

ECAT 6.3

Main Header for Matrix Data Files				
When Filled	Byte	Variable Name	Type	Comment
	0	%FILL(14)	Integer*2	User reserved space (28 bytes)
A	28	ORIGINAL_FILE_NAME	Character*20	Scan file's creation name
A	48	SW_VERSION	Integer*2	Enumerated type (VER_PRE5, VER_5, etc.)
A	50	DATA_TYPE	Integer*2	E. type (DTYPE_BYTES, DTYPE_12, etc.)
A	52	SYSTEM TYPE	Integer*2	E. type (MODEL_911_01, _02, etc.)
A	54	FILE_TYPE	Integer*2	E. type (FTYPE_SCAN, _IMAGE, etc.)
C	56	NODE_ID	Character*10	Unique ID of the ECAT system used
C	66	SCAN_START_DAY	Integer*2	Day acquisition was started
C	68	SCAN_START_MONTH	Integer*2	Month acquisition was started
C	70	SCAN_START_YEAR	Integer*2	Year acquisition was started
C	72	SCAN_START_HOUR	Integer*2	Hour acquisition was started
C	74	SCAN_START_MINUTE	Integer*2	Minute acquisition was started
C	76	SCAN_START_SECOND	Integer*2	Second acquisition was started
A	78	ISOTOPE_CODE	Character*8	Isotope specifier
A	86	ISOTOPE_HALFLIFE	Real*4	Half-life of isotope specified (in sec.)
A	90	RADIOPHARMACEUTICAL	Character*32	Free format ASCII
A	122	GANTRY_TILT	Real*4	Angle (in degrees)
A	126	GANTRY_ROTATION	Real*4	Angle (in degrees)
A	130	BED_ELEVATION	Real*4	Bed height (in cm.) from lowest point
A	134	ROT_SOURCE_SPEED	Integer*2	Revolutions/minute (0 if not rotating)
A	136	WOBBLE_SPEED	Integer*2	Revolutions/minute (0 if not wobbled)
A	138	TRANSM_SOURCE_TYPE	Integer*2	Enumerated type (SRC_NONE, _RRS, etc.)

Table 13-3. Main Header for Matrix Data Files.

Matrix File Headers, cont.

Main Header for Matrix Data Files (continued)				
When Filled	Byte	Variable Name	Type	Comment
A	140	AXIAL_FOV	Real*4	Distance (in cm.) from first to last plane
A	144	TRANSAXIAL_FOV	Real*4	Diameter (in cm.) of transaxial view
A	148	TRANSAXIAL_SAMP_MODE	Integer*2	Enumerated Type (XSAMP_STAT, _3, etc.)
A	150	COIN_SAMP_MODE	Integer*2	E. type (CSAMP_NET_TRUES, etc.)
A	152	AXIAL_SAMP_MODE	Integer*2	E. type (ASAMP_NORM, _2X, etc.)
C	154	CALIBRATION_FACTOR	Real*4	Quantification scale factor
C	158	CALIBRATION_UNITS	Integer*2	Enumerated type (UNIT_UCIML, etc.)
B/C	160	COMPRESSION_CODE	Integer*2	Enumerated type (COMP_NONE, etc.)
A	162	STUDY_NAME	Character*12	Study descriptor
A	174	PATIENT_ID	Character*16	Patient identification descriptor
A	190	PATIENT_NAME	Character*32	Patient name (free format ASCII)
A	222	PATIENT_SEX	Character*1	E. type (SEX-MALE, _FEMALE, etc.)
A	223	PATIENT_AGE	Character*10	Patient age (free format)
A	233	PATIENT_HEIGHT	Character*10	Patient height (free format)
A	243	PATIENT_WEIGHT	Character*10	Patient weight (free format)
A	253	PATIENT_DEXTERITY	Character*1	E. type (DEXT_RT, _LF, _AMB, etc.)
A	254	PHYSICIAN_NAME	Character*32	Physician name (free format)
A	254	PHYSICIAN_NAME	Character*32	Physician name (free format)
A	286	OPERATOR_NAME	Character*32	Operator name (free format)
A	318	STUDY_DESCRIPTION	Character*32	Free format ASCII
A	350	ACQUISITION_TYPE	Integer*2	E. type (ACQ_RECTTR, _DYEM, etc.)
A	352	BED_TYPE	Integer*2	E. type (BED_CTI, BED_SIEMENS)
A	354	SEPTA_TYPE	Integer*2	E. type (SEPTA_NONE, 3MM, etc.)
A	356	FACILITY_NAME	Character*20	Free format ASCII
A	376	NUM_PLANES	Integer*2	Number of planes of data collected
A	378	NUM_FRAMES	Integer*2	Number of frames of data collected
A	380	NUM_GATES	Integer*2	Number of gates of data collected
A	382	NUM_BED_POS	Integer*2	Number of bed positions of data collected
A	384	INIT_BED_POSITION	Real*4	Absolute bed location of bed position 0 (cm.)
A	388	BED_OFFSET(15)	Real*4	Offset from INIT_BED_POSITION (in cm.)
A	448	PLANE_SEPARATION	Real*4	Distance between adjacent planes (in cm.)
A	452	LWR_SCTR_THRES	Integer*2	Lowest threshold setting for scatter (in KeV)
A	454	LWR_TRUE_THRES	Integer*2	Lower threshold setting for trues in (in KeV)
A	456	UPR_TRUE_THRES	Integer*2	Upper threshold setting for trues (in KeV)
A	458	COLLIMATOR	Real*4	Collimator position (if applicable--911's)
A	462	USER_PROCESS_CODE	Character*10	Data processing code (defined by user)
A	472	%FILL(20)	Integer*2	User reserved space (40 bytes)

