# SCIENCE METADATA TABLES

This document describes the tables that hold the HST Science FITS header keywords. The Science Metadata tables are divided into 4 main sections: Products, Exposures, Association and Joins.

All science tables contain the PSO key (program\_id, obset\_id and obsnum). Most science tables also contain the dataset name with some exceptions. This was done in the original design and there is no clue as to why. The PSO key maps 1-1 to the dataset name. It is the primary key because the dataset name cannot always be used in queries (due to the transmission source in the last letter).

The ERD is located at <http://dsbwww.stsci.edu/dsb_pages/database/ERD/HSTDadsIngest.jpg> but is slightly out of date.

# Science Tables

Science datasets are either singleton or association datasets. Singletons are unassociated exposures. They populate both product and exposure tables. They do not populate association tables.

Associations are made up of product and exposure members. The exposure member(s) are combined/processed in some way to create the product member(s). Associations always have at least one product member and one exposure member. When there is one product that product is considered the main product. When there are multiple products there will be a main product and sub-products. The sub-products are intermediary products that go into making the main product. All products are in the catalog. Association products populate the product tables; association members populate the exposure tables. The association itself populates the association tables. Association IDs always end in zero but not all main products end in zero. Products and subproducts end in 0-9,A-I. Exposures end in one of the following letters: S,Q,N,P,M,T,O,R.

All datasets populate the join table as will be described below.

## Product Tables

The product tables contain one record per singleton (unassociated exposure), main product or subproduct of an association. Exposure members of an association are not in these tables. The way each instrument defines its associations is defined below.

The product tables are:

* science – contains product level keywords common to all instruments.
* <instrument>\_science – exists for ACS, COS, NICMOS, STIS, WFC3. It contains instrument specific keywords for the particular instrument.
* <instrument>\_ref\_data – exists for all instruments. It contains the best reference files for the dataset. It may contain the reference files that were used to create the dataset although the used fields are being phased out. It also contains keywords that are needed to identify the best reference files.
* fixed\_targets, moving\_target\_position, target\_keyword, target\_sysnonym, scan\_parameters – these store pass-through SPSS (Science Planning and Scheduling System)values. Some of the values from target\_keyword are concatenated and are also in the science table. These tables do not contain a dataset name and are joined using only the PSO.

## Exposure Tables

The exposure tables contain one record per singleton or member exposure. Association products are not in these tables. Most of the entries map to an exposure dataset but, as is explained below, STIS maps its exposures only to an association dataset name (this is the only exception where the dataset name does not match the PSO key).

The Exposure tables are:

* shp\_data - contains all exposure level keywords common to all instruments.
* acs\_a\_data – contains ACS specific exposure level keywords.
* acs\_chip – contains multiple rows per ACS exposure. The primary key is the PSO key and acc\_ccdchip, which is a value needed to make each row unique. There is no dataset name in this table.
* cos\_a\_data, cos\_b\_data, cos\_c\_data, cos\_d\_data – contain COS specific exposure level keywords. There were too many fields to put in a table so the fields were split across multiple tables.
* fgs\_data - contains FGS specific exposure level keywords.
* foc\_data - contains FOC specific exposure level keywords.
* fos\_data - contains FOS specific exposure level keywords.
* hrs\_data - contains HRS specific exposure level keywords.
* hsp\_data - contains HSP specific exposure level keywords.
* nicmos\_a\_data, nicmos\_b\_data, nicmos\_c\_data– contain NICMOS specific exposure level keywords. There were too many fields to put in a table so the fields were split across multiple tables.
* nicmos\_times - contains multiple rows per NICMOS exposure. The primary key is the PSO key and nst\_sampnum, which is a value needed to make each row unique. There is no dataset name in this table.
* stis\_a\_data, stis\_b\_data, stis\_c\_data – contain STIS specific exposure level keywords. There were too many fields to put in a table so the fields were split across multiple tables.
* wfc3\_a\_data – contains WFC3 specific exposure level keywords.
* wfc3\_chip – contains multiple rows per WFC3 exposure. The primary key is the PSO key and w3c\_ccdchip, which is a value needed to make each row unique.
* wfc3\_times - contains multiple rows per WFC3 exposure. The primary key is the PSO key and w3t\_sampnum, which is a value needed to make each row unique.
* wfpc\_data, wfpc\_group\_data - contains WFPC specific exposure level keywords. There were too many fields to put in a table so the fields were split across multiple tables.
* wfpc2\_primary\_data, wfpc2\_secondary\_data - contains WFPC2 specific exposure level keywords. There were too many fields to put in a table so the fields were split across multiple tables.

