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Archive Conventions

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Change Record Sheet

Date	Iss.	Rev.	pp.	Description / Authority	CR No.
10 Jan 2006	1	–		<p>First issue. This document previously constituted appendix F of the Archive Plan (AD1). It was moved to a separate document in order to facilitate frequent updating.</p> <p>Made a few corrections, mainly affecting the values of INSTRUMENT_ID/NAME for some experiments.</p> <p>Added a table of the corresponding values for PROCESSING_LEVEL_ID and PRODUCT_TYPE.</p> <p>Added chapter "Geometry Information".</p>	
24 Jan 2006	1	1		Modified INSTRUMENT_ID/NAME for Lander teams (SESAME, ROLIS, MUPUS, ROMAP)	
31 Jan 2006	1	2		Modified INSTRUMENT_NAME for PTOLEMY	

Table of Contents

1. INTRODUCTION	7
1.1 INTRODUCTION	7
1.2 APPLICABLE DOCUMENTS	7
1.3 REFERENCE DOCUMENTS	7
2. MANDATORY KEYWORDS AND STANDARD VALUES	8
2.1 DATA PRODUCT LABELS	8
2.1.1 <i>DATA_SET_ID</i> Formation	15
2.1.2 <i>DATA_SET_NAME</i> Formation	16
2.1.3 <i>Multiple Mission Phases in One Data Set</i>	17
2.2 VOLUME OBJECT	18
3. GEOMETRY INFORMATION	19
3.1 GEOMETRY INDEX TABLE	19
3.2 GEOMETRY KEYWORDS IN DATA PRODUCT LABELS	19

List of Tables

TABLE 1: MANDATORY KEYWORDS AND STANDARD VALUES FOR DATA PRODUCT LABELS.....	8
TABLE 2: STANDARD VALUES FOR PROCESSING_LEVEL_ID AND PRODUCT_TYPE.....	10
TABLE 3: STANDARD VALUES FOR MISSION_PHASE_NAME AND ABBREVIATIONS.....	11
TABLE 4: STANDARD VALUES FOR INSTRUMENT_ID AND INSTRUMENT_NAME. VALUES PRINTED IN RED ARE BEING DISCUSSED.....	13
TABLE 5: STANDARD VALUES RELATED TO TARGETS.....	14
TABLE 6: MANDATORY KEYWORDS AND STANDARD VALUES FOR THE VOLUME OBJECT.....	18

1. Introduction

1.1 Introduction

This document defines the conventions that apply to the Rosetta Science Data Archive. The conventions are agreements and rules in addition to the PDS Standards (AD2, AD3). Adoption of these conventions in all data sets will increase the consistency and understandability of the Rosetta archive.

The archiving process, responsibilities, schedule and top-level structure of the data sets are described in the Archive Plan (AD1).

1.2 Applicable Documents

AD1 Rosetta Archive Generation, Validation and Transfer Plan, RO-EST-PL-5011, Issue 2, Revision 3, 10 Jan 2006.

AD2 Planetary Data System Standards Reference, JPL D-7669, Part 2, Version 3.6, 1 Aug 2003.

AD3 Planetary Science Data Dictionary Document, JPL D-7116, Revision E, 28 Aug 2002.

AD4 Planetary Science Data Archive Technical Note Geometry and Position Information, SOP-RSSD-TN-010, to be updated.

1.3 Reference Documents

RD1 Rosetta Mission Calendar, RO-ESC-TN-5026, Issue 2.1, Oct 2003.

2. Mandatory Keywords and Standard Values

2.1 Data Product Labels

Table 1 lists the keywords mandatory for all data product labels of the Rosetta mission. Note that not all of these keywords are required by the PDS standards. "N/A" ("Not Applicable") may be used for data elements of any type (i.e. text, date, numeric etc.) if needed.

The date/time expression YYYY-MM-DDThh:mm:ss[.fff] (without "Z") represents Universal Time Coordinated (UTC). This is erroneous in chapter 7 of the PDS Standards Reference Version 3.6 (AD2), although the Change Log indicates that the "Z" was removed from the examples (according to a telecon with PDS-SBN on 4 November 2003).

