the software that is not used in this version

RRR is the round number in which the file is created.

“.bidauc” is a file extension

The bid instruction file will contain two tables as follows:

Table Name: Bands

Purpose: Contains information about the bands on offer in the auction denoted by the first three characters of the file name.

Field Name	Data type	Purpose
Band	Integer	The band number of the band as set in the Marketing Plan.

LowerLowBound	Single	The lower frequency boundary of the lower band as set in the Marketing Plan for that Band.
LowerUppBound	Single	The upper frequency boundary of the lower band as set in the Marketing Plan for that Band.
UpperLowBound	Single	The lower frequency boundary of the upper band as set in the Marketing Plan for that Band.
UpperUppBound	Single	The upper frequency boundary of the upper band as set in the Marketing Plan for that Band.
Bandwidth	Single	The notional bandwidth of the lot. Note that if the band is paired, the notional bandwidth is the bandwidth of only one path of the pair. For example, a 2×5 MHz lot will be described as having a bandwidth of “5”.
BandName	Text - 50	The descriptive name of the part of the spectrum containing the band. For example “800 MHz band”.
Metro	Boolean	Denotes whether or not the band is available in metropolitan areas.
Regional	Boolean	Denotes whether or not the band is available in regional areas.
Outback	Boolean	Denotes whether or not the band is available in outback areas.
BandType	Integer	Reserved for future development.

Selected	Boolean	Denotes if the band is currently selected. If true, then all lots in the High Bids table that include the band will be displayed in the bidding window.
----------	---------	---

Table Name: Bidders

Purpose: Provides information about the current status of all applicants in the auction.

Field Name	Data type	Purpose
BIN	Integer	The bidder identification number of each applicant.
Initial Eligibility	Long	The eligibility of the applicant at the start of the auction.
Current Eligibility	Long	The current eligibility of the applicant as adjusted during the course of the auction.
Activity Last Round	Integer	The activity of the applicant in the round to which the results relate.
Waivers	Integer	The number of waivers available to the applicant and the end of the round to which the results relate.
Penalties	Currency	The value of bid withdrawal penalties for which the applicant would be liable if the auction closed at the end of the round to which the results relate.
Bid Total	Currency	The total value of all high bids held by the applicant at the end of the round to which the results relate.
Cap Type	Integer	This field is an index that is used to describe the capping level applied to a particular bidder. A cap type may apply to more than one bidder.

Table Name: BidForRound

Purpose: Contains all bid instructions made by all applicants in the round to which the results file relates.

Field Name	Data type	Purpose
Lot	Integer	The lot number as set in the Marketing Plan to which the bidding instruction relates.
Lot Name	Text - 50	The name of the lot as set in the Marketing Plan for the lot to which the bidding instruction relates.
Area	Integer	The area as set in the Marketing Plan to which the bidding instruction relates.
Band	Integer	The band as set in the Marketing Plan to which the bidding instruction relates
Bid	Currency	The amount of any new bid instruction. This is logic tested against the Withdraw field. If Bid is greater than zero, then Withdraw is false. If Withdraw is true, then Bid is zero.
Bidder	Integer	The bidder identification number of the bidder who made the bid instruction.
Timestamp	Date/time	The date/time stamp of the time when the bid instruction file containing this instruction was accepted by the ACA auction system for processing.

Withdraw	Boolean	Denotes whether the bid instruction was to withdraw a previous high bid. This is logic tested against the Bid field. If Bid is greater than zero, then Withdraw is false. If Withdraw is true, then Bid is zero.
----------	---------	--

Table Name: Cap Type

Purpose: Used to check bid instructions do not exceed the Minister's bidding caps.

Field Name	Data type	Purpose
Cap ID	Integer	Contains an index that is applied to one or more lots in the High Bids table.
Description	Text - 60	Description of the cap type, for example, "Metropolitan Bands 1 and 2".
Cap Type	Integer	This field is an index that is used to describe the capping level applied to a particular bidder. A cap type may apply to more than one bidder.
Max Spectrum	Double	Defines the maximum amount of spectrum that may be bid with this Cap ID. A bidder cannot bid for a combination of lots whose total amount of spectrum exceeds this value.

Table Name: CCL_Areas

Purpose: Coverage control table for the areas coverage in the GIS. This tables provides information about the geographic areas of lots being offered in an auction. The design of the table conforms to the minimum requirements for a type coverage control table as specified for the Sylvan Maps OCX Version 2.0.

Information about the Sylvan Maps OCX can be found at:

<http://www.sylvanmaps.com>

Field Name	Data type	Purpose
Map Version	Text - 5	Reserved for Sylvan OCX. Set to "02.00".
Topology	Text - 2	Reserved for Sylvan OCX. Set to "01".
Units	Text - 20	Description of map units used to define polygons in the PGN_Areas table. Set to "DEGREES".
Projection	Text - 50	Description of projection. Set to "Latitude-Longitude".
ProjNumber	Text - 4	Reserved for Sylvan OCX. Set to "0000".
Accuracy	Text - 200	Accuracy of map data. Set to "1:10,000".
Source	Text - 200	Source of the map data. Set to "ACA".
XMIN	Double	The longitude of the western boundary of the map. Set to "111".
YMIN	Double	The latitude of the southern boundary of the map. Set to "-46".
XMAX	Double	The longitude of the eastern boundary of the map. Set to "155".
YMAX	Double	The latitude of the northern boundary of the map. Set to "-8".