## Association Tables

Association tables contain information about the associations.

There are three association tables: assoc\_status, assoc\_member and assoc\_orphan.

* assoc\_status – contains one row per association and indicates whether the association is complete or incomplete.
* assoc\_member – contains a list of datasets that are members of an association. This includes main products, subproducts and all the member exposures. An example of this table is shown in the Understanding Associations Section.
* assoc\_orphan – contains a list of datasets that were planned to be associated but failed to associate. These member exposures are cataloged as singletons and end up in both the product and exposure tables.

## Join Table

The join table, sci\_inst\_db\_join, was created to join the product and exposure tables for queries.

When querying, it is sometimes desired to join the product level tables to the exposure level tables for association members and singletons without having to know what type of dataset it is; sci\_inst\_db\_join was created for just that purpose. It contains seven fields: the first three fields map to the PSO key in the product tables; the last four map to the PSO key and dataset name (if present) in the exposure tables. For all instruments other than STIS, the mapping can be based only on the PSO key. For STIS all four fields must be mapped because the same STIS wavecals (exposure) member may be in different associations.

When joining multiple product and exposure tables using the join table, it is best to join all the product tables to one product table and then join that product table to sci\_inst\_db\_join using sij\_sdb PSO fields. The same recommendation applies when joining to multiple exposure tables: join all the exposure tables to one exposure table and then join that exposure table to sci\_inst\_db\_join using sij\_idb PSO/dataset fields. This is because the sci\_inst\_db\_join prefixes are very close to each other and are easily confused.

# Understanding singletons

* Singleton are unassociated exposures.
* They can belong to any instrument.
* Their dataset name is in both product and exposure tables.
* They do not populate association tables

## Example using WFC3 singleton IDGG43RUQ

science

|  |  |  |
| --- | --- | --- |
| sci\_data\_set\_name | sci\_asn\_id | sci\_obsnum |
| IDGG43RUQ | NONE | RU |

sci\_inst\_db\_join

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| sij\_sdb\_program\_id | sij\_sdb\_obset\_id | sij\_sdb\_obsnum | sij\_idb\_program\_id | sij\_idb\_obset\_id | sij\_idb\_obsnum | sij\_idb\_data\_set\_name |
| DGG | 43 | RU | DGG | 43 | RU | IDGG43RUQ |

shp\_data

|  |  |  |
| --- | --- | --- |
| shp\_data\_set\_name | shp\_asn\_id | shp\_obsnum |
| IDGG43RUQ | NONE | RU |

## Sample query using join table

SELECT sci\_data\_set\_name, sci\_asn\_id, w3r\_obsnum, w3a\_data\_set\_name, w3a\_obsnum, w3t\_sampnum

FROM science

JOIN wfc3\_science

ON sci\_program\_id=w3s\_program\_id

AND sci\_obset\_id=w3s\_obset\_id

AND sci\_obsnum=w3s\_obsnum

JOIN wfc3\_ref\_data

ON sci\_program\_id=w3r\_program\_id

AND sci\_obset\_id=w3r\_obset\_id

AND sci\_obsnum=w3r\_obsnum

JOIN dbo.sci\_inst\_db\_join

ON sci\_program\_id=sij\_sdb\_program\_id

AND sci\_obset\_id=sij\_sdb\_obset\_id

AND sci\_obsnum=sij\_sdb\_obsnum

JOIN wfc3\_a\_data

ON sij\_sdb\_program\_id=w3a\_program\_id

AND sij\_sdb\_obset\_id=w3a\_obset\_id

AND sij\_sdb\_obsnum=w3a\_obsnum

LEFT OUTER JOIN wfc3\_times

ON w3a\_program\_id=w3t\_program\_id

AND w3a\_obset\_id=w3t\_obset\_id

AND w3a\_obsnum=w3t\_obsnum

WHERE sci\_data\_set\_name LIKE 'IDGG43RUQ'

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| sci\_data\_set\_name | sci\_asn\_id | w3r\_obsnum | w3a\_data\_set\_name | w3a\_obsnum | w3t\_sampnum |
| IDGG43RUQ | NONE | RU | IDGG43RUQ | RU | NULL |

# Understanding Associations

Below is a section per instrument that defines what constitutes an association for that instrument. It is important to remember that all association IDs end in a zero. The asm\_member\_type column starts with PROD% for all products in the assoc\_member table. There is no consistency for the asm\_member\_type value for the exposures across instruments.