Table 1: Mandatory keywords and standard values for data product labels.

Keyword	Req. or opt. by PDS? All keywords strongly advised by ESA-PDS team.	Max. length	Standard value(s)
PDS VERSION ID	req.	6	PDS3
LABEL REVISION NOTE	opt.; in catalog labels: req.	N/A	"Vn.m"
RECORD TYPE	req.	20	FIXED_LENGTH (recommended), VARIABLE_LENGTH, STREAM, UNDEFINED
RECORD BYTES	see section 5.3.2 of AD2	N/A	
FILE RECORDS	see section 5.3.2 of AD2	N/A	
LABEL RECORDS	see section 5.3.2 of AD2	N/A	
DATA SET ID	req.	40	formation rule see section 2.1.1
DATA SET NAME	opt.	60	formation rule see section 2.1.2
PRODUCT ID	req.	40	"<filename without extension>"
PRODUCT CREATION TIME	req.	24	YYYY-MM-DDThh:mm:ss[.fff]
PRODUCT TYPE	opt.	30	see Table 2
PROCESSING LEVEL ID	opt.	1	CODMAC level 1, 2, 3, ..., 8, N, see Table 2
MISSION ID	opt.	N/A	ROSETTA
MISSION NAME	opt.	60	"INTERNATIONAL ROSETTA MISSION", "ROSETTA" (alias)

Keyword	Req. or opt. by PDS? All keywords strongly advised by ESA-PDS team.	Max. length	Standard value(s)
MISSION PHASE NAME	opt.	30	see Table 3
INSTRUMENT HOST ID	opt.	6	RO, RL
INSTRUMENT HOST NAME	req.	60	"ROSETTA-ORBITER", "ROSETTA-LANDER"
INSTRUMENT ID	opt.	12	see Table 4
INSTRUMENT NAME	req.	60	see Table 4
INSTRUMENT TYPE	opt.	30	
INSTRUMENT MODE ID	opt.	20	
INSTRUMENT MODE DESC	opt.	N/A	
TARGET NAME	req.	120	see Table 5
TARGET TYPE	opt.	20	see Table 5
START TIME	req.	24	YYYY-MM-DDThh:mm:ss[.fff]
STOP TIME	req.	24	YYYY-MM-DDThh:mm:ss[.fff]
SPACECRAFT CLOCK START COUNT	req.	30	e.g. "1/21983325.39258"
SPACECRAFT CLOCK STOP COUNT	req.	30	e.g. "1/21983325.39258"
PRODUCER ID	opt.	20	
PRODUCER FULL NAME	opt.	60	
PRODUCER INSTITUTION NAME	opt.	60	
DATA QUALITY ID	opt.	3	-1, 0, 1, 2, 3, 4
DATA QUALITY DESC	opt.	N/A	

Table 2: Standard values for *PROCESSING_LEVEL_ID* and *PRODUCT_TYPE*.

PROCESSING_LEVEL_ID value = CODMAC level	PSA level	NASA level	PRODUCT_TYPE value	Description
1	1a		UDR	Unprocessed Data Record
2	1b	0	EDR	Experiment Data Record
3	2	1A	RDR	Reduced Data Record
4		1B	REFDR	Reformatted Data Record
5	3	2-5	DDR	Derived Data Record
6			ANCDR	Ancillary Data Record

Table 3: Standard values for MISSION_PHASE_NAME and abbreviations.

Table 3(a): Simple mission phases.

