



Application Note - AN 116 / 6

Output Format Definitions

Format 6 - Port 30003 format

General

This format is compatible with Port 30003 output of Radarcape, SBS-1, Radarbox and similar consumer devices, and certain software that uses this format. It is a historical format that was introduced in 2004 with the first consumer ADS-B receiver devices. The format is very inefficient (long ASCII strings, empty fields) and therefore not recommended for professional use.

Standard Protocol

This format is output via a TCP/IP connection on port 30003. The PlaneTRack device is the TCP server. The connection must be initiated by the client (PC).

Message types

There are six message types - MSG, SEL, ID, AIR, STA, CLK defined by the original application. Most data from aircraft is contained in the MSG lines whilst the other types are triggered by user input or system settings. **PlaneTRack outputs MSG messages only.**

<i>ID</i>	<i>Type</i>	<i>Description</i>
MSG	TRANSMISSION MESSAGE	Generated by the aircraft. There are eight different MSG types.

Transmission messages

There are 8 different transmission message types.

Messages 1 to 4 are derived from DF17 CRC secured aircraft transmissions (extended squitter).

MSG 5 to 8 are derived from air interrogation responses with a non CRC secured transmission. **MSG 5 to 8 are not recommended for professional use.**

<i>ID</i>	<i>Type</i>	<i>Description</i>
MSG,1	ES Identification and Category	DF17 BDS 0,8 or DF20/21 BDS2,0
MSG,2	ES Surface Position Message	DF17 BDS 0,6

MSG,3	ES Airborne Position Message	DF17 BDS 0,5	Extended squitter message
MSG,4	ES Airborne Velocity Message	DF17 BDS 0,9	Extended squitter message
MSG,5	Surveillance Alt Message	DF4, DF20	Triggered by ground radar. Not CRC secured. MSG,5 will only be output if the aircraft has previously sent a MSG,1, 2, 3, 4 or 8 signal. Not recommended for use in PlaneTRack.
MSG,6	Surveillance ID Message	DF5, DF21	Triggered by ground radar. Not CRC secured. MSG,6 will only be output if the aircraft has previously sent a MSG,1, 2, 3, 4 or 8 signal. Not recommended for use in PlaneTRack.
MSG,7	Air To Air Message	DF16	Not CRC secured. Triggered from TCAS. Not recommended for use in PlaneTRack.
MSG,8	All Call Reply	DF11	All-call Broadcast. Also triggered by ground radar (roll-call, not CRC secured). Contains no information. Not recommended for use in PlaneTRack.

Field Data

Each of the above message types may contain up to 22 data fields separated by commas. These fields are:

Field 1:	Message type	(MSG, STA, ID, AIR, SEL or CLK)
Field 2:	Transmission Type	MSG sub types 1 to 8. Not used by other message types.
Field 3:	Session ID	Database Session record number. For PlaneTRack this value is always 111
Field 4:	AircraftID	Database Aircraft record number. For PlaneTRack this value is always 11111
Field 5:	HexIdent	Aircraft Mode S hexadecimal code
Field 6:	FlightID	Database Flight record number. For PlaneTRack this value is always 111111
Field 7:	Date message generated	As it says
Field 8:	Time message generated	As it says
Field 9:	Date message logged	As it says. For PlaneTRack this is the same as field 7.

Field 10:	Time message logged	As it says. For PlaneTRack this is the same as field 8.
Field 11:	Callsign	Eight digit flight ID according to ICAO rules
Field 12:	Altitude	Mode C altitude. Height relative to 1013.2mb (Flight Level). Not height AMSL..
Field 13:	GroundSpeed	Speed over ground (not indicated airspeed)
Field 14:	Track	True North Track of aircraft (not heading). Derived from the velocity E/W and velocity N/S
Field 15:	Latitude	North and East positive. South and West negative.
Field 16:	Longitude	North and East positive. South and West negative.
Field 17:	VerticalRate	64ft resolution climb (positive) or descent (negative)
Field 18:	Squawk	Assigned Mode A squawk code. Not recommended for use in PlaneTRack.
Field 19:	Alert (Squawk change)	Flag to indicate squawk has changed or emergency
Field 20:	Emergency	Flag to indicate emergency code has been set in aircraft transponder
Field 21:	SPI (Ident)	Flag to indicate transponder Ident has been activated.
Field 22:	IsOnGround	Flag to indicate ground switch is active.

Message Content

Each message type contains different field content. In the table below green represents the fields that are sent and grey shows fields for which null data is transmitted. MSG signals contain up to 22 fields and other message types contain up to 10 fields

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	
MSG 1	MT	TT	SID	AID	Hex	FID	DMG	TMG	DML	TML	CS												
MSG 2												Alt	GS	Trk	Lat	Lng							End
MSG 3												Alt			Lat	Lng			Alt	Emer	SPI		End
MSG 4													GS	Trk			VR						
MSG 5												Alt							Alt		SPI		End
MSG 6												Alt						Sq	Alt	Emer	SPI		End
MSG 7												Alt											End
MSG 8																							End
SEL											CS												
ID											CS												
AIR																							
STA																							
CLK				-1		-1																	

Examples of each message for PlaneTRack devices:

MSG,1,111,11111,7404F2,111111,2008/11/28,23:48:18.611,2008/11/28,23:53:19.161,RJA118,,,,,,,,,
MSG,2,111,11111,400CB6,111111,2008/10/13,12:24:32.414,2008/10/13,12:28:52.074,,,0,76.4,258.3,54.05735,-4.38826,,,,,0
MSG,3,111,11111,4CA2D6,111111,2008/11/28,14:53:50.594,2008/11/28,14:58:51.153,,37000,,,51.45735,-1.02826,,,0,0,0,0
MSG,4,111,11111,4CA767,111111,2010/02/19,17:58:13.039,2010/02/19,17:58:13.368,,,288.6,103.2,,, -832,,,,,
MSG,5,111,11111,394A65,111111,2010/02/19,17:58:12.644,2010/02/19,17:58:13.368,,10000,,,,,0,,0,0
MSG,6,111,11111,4CA215,111111,2010/02/19,17:58:12.846,2010/02/19,17:58:13.368,,33325,,,,,0271,0,0,0,0
MSG,7,111,11111,51106E,111111,2011/03/06,07:57:36.523,2011/03/06,07:57:37.054,,3775,,,,,,,,,0
MSG,8,111,11111,405F4E,111111,2010/02/19,17:58:13.244,2010/02/19,17:58:13.368,,,,,, ,,,,,,0