Appendix A: CDBS Relations and Load File

Table 1: File-level relation

Field	Format
file_name	varchar(50)
expansion_number	integer
delivery_number	integer
reference_file_type	varchar(50)
useafter_date	datetime
opus_flag	char(1)
comment	text
general_availability_date	datetime
opus_load_date	datetime
archive_date	datetime
reject_flag	char(1)
reject_delivery_number	integer
reject_by_file_name	varchar(50)
reject_by_expansion_number	integer
comparison_file_name	varchar(50)

Table 2: Row-level relation

Field	Format
file_name	varchar(50)
expansion_number	integer
observation_mode	multiple fields
equivalence_class	multiple fields
pedigree	varchar(50)
observation_begin_date	datetime
observation_end_date	datetime
comment	text

Table 3: Load File

Field	Format
Header	
file_name	varchar(50)
instrument	varchar(50)
reference_file_type	varchar(50)
useafter_date	datetime
comparison_file_name	varchar(50)
opus_flag	char(1)
comment (file-level)	text
Detail	
level_of_change	varchar(30)
pedigree	varchar(50)
observation_begin_date	datetime
observation_end_date	datetime
observation_mode	multiple
comment (row-level)	text

Appendix B: Instrument Modes

Table 1: FOC Calibration Dependencies

	t/i	OPTCRLY	PXFORMT	OPTELT1	OPTELT2	SAMPOFF	SAMPPLN	LINEOFF	LINEPFM	CAMMODE	SMMI
BAC	i	+	+								
ITF	i	+	+			+	+	+	+		
SDE	i		+	+	+						
GEO	i	+	+	+	+	+	+	+	+	+	
BLM	i	+	+								
UNI	i	+								+	
UNITAB	t	+								+	

The column labeled t/i indicates whether the data is in the form of a table (t) or an image (i). Column UNI_FILE_NAME is used to select the UNI file row within the UNITAB file.

Datatypes:	
FIELD	DATATYPE
OPTCRLY	VARCHAR(8)
PXFORMT	VARCHAR(8)
OPTELT1	INTEGER
OPTELT2	INTEGER
SAMPOFF	INTEGER
SAMPPLN	INTEGER
LINEOFF	INTEGER
LINEPFM	INTEGER
CAMMODE	VARCHAR(8)
SMMMODE	VARCHAR(8)
WAVELENGTH	INTEGER
UNI_FILE_NAME	VARCHAR(50)

The column labeled t/i indicates whether the data is in the form of a table (t) or an image (i).

Table 2: HSP Calibration Dependencies

	t/i	APER_NAME (APERTOBJ)	DET_NUM (DETECTOB)	TYPE (DATA_TYP)	VOLTAGE	VGAIND	THRES
ccp0	t	+					
ccp1	t		+	+	+		
ccp2	t		+			+	
ccp3	t		+	+			
ccp4	t	+	+				
ccp5	t	-		-	-		
ccp7	t		+			+	
ccp8	t		+		+		+
ccp9	t	+	+				

The column labeled t/i indicates whether the data is in the form of a table (t) or an image (i).

All HSP calibration table selectors are contained in the file headers. Several go by different names in the headers and are shown i

	Datatypes:
FIELD	DATATYPE
APER_NAME	VARCHAR(10)
DET_NUM	INTEGER
TYPE	VARCHAR(7)
VOLTAGE	INTEGER
VGAIND	INTEGER
THRESH	INTEGER

Table 3: FOS Calibration Dependencies

	t/i	DETECTOR	OVERSCAN	APER_ID	APER_POS	POLAR_ID	FGWA_ID	PASS_DIR	FCHNL	NXSTEPS	GM_LAT (calculated)	GM_L (calcu
AIS	i	+	+			+	+	+				
BAC	i	+	+									
FLT	i	+	+	+	+	+	+	+				
IVS	i	+	+	+	+	+	+	+				
RET	i	+	+			+	+					
DDT	i	+										
QIN	i	+	+	+	+	+	+	+				
LSF	i	+		+								
PSF	i	+										
PCP	i	+		+		+	+					
ccs0	t	+		+	+							
ccs1	t	+					+					
ccs2	t	+					+		+	+		
ccs3	t	+										
ccs4	t	+				+	+					
ccs5	t	+		+	−		+			+		
ccs6	t	+		+	+	+	+	+				
ccs7	t	+										
ccs8	t	+									−	−
ccs9	t	+					+					
ccsa	t											
ccsb	t	+		+			+					
ccsc	t	+		+								
ccsd	t	+					+					
ccg2	t	+										

The column labeled t/i indicates whether the data is in the form of a table (t) or an image (i). Note reference_file_type The PS... use only, i.e., field opus_flag in database relation fos_file must always be set to "N".