Simple MISSION_PHASE_NAME	Abbreviation
"GROUND"	GRND
"LAUNCH"	LEOP
"COMMISSIONING"	CVP
"CRUISE 1", "CRUISE 2", "CRUISE 3", "CRUISE 4-1", "CRUISE 4-2", "CRUISE 5", "CRUISE 6"	CR1, CR2, CR3, CR4A, CR4B, CR5, CR6
"EARTH SWING-BY 1", "EARTH SWING-BY 2", "EARTH SWING-BY 3"	EAR1, EAR2, EAR3
"MARS SWING-BY "	MARS
"STEINS FLY-BY", "LUTETIA FLY-BY"	AST1, AST2
"RENDEZVOUS MANOEUVRE 1", "RENDEZVOUS MANOEUVRE 2"	RVM1, RVM2
"NEAR COMET DRIFT"	NCD
"FAR APPROACH TRAJECTORY"	FAT
"CLOSE APPROACH TRAJECTORY"	CAT
"TRANSITION TO GLOBAL MAPPING"	TGM
"GLOBAL MAPPING PHASE"	GMP
"CLOSE OBSERVATION PHASE"	COP
"LANDER DELIVERY AND RELAY"	SSP
"COMET ACTIVITY LOW"	LOW
"COMET ACTIVITY MODERATE INCR"	MINC
"COMET ACTIVITY SHARP INCREASE"	SINC
"COMET ACTIVITY HIGH"	HIGH
"NEAR PERIHELION"	PERI
"EXTENDED MISSION"	EXT

Table 3(b): Accumulative mission phases.

Accumulative MISSION PHASE NAME	Abbreviation	Corresponding simple mission phases
"APPROACH"	APPR	FAT to COP
"ESCORT"	ESCO	LOW to PERI
"COMET"	COM	FAT to PERI, i.e. APPR, SSP and ESCO
"CRUISE"	CRU	CR1, CR2, CR3, CR4A, CR4B, CR5, CR6 (special agreement with SD2 because of very low data volume)

Table 4: Standard values for INSTRUMENT_ID and INSTRUMENT_NAME. Values printed in red are being discussed.

INSTRUMENT ID	INSTRUMENT NAME
OSINAC	"OSIRIS - NARROW ANGLE CAMERA"
OSIWAC	"OSIRIS - WIDE ANGLE CAMERA"
VIRTIS	"VISIBLE AND INFRARED THERMAL IMAGING SPECTROMETER"
ALICE	"ALICE"
MIRO	"MICROWAVE INSTRUMENT FOR THE ROSETTA ORBITER"
ROSINA	"ROSETTA ORBITER SPECTROMETER FOR ION AND NEUTRAL ANALYSIS"
COSIMA	"COMETARY SECONDARY ION MASS ANALYZER"
MIDAS	"MICRO-IMAGING DUST ANALYSIS SYSTEM"
GIADA	"GRAIN IMPACT ANALYSER AND DUST ACCUMULATOR"
CONCERT	"COMET NUCLEUS SOUNDING EXPERIMENT BY RADIOWAVE TRANSMISSION"
RSI	"ROSETTA RADIO SCIENCE INVESTIGATION"
RPCICA	"ROSETTA PLASMA CONSORTIUM - ION COMPOSITION ANALYSER"
RPCIES	"ROSETTA PLASMA CONSORTIUM - ION AND ELECTRON SENSOR"
RPCLAP	"ROSETTA PLASMA CONSORTIUM - LANGMUIR PROBE"
RPCMAG	"ROSETTA PLASMA CONSORTIUM - FLUXGATE MAGNETOMETER"
RPCMIP	"ROSETTA PLASMA CONSORTIUM - MUTUAL IMPEDANCE PROBE"
RPCPIU	"ROSETTA PLASMA CONSORTIUM - PLASMA INTERFACE UNIT"
SREM	"STANDARD RADIATION ENVIRONMENT MONITOR"
NAVCAM	"NAVIGATION CAMERA"
ROLIS	"ROSETTA LANDER IMAGING SYSTEM - DESCENT AND CLOSEUP IMAGER"
CIVA	"CIVA - COMETARY INFRARED AND VISIBLE ANALYSER"
SD2	"SAMPLING, DRILLING AND DISTRIBUTION SUBSYSTEM"
COSAC	"COMETARY SAMPLING AND COMPOSITION EXPERIMENT"
PTOLEMY	"PTOLEMY - GAS CHROMATOGRAPH ISOTOPE RATIO MASS SPECTROMETER"
APXS	"ALPHA PARTICLE X-RAY SPECTROMETER"
MUPUS	"MULTI-PURPOSE SENSORS FOR SURFACE AND SUBSURFACE SCIENCE"
SESAME	"SURFACE ELECTRIC SOUNDING AND ACOUSTIC MONITORING EXPERIMENT"
ROMAP	"ROSETTA LANDER MAGNETOMETER AND PLASMA MONITOR"

Table 5: Standard values related to targets.