Table 13-4. Main Header for Matrix Data Files (continued).

Subheader for Matrix Scan Files

When Filled	Byte	Variable Name	Type	Comment
	0	%FILL(63)	Integer*2	User reserved space (126 bytes)
	126	DATA_TYPE	Integer*2	Enumerated file data type
	128	%FILL(2)	Integer*2	Unused
C	132	DIMENSION_1	Integer*2	Total views collected (y dimension)
C	134	DIMENSION_2	Integer*2	Total elements collected (x dimension)
C	136	SMOOTHING	Integer*2	.0 = not smoothed, 1 = 9 x 9 smoothing
	138	PROCESSING_CODE	Integer*2	Designates processing applied to scan data
	140	%FILL(3)	Integer*2	Unused
C	146	SAMPLE_DISTANCE	Real*4	Actual Distance of view sample (in cm.)
	150	%FILL(8)	Integer*2	Unused
C	166	ISOTOPE_HALFLIFE	Real*4	Half-life of isotope (in sec.)
C	170	FRAME_DURATION_SEC	Integer*2	Frame duration (in sec.)
C	172	GATE_DURATION	Integer*4	Gating segment length (in msec.)
C	176	R_WAVE_OFFSET	Integer*4	Time from start of first gate (in msec.)
	180	%FILL(1)	Integer*2	Unused
C	182	SCALE_FACTOR	Real*4	Always set to 1
C	186	%FILL(3)	Integer*2	Unused
C	192	SCAN_MIN	Integer*2	Minimum value in sinogram
	194	SCAN_MAX	Integer*2	Maximum value in sinogram
C	196	PROMPTS	Integer*4	Total prompts collected in this frame/gate
C	200	DELAYED	Integer*4	Total delays collected in this frame/gate
C	204	MULTIPLES	Integer*4	Total multiples collected in this frame/gate
C	208	NET_TRUES	Integer*4	Total net trues (prompts—randoms)
	212	%FILL(52)	Integer*2	User reserved space (104 bytes)
C	316	COR_SINGLES(16)	Real*4	Total singles with loss correction factoring
C	380	UNCOR_SINGLES(16)	Real*4	Total singles without loss correction factoring
C	444	TOT_AVG_COR	Real*4	Mean value of loss-corrected singles
C	448	TOT_AVG_UNCOR	Real*4	Mean value of singles (not loss corrected)
C	452	TOTAL_COIN_RATE	Integer*4	Measured coincidence rate (from IPCP)
C	456	FRAME_START_TIME	Integer*4	Time offset from first frame time (in msec.)
C	460	FRAME_DURATION	Integer*4	Total duration of current frame (in msec.)
C	464	LOSS_CORRECTION_FCTR	Real*4	Loss correction factor applied to the sinogram
	468	%FILL(22)	Integer*2	Unused (44 bytes)

Table 13-5. Subheader for Matrix Scan Files.