Datatypes:

FIELD	DATATYPE
DETECTOR	VARCHAR(5)
OVERSCAN	INTEGER
APER_ID	VARCHAR(3)
APER_POS	VARCHAR(6)
POLAR_ID	CHAR(1)
FGWA_ID	VARCHAR(3)
PASS_DIR	INTEGER
FCHNL	INTEGER
NXSTEPS	INTEGER
GM_LAT	INTEGER
GM_LONG	INTEGER
MJD	FLOAT
FOCUS	FLOAT
WAVELENGTH	INTEGER

Table 4: HRS Calibration Dependencies

	t/i	DETECTOR	GRATING	APERTURE	SPORDER	CARPOS	line1	line2	sample1	sam
DIO	i	+								
PHC	i		+							
VIG	i		+							
ABS	i		+							
NET	i		+							
QIN	i	+								
WAVECAL	t									
SAA	i									
ccr1	t	+								
ccr2	t	+								
ccr3	t	+								
ccr4	t		+							
ccr5	t		+							
ccr6	t		+			−				
ccr7	t		+							
ccr8	t		+	+	+	−				
ccr9	t		+		+	−				
ccra	t		+							
ccrb	t		+	+	+					
ccrc	t		+							
ccrd	t	+					−	−	−	−
ccre	t									
ccg2	t	+								
ptnelinec	t									
scoffc	t									

The column labeled t/i indicates whether the data is in the form of a table (t) or an image (i).

For the HRS, CARPOS, and YDEF are group parameters. line1, line2, sample1 and sample2 are derived from group parameters
are not expected to track for rows dependent on these variables. Reference_file_types WAVECAL, ptnelinec and scoffc are for nonp
in database relation hrs_file must always be set to "N".

Datatypes:

FIELD	DATATYPE
DETECTOR	INTEGER
GRATING	VARCHAR(9)
APERTURE	VARCHAR(3)
SPORDER	INTEGER
CARPOS	INTEGER
LINE1	FLOAT
LINE2	FLOAT
SAMPLE1	FLOAT
SAMPLE2	FLOAT
YDEF	INTEGER
TARGETID	VARCHAR(18)

Table 5: WFPC2 Calibration Dependencies

	t/i	MODE	ATODGAIN	SERIALS	SHUTTER	FILTER1	FILTER2
MSK	i	+					
A2D	i	+	+				
BAS	i	+	+				
DRK	i	+	+	+			
FLT	i	+				+	+
SHD	i	+			+		

The column labeled t/i indicates whether the data is in the form of a table (t) or an image (i).

Datatypes:

FIELD	DATATYPE
ATODGAIN	INTEGER
MODE	VARCHAR(4)
SERIALS	VARCHAR(3)
SHUTTER	CHAR(1)
FILTER1	INTEGER
FILTER2	INTEGER

Table 6: WFPC Calibration Dependencies

	t/i	CAMERA	MODE	CLOCK (serials)	FILTER1	FILTER2	FILTNAM1	FILTNAM2	SHUTTER	DE
A2D	i	+	+							
BAS	i	+	+							
DRK	i	+	+	+						
FLT	i	+	+		+	+				
MSK	i	+	+							
PRF	i	+	+						+	
PUR	i	+	+							
PHOTTAB	t									
PSF	i	+	+				+	+		
DFLT	i	+	+		+	+	+	+		

The column labeled t/i indicates whether the data is in the form of a table (t) or an image (i). Note reference_file_types DFL
only, i.e., field opus_flag in database relation wfpc_file must always be set to "N".

Datatypes:

FIELD	DATATYPE
CAMERA	VARCHAR(2)
MODE	VARCHAR(4)
CLOCK	VARCHAR(3)
FILTER1	INTEGER
FILTER2	INTEGER
FILTNAM1	VARCHAR(6)
FILTNAM2	VARCHAR(6)
SHUTTER	CHAR(1)
DETECTOR	INTEGER
PHOTMODE	VARCHAR(48)

	t/i	DETECTOR	CCDAMP	CCDGAIN	CCDOFFST	BINAXIS1	BINAXIS2	CRSPLIT	MEAN
BIA	i	+	+	+	+	+	+		
DRK	i	+	c	c					
SSC	i	+							
CCD	t	T	+	+	+	+	+		
A2D	t	T	+	+					
CRR	t	T						+	-