TARGET_NAME	TARGET_TYPE	<target name> in DATA SET NAME	<target id> in DATA SET ID
"67P/CHURYUMOV-GERASIMENKO (1969 R1) "	"COMET"	67P	C
"(2867) STEINS"	"ASTEROID"	STEINS	A
"(21) LUTETIA"	"ASTEROID"	LUTETIA	A
"EARTH"	"PLANET"	EARTH	E
"MARS"	"PLANET"	MARS	M
"CALIBRATION"	"CALIBRATION"	CAL	CAL
"CHECKOUT"	"N/A"	CHECK	X
"INTERPLANETARY DUST"	"DUST"	DUST	D
"INTERSTELLAR DUST"	"DUST"	DUST	D
"METEOROID STREAM"	"DUST"	DUST	D
"SOLAR WIND"	"SOLAR SYSTEM"	SW	SS
"9P/TEMPEL 1 (1867 G1) "	"COMET"	9P	C
"C/LINEAR (2002 T7) "	"COMET"	2002T7	C

2.1.1 DATA_SET_ID Formation

DATA_SET_ID = "<INSTRUMENT_HOST_ID>-<target id>-<INSTRUMENT_ID>-<data processing level number>-<mission phase abbreviation>-<description>-<version>"

<INSTRUMENT_HOST_ID>	RO, RL	required
<target id>	see Table 5	required
<INSTRUMENT_ID>	INSTRUMENT_ID from Table 4, GIADA uses GIA	required
<data processing level number>	CODMAC level 1, 2, 3, ..., 8, N	required
<mission phase abbreviation>	mission phase abbreviation from Table 3	optional
<description>	free character string containing only A-Z, 0-9	optional
<version>	e.g. V1.0	required

The maximum length of the DATA_SET_ID values is 40 characters.

Multiple instrument hosts, targets and instruments are referenced by concatenation of the values with a "/", which is interpreted as "and". This is not allowed for the data processing level number.

Examples: DATA_SET_ID = "RO-C-COSIMA-2-PERI-JET-V1.0"
 DATA_SET_ID = "RO/RL-CAL-CONSERT-2-GRND-PINGPONG-V1.0"

2.1.2 DATA_SET_NAME Formation

DATA_SET_NAME = "<INSTRUMENT_HOST_NAME> <target name> <INSTRUMENT_ID> <data processing level number>
 <mission phase abbreviation> <description> <version>"

<INSTRUMENT_HOST_NAME>	ROSETTA-ORBITER, ROSETTA-LANDER	required
<target name>	see Table 5	required
<INSTRUMENT_ID>	INSTRUMENT_ID from Table 4	required
<data processing level number>	CODMAC level 1, 2, 3, ..., 8, N	required
<mission phase abbreviation>	mission phase abbreviation from Table 3	optional
<description>	free character string containing only A-Z, 0-9, -	optional
<version>	e.g. V1.0	required

The maximum length of the DATA_SET_NAME values is 60 characters.

Multiple instrument hosts, targets and instruments are referenced by concatenation of the values with a "/", which is interpreted as "and". This is not allowed for the data processing level number.

Examples: DATA_SET_NAME = "ROSETTA-ORBITER CAL RPCMAG 2 GRND TEST3 V1.0"
 DATA_SET_NAME = "ROSETTA-ORBITER/ROSETTA-LANDER 67P CONSERT 2 SSP ORBIT1 V1.0"

2.1.3 Multiple Mission Phases in One Data Set

AND is indicated by /.

DATA_SET_ID = "RO-C-MIDAS-2-SINC/PERI-TAIL-V1.0" 32 char. < 40
DATA_SET_NAME = "ROSETTA-ORBITER 67P MIDAS 2 SINC/PERI TAIL V1.0" 47 char. < 60

A range is indicated by TO.