Matrix File Headers, cont.

Main Header for Matrix Image Files				
When Filled	Byte	Variable Name	Type	Comment
	0	%FILL(63)	Integer*2	User reserved space (126 bytes)
B	126	DATA_TYPE	Integer*2	Enumerated type (DTYPE_BYTES, _I2, etc.)
B	128	NUM_DIMENSIONS	Integer*2	Number of dimensions
	130	%FILL(1)	Integer*2	Unused
B	132	DIMENSION_1	Integer*2	Dimension along x axis
B	134	DIMENSION_2	Integer*2	Dimension along y axis
	136	%FILL(12)	Integer*2	Unused
B	160	X_ORIGIN	Real*4	Offset in x axis for recon target (in cm.)
B	164	Y_ORIGIN	Real*4	Offset in y axis for recon target (in cm.)
B	168	RECON_SCALE	Real*4	Reconstruction magnification factor (zoom)
B	172	QUANT_SCALE	Real*4	Quantification scale factor (in Quant_units)
B	176	IMAGE_MIN	Integer*2	Image minimum pixel value
B	178	IMAGE_MAX	Integer*2	Image maximum pixel value
	180	%FILL(2)	Integer*2	Unused
B	184	PIXEL_SIZE	Real*4	Pixel size (in cm.)
B	188	SLICE_WIDTH	Real*4	Axial slice thickness (in cm.)
B	192	FRAME_DURATION	Integer*4	Total duration of current frame (in msec.)
B	196	FRAME_START_TIME	Integer*4	Frame start time (offset from first frame)
B	200	SLICE_LOCATION	Integer*2	Location offset from initial bed position (cm.)
B	202	RECON_START_HOUR	Integer*2	Hour reconstruction began
B	204	RECON_START_MIN	Integer*2	Minute reconstruction began
B	206	RECON_START_SEC	Integer*2	Second reconstruction began
B	208	RECON_DURATION	Integer*4	Duration of reconstruction (in msec.)
	212	%FILL(12)	Integer*2	Unused (24 bytes)
B	236	FILTER_CODE	Integer*2	Enumerated type (FILT_NONE, _RAMP, etc.)
B	238	SCAN_MATRIX_NUM	Integer*4	File index to corresponding scan data
B	242	NORM_MATRIX_NUM	Integer*4	File index to corresponding normal. data
B	246	ATTEN_COR_MAT_NUM	Integer*4	File index to attenuation correction data
	250	%FILL(23)	Integer*2	Unused (46 bytes)
B	296	IMAGE_ROTATION	Real*4	Angle image was rotated (in degrees)
B	300	PLANE_EFF_CORR_FCTR	Real*4	Plane efficiency factor applied
B	304	DECAY_CORR_FCTR	Real*4	Isotope decay compensation applied to data

Table 13–8. Subheader for Matrix Image Files.

Main Header for Matrix Image Files (continued)

When Filled	Byte	Variable Name	Type	Comment
B	308	LOSS_CORR_FCTR	Real*4	Loss correction factor (dead time) applied
	312	%FILL(32)	Integer*2	Unused (64 bytes)
B	376	PROCESSING_CODE	Integer*2	Bit encoded (PROC_DECAY_MASK, etc.)
	378	%FILL(1)	Integer*2	Unused
B	380	QUANT_UNITS	Integer*2	E. type (UNIT_MCIML, _NONE, etc.
B	382	RECON_START_DAY	Integer*2	Day image was reconstructed
B	384	RECON_START_MONTH	Integer*2	Month image was reconstructed
B	386	RECON_START_YEAR	Integer*2	Year image was reconstructed
B	388	ECAT_CALIBRATION_FCTR	Real*4	ECAT calibration factor
B	392	WELL_COUNTER_CAL_FCTR	Real*4	Well counter calibration factor
B	396	FILTER_PARAMS(6)	Real*4	Cutoff frequency, DC component, ramp slope
B	420	ANNOTATION	Character*40	Free format ASCII
	460	%FILL(26)	Integer*2	User reserved space (52 bytes)

Table 13-9. Subheader for Matrix Image Files (continued).