Table 7b: STIS Calibration Dependencies ICD-47 11/25/96

	t/i	DETECTOR	OPT_ELEM	OBSTYPE	APERTURE	CENWAVE	SPORDER	A2CENTER	SCLAMP
PFL	i	+	+	+	I	S			
DFL	i	+							
LFL	i	+	+	+	I	S			
SSD	i	+							
BPX	t	T							
LIN	t	+							
PHT	t	T	+	T		S			
APT	t				+				
APD	t				+				
LMP	t								-
IDC	t	T	+		+				
SDC	t	T	+			+	-		
IAC	t	T	+			+	-		
DSP	t	T	+			+	-	-	
1DT	t	T	+			+	-		
1DX	t	T	+		+	+	-		
MOC	t	T	+			+			
PCT	t	T	T	T	+	+			

The column labeled t/i indicates whether the data is in the form of a table (t) or an image (i).
Labels C, I, S, and T should be interpreted as "+", but with additional meaning:
C - Applies only to CCD modes
I - Only for OBSTYPE=IMAGING
S - Only for OBSTYPE=SPECTROSCOPIC
T - mode field is used to select tables (in addition to the instrument, reference_file_type, and useafter_dat

Note: SCLAMP and LAMPSET could be deleted from database.

Datatypes:

FIELD	DATATYPE
DETECTOR	VARCHAR(10)
CCDAMP	VARCHAR(3)
CCDGAIN	INTEGER
CCDOFFST	INTEGER
BINAXIS1	INTEGER
BINAXIS2	INTEGER
CRSPLIT	INTEGER
MEANEXP	REAL
OPT_ELEM	VARCHAR(8)
OBSTYPE	VARCHAR(14)
APERTURE	VARCHAR(16)
CENWAVE	INTEGER
SPORDER	INTEGER
A2CENTER	INTEGER
SCLAMP	VARCHAR(9)
LAMPSET	VARCHAR(6)

Table 8: NICMOS Calibration Dependencies

Reference file	t/i	CAMERA	FILTER	READOUT	NREAD	SUNANGLE	LATITUDE	SA
MSK	i	+						
NOI	i	+		+	+			
LIN	i	+						
DRK	i	+		+	+			
FLT	i	+	+					
ILM	i	+	+					
PHT	t							
BKG	t	+	+			-	-	

The column labeled t/i indicates whether the data is in the form of a table (t) or an image (i).

Datatypes:

FIELD	DATATYPE
CAMERA	INTEGER
FILTER	VARCHAR(7)
READOUT	VARCHAR(5)
NREAD	INTEGER
SUNANGLE	REAL
LATITUDE	REAL
SAMP_SEQ	VARCHAR(7)

Table 9: SYNPHOT Calibration Dependencies

Reference file	t/i	COMPNAME
GRAPHTAB	t	
COMPTAB	t	
THROUGHPUT	t	+

The column labeled t/i indicates whether the data is in the form of a table (t) or an image (i).

Datatypes:

FIELD	DATATYPE
COMPNAME	VARCHAR(50)

Table 10: MULTI Calibration Dependencies

Reference file	t/i	TARGETID	FLD_NAME	OBSMODE
CLUSTERPOS	t			
PHOFLDS	t		T	
PHOTOBS	t			
POLAROBS	t			
SPECOBS	t	T		T
SPECTRUM	t	T		

The column labeled t/i indicates whether the data is in the form of a table (t) or an image (i).

Note: all the above reference_file_types are for nonpipeline use only, i.e., field opus_flag in database relation multi_file must always
The mode value T indicates a file selection criterion.

Datatypes:

FIELD	DATATYPE
FLD_NAME	VARCHAR(18)
TARGETID	VARCHAR(18)
OBSMODE	VARCHAR(18)

Appendix C: OPUS and CDBS Database Relations

OPUS relation ccaa_wfc_ref

OPUS field	OPUS datatype	CDBS field
file_type	varchar(3)	reference_file_type
camera	varchar(2)	camera
mode	varchar(4)	mode
clock	varchar(3)	clock
shutter	varchar(1)	shutter
filter_1	smallint	filter1
filter_2	smallint	filter2
data_file	varchar(18)	file_name (data header)
qual_file	varchar(18)	file_name (qual header)
load_time	varchar(20)	opus_load_date
use_after	varchar(17)	useafter_date

Note: fields data_file and qual_file are determined by field file_name, which is based on the reference file header name. Dates must be converted to appropriate strings.