DATA_SET_ID = "RO-C-VIRTIS-2-CAT-TO-COP-MAPPING-V1.0" 37 char. < 40
DATA_SET_NAME = "ROSETTA-ORBITER 67P VIRTIS 2 CAT-TO-COP MAPPING V1.0" 52 char. < 60

If max. length is exceeded, abbreviate. <mission phase abbreviation> and <description> fields may be dropped.

DATA_SET_ID = "RO/RL-C-CN-2-SSP-TO-MINC/HIGH/PERI-V1.0" 39 char. < 40
DATA_SET_NAME = "ROSETTA-O/L 67P CONSERT 2 SSP-TO-MINC/HIGH/PERI DESC V1.0" 57 char. < 60

2.2 VOLUME Object

Table 6 lists the keywords mandatory for the VOLUME object of the Rosetta mission.

Table 6: Mandatory keywords and standard values for the VOLUME object.

Keyword	Req. or opt. by PDS? All keywords strongly advised by ESA-PDS team.	Max. length	Standard value(s)
DATA_SET_ID	req.	40	see section 2.1.1
DESCRIPTION	req.	N/A	"N/A"
MEDIUM_TYPE	req.	30	"ELECTRONIC"
PUBLICATION_DATE	req.	10	YYYY-MM-DD
VOLUME_FORMAT	req.	20	"ANSI"
VOLUME_ID	req.	12	"N/A"
VOLUME_NAME	req.	60	"N/A"
VOLUME_SERIES_NAME	req.	60	"N/A" (recommended), "ROSETTA SCIENCE ARCHIVE"
VOLUME_SET_NAME	req.	60	"N/A"
VOLUME_SET_ID	req.	40	"N/A"
VOLUME_VERSION_ID	req.	12	"N/A"
VOLUMES	req.	N/A	"UNK"

3. Geometry Information

3.1 Geometry Index Table

A geometry index table is required in all data sets. Details are described in AD4.

3.2 Geometry Keywords in Data Product Labels

There is a lot of useful information that might be very important for the understanding of the different types of data (depending on the instrument). For this reason, we also expect to have some geometrical information included in the data product labels, which shall be easily readable for the user.

You can see below a list of some of the keywords that give geometrical information. We expect at least the first four keywords for all the teams and all the data types as they give general information of the spacecraft, sun and target position and the coordinate system used. The rest are some of the optional keywords we propose, depending on the type of instrument and the type of measure. That is, some of the keywords might not be useful (or even not applicable) for a plasma instrument, but very important for an imaging instrument.

We would expect that every team has a look at this list and selects a set of keywords that are applicable / useful for them and include them in the labels. Of course any other keywords or additional information in the labels is welcome.

Required:

SC_SUN_POSITION_VECTOR
SC_TARGET_POSITION_VECTOR
COORDINATE_SYSTEM_ID (TBC)
COORDINATE_SYSTEM_NAME (TBC)

Optional / proposed:

SOLAR_LONGITUDE
SUB_SOLAR_LATITUDE
SUB_SOLAR_LONGITUDE

SC_SUN_VELOCITY_VECTOR
SC_TARGET_VELOCITY_VECTOR
SPACECRAFT_ALTITUDE

SUB_SPACECRAFT_LATITUDE
SUB_SPACECRAFT_LONGITUDE
SPACECRAFT_SOLAR_DISTANCE

LOCAL_TRUE_SOLAR_TIME
CENTER_LATITUDE
CENTER_LONGITUDE
PHASE_ANGLE
INCIDENCE_ANGLE
EMISSION_ANGLE
SLANT_DISTANCE
NORTH_AZIMUTH
SUB_SPACECRAFT_AZIMUTH
SUB_SOLAR_AZIMUTH
HORIZONTAL_PIXEL_SCALE
VERTICAL_PIXEL_SCALE
SOLAR_ELONGATION
TARGET_CENTER_DISTANCE
RIGHT_ASCENSION
DECLINATION
FOOTPRINT_POINT_LATITUDE
FOOTPRINT_POINT_LONGITUDE
SPACECRAFT_QUATERNION
SPACECRAFT_QUATERNION_DESC
SPICE_FILE_NAME