Table Name: Clock

Purpose: Contains information regarding the schedule for the current and next rounds.

Field Name	Data type	Purpose
Auction	Integer	The number of the auction.
Auction Title	Text - 50	The auction title.
Current Round	Integer	The number of the current round.
Activity	Integer	The activity target for the

		current round expressed as integer (per cent) (e.g. 60 means 60 per cent).
Next Round	Integer	The number of the next round.
Next Activity	Integer	The activity target for the next round expressed as integer (per cent) (e.g. 60 means 60 per cent).
Round Opens	Date/time	The opening time for bidding for the current round (i.e. the round after the round to which the results file relates).
Bids Close	Date/time	The time of close of bidding in the current round.
Round Closes	Date/time	The time of the close of the current round.
Next Round Opens	Date/time	The opening time for bidding for the next round (i.e. 2 rounds after the round to which the results file relates).
Next Bids Close	Date/time	The time of close of bidding in the next round.
Next Round Closes	Date/time	The time of the close of the next round.

Table Name: HighBids

Purpose: Contains information about the current status of each lot on offer in the auction. This file also contains fields where applicants can develop their bid instructions. The applicant's bid instruction file is created from this table when the applicant decides to send his or her bids.

Field Name	Data type	Purpose
Lot	Integer	Index number of the lot as referenced in the Marketing Plan.
Lot Name	Text - 50	The name of the lot as set in the Marketing Plan.

Area	Integer	The area number of the area to which the lot relates as set in the Marketing Plan.
Band	Integer	The band number of the band to which the lot relates as set in the Marketing Plan.
Lot Rating	Long	The lot rating of the lot as set in the Marketing Plan.
High Bid	Currency	The current high bid on the lot at the end of the round in which the results file was produced.
Bidder	Integer	The bidder identification number of the bidder who made the high bid.
Round	Integer	The round number of the round in which the current high bid was made.
Time Stamp	Date/time	The date/time stamp of the date and time that the bid file containing that high bid was accepted for processing by the ACA auction system.
Minimum Bid	Currency	The minimum bid in the next round as calculated by the ACA auction system in accordance with the rules.

New Bid	Currency	Provision for the applicant to enter their new bid on the lot in the next round. This value is tested to ensure that is at least equal to the specified minimum bid. If it is more than 2 multiples of the minimum bid, the applicant will be prompted to confirm the bid. This field is also logic tested against the Withdraw field. If New Bid is greater than zero, then Withdraw is false. If Withdraw is True, then New Bid is zero.
Withdraw	Boolean	Allows the applicant to nominate True for withdraw the bid or false for not withdraw. Logic tested against New Bid field. If New Bid is greater than zero, then Withdraw is false. If Withdraw is True, then New Bid is zero.
Autobid Limit	Currency	Implements a new feature in the current software version for automatic “bump bidding”. Allows an applicant to automatically “bump” a higher bid by another applicant in the same round, up to this limit set in this field. Logic tested to ensure that Autobid Limit is greater than New Bid.
Cap ID	Number	Sets the type of bidding cap that applies to this lot.

Table Name: PGN_Areas

Purpose: This tables provides information about the geographic areas of lots being offered in an auction. The design of the table conforms to the minimum requirements for a type polygon table as specified for the Sylvan Maps OCX Version 2.0.

Field Name	Data type	Purpose
POLYGONID	Integer	Index for the polygon describing the area.
Area	Integer	The area number of an area as described in the Marketing Plan. Area and POLYGONID do not correlate.
NUMVERT	Long	The number of vertices which bound the polygon.
BOUNDLOWX	Double	Sets the longitude of the western edge of the smallest rectangle which fully contains the polygon.
BOUNDLOWY	Double	Sets the latitude of the southern edge of the smallest rectangle which fully contains the polygon.
BOUNDUPPX	Double	Sets the longitude of the eastern edge of the smallest rectangle which fully contains the polygon.
BOUNDUPPY	Double	Sets the latitude of the northern edge of the smallest rectangle which fully contains the polygon.
CENTERX	Double	Sets the longitude of the centre of the smallest rectangle which fully contains the polygon. Can be calculated as $(BOUNDLOWX + BOUNDUPPX)/2$

CENTERY	Double	Sets the latitude of the centre of the smallest rectangle which fully contains the polygon. Can be calculated as (BOUNDLOWY + BOUNDUPPY)/2
HOLE	Boolean	Denotes whether this polygon represents a hole in the previous polygon as referenced by POLYGONID.
VERTICES	BLOB	Binary large object containing the coordinates of all of the vertices of the polygon.
NUMPARTS	Long	Reserved - not used by the auction system.
PARTS	BLOB	Reserved - not used by the auction system.
POPULATION	Long	The population of the area as set in the Marketing Plan.
NAME	Text - 50	The name of the area (e.g. "Sydney")
Area Type	Integer	Denotes the type of area (metropolitan = 1, regional = 2, outback = 3)
Area Display	Integer	Used to display the colour of the boundary of the polygon on the GIS. Toggles from thin blue (states 1, 2 or 3) to thick red (state 4). Can be used to implement colour coding of unselected lots, but this feature is not implemented at this time. If set to "4" denoting "selected" then all lots which include the selected area will be displayed in the bidding window.

Spectrum Marketing Team
Australian Communications Authority
14 July 2000