OPUS relation ccab_foc_ref

OPUS field	OPUS datatype	CDBS field
file_type	varchar(3)	reference_file_type
pxformt	varchar(8)	pxformt
optclry	varchar(8)	optclry
smmode	varchar(8)	smmmode
optelt1	smallint	optelt1
optelt2	smallint	optelt2
optelt3	smallint	-
optelt4	smallint	wavelength
sampoff	real	sampoff
lineoff	real	lineoff
samppln	smallint	samppln
linepfm	smallint	linepfm
cammode	varchar(8)	cammode
header_file	varchar(18)	file_name (header)
data_file	varchar(18)	file_name (data)
load_time	varchar(20)	opus_load_date
use_after	varchar(17)	useafter_date

Note: fields data_file and header_file are determined by field file_name, which is based on the reference file header name. Dates must be converted to appropriate strings.

OPUS relation ccac_fos_ref

OPUS field	OPUS datatype	CDBS field
file_type	varchar(3)	reference_file_type
detector	varchar(5)	detector
fchnl	int	fchnl
nchlns	int	-
nxsteps	int	nxsteps
overscan	int	overscan
pass_dir	smallint	pass_dir
aper_id	varchar(3)	aper_id
polar_id	varchar(1)	polar_id
fgwa_id	varchar(3)	fgwa_id
grndmode	varchar(18)	-
aper_pos	varchar(6)	aper_pos
header_file	varchar(18)	file_name (header)
data_file	varchar(18)	file_name (data)
load_time	varchar(20)	opus_load_date
use_after	varchar(17)	useafter_date

Note: fields data_file and header_file are determined by field file_name, which is based on the reference file header name. Dates must be converted to appropriate strings. Field grndmode is always set to blank; field nchnls is always set to zero.

OPUS relation ccad_hrs_ref

OPUS field	OPUS datatype	CDBS field
file_type	varchar(3)	reference_file_type
detector	smallint	detector
grating	varchar(9)	grating
header_file	varchar(18)	file_name (header)
data_file	varchar(18)	file_name (data)
load_time	varchar(20)	opus_load_date
use_after	varchar(17)	useafter_date

Note: fields data_file and header_file are determined by field file_name, which is based on the reference file header name. Dates must be converted to appropriate strings.

OPUS relation ccau_wf2_ref

OPUS field	OPUS datatype	CDBS field
file_type	varchar(3)	reference_file_type
mode	varchar(4)	mode
clock	varchar(3)	serials
shutter	varchar(1)	shutter
filter_1	smallint	filter1
filter_2	smallint	filter2
atodgain	smallint	atodgain
data_file	varchar(18)	file_name (data header)
qual_file	varchar(18)	file_name (qual header)
load_time	varchar(20)	opus_load_date
use_after	varchar(17)	useafter_date

Note: fields data_file and qual_file are determined by field file_name, which is based on the reference file header name. Dates must be converted to appropriate strings.

OPUS relation ccan_nicmos_ref

OPUS field	OPUS datatype	CDBS field
camera	smallint	camera
filter	varchar(8)	filter
readout	varchar(5)	readout
nread	smallint	nread
data_file	varchar(20)	file_name (data header)
samp_seq	varchar(7)	samp_seq (data header)
load_time	varchar(20)	opus_load_date
use_after	varchar(17)	useafter_date

Dates in CDBS are Sybase datetime and must be converted to appropriate strings. All nicmos data goes into this table. Non
data.

OPUS relation ccao_stis_ref

OPUS field	OPUS datatype	CDBS field	CDBS datatype
filetype	varchar(8)	reference_file_type	varchar(8)
data_file	varchar(20)	file_name (data header)	varchar(20)
load_time	varchar(20)	opus_load_date	date/time
use_after	varchar(17)	useafter_date	varchar(17)
detector	varchar(11)	detector	varchar(11)
ccdamp	varchar(4)	ccdamp	varchar(3)
ccdgain	int	ccdgain	shortint
opt_elem	varchar(12)	opt_elem	varchar(12)
cenwave	int	cenwave	shortint
obstype	varchar(16)	obstype	varchar(14)
aperture	varchar(17)	aperature	varchar(16)
binaxis1	int	binaxis1	shortint
binaxis2	int	binaxis2	shortint
ccdoffst	int	ccdoffst	shortint
sclamp	varchar(8)	sclamp	varchar(8)

Dates in CDBS are Sybase datetime and must be converted to appropriate strings. All stis data goes into this table. None goes
In some cases, the OPUS and CDBS datatypes do not agree. This should not be a problem, since the CDBS datatypes are shorter.
be accepted by the OPUS database.

OPUS relation caltable

OPUS field	OPUS datatype	CDBS field
keyword	varchar(3)	reference_file_type
instrument	varchar(1)	-
filename	varchar(18)	file_name
load_time	varchar(20)	opus_load_date
comment	varchar(50)	comment
use_after	varchar(17)	useafter_date

Dates in CDBS are Sybase datetime and must be converted to appropriate strings. Instrument is determined by the CDBS t into the single character value.