Note: FOC, FOS, HSP, HRS, WFPC, WFPC2 are old instruments and do not have associations.

In the examples below science represents the product tables and shp\_data represents the exposure tables, but any product table can be used in place of science and any exposure table can be used in place of shp\_data.

## STIS Associations

* STIS associations contain only one dataset, which maps to the association name.
* All of its exposure members are in that one dataset as extensions.
* One dataset maps to one entry in the product tables and, typically, multiple entries in the exposure tables.
* The exposure table dataset name never maps to the PSO key. Auto-wavecals (member exposures) can be part of multiple datasets, which is why the dataset name along with the PSO key is needed to uniquely identify a row in the database.

### Example using association ODRJB3040:

science

|  |  |  |
| --- | --- | --- |
| sci\_data\_set\_name | sci\_asn\_id | sci\_obsnum |
| ODRJB3040 | ODRJB3040 | 040 |

assoc\_member

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| asm\_data\_set\_name | asm\_program\_id | asm\_obset\_id | asm\_obsnum | asm\_asn\_id | asm\_member\_type | asm\_member\_name |
| ODRJB3040 | DRJ | B3 | 040 | ODRJB3040 | PRODUCT | ODRJB3040 |
| ODRJB3040 | DRJ | B3 | VK | ODRJB3040 | AUTO-WAVECAL | ODRJB3VKQ |
| ODRJB3040 | DRJ | B3 | VO | ODRJB3040 | CRSPLIT | ODRJB3VOQ |
| ODRJB3040 | DRJ | B3 | VP | ODRJB3040 | CRSPLIT | ODRJB3VPQ |

sci\_inst\_db\_join

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| sij\_sdb\_program\_id | sij\_sdb\_obset\_id | sij\_sdb\_obsnum | sij\_idb\_program\_id | sij\_idb\_obset\_id | sij\_idb\_obsnum | sij\_idb\_data\_set\_name |
| DRJ | B3 | 040 | DRJ | B3 | VK | ODRJB3040 |
| DRJ | B3 | 040 | DRJ | B3 | VO | ODRJB3040 |
| DRJ | B3 | 040 | DRJ | B3 | VP | ODRJB3040 |

shp\_data

|  |  |  |
| --- | --- | --- |
| shp\_data\_set\_name | shp\_asn\_id | shp\_obsnum |
| ODRJB3040 | ODRJB3040 | VK\* |
| ODRJB3040 | ODRJB3040 | VO |
| ODRJB3040 | ODRJB3040 | VP |
| ODRJB3030 | ODRJB3030 | VK\* |

\* The auto-wavecal ODRJB3VKQ is in associations ODRJB3030 and ODRJB3040 so there are really two rows with DRJ/B3/VK in shp\_data.

### Sample query using join table

SELECT sci\_data\_set\_name, sci\_asn\_id, sss\_obsnum, shp\_data\_set\_name, ssa\_obsnum

FROM science

JOIN stis\_science

ON sci\_program\_id=sss\_program\_id

AND sci\_obset\_id=sss\_obset\_id

AND sci\_obsnum=sss\_obsnum

JOIN dbo.sci\_inst\_db\_join

ON sci\_program\_id=sij\_sdb\_program\_id

AND sci\_obset\_id=sij\_sdb\_obset\_id

AND sci\_obsnum=sij\_sdb\_obsnum

JOIN shp\_data

ON sij\_idb\_program\_id=shp\_program\_id

AND sij\_idb\_obset\_id=shp\_obset\_id

AND sij\_idb\_obsnum=shp\_obsnum

AND sij\_idb\_data\_set\_name = shp\_data\_set\_name

JOIN stis\_a\_data

ON shp\_program\_id=ssa\_program\_id

AND shp\_obset\_id=ssa\_obset\_id

AND shp\_obsnum=ssa\_obsnum

AND shp\_data\_set\_name = ssa\_data\_set\_name

WHERE sci\_data\_set\_name LIKE 'ODRJB3040%'

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| sci\_data\_set\_name | sci\_asn\_id | sss\_obsnum | shp\_data\_set\_name | ssa\_obsnum | sci\_data\_set\_name |
| ODRJB3040 | ODRJB3040 | 040 | ODRJB3040 | VP | ODRJB3040 |
| ODRJB3040 | ODRJB3040 | 040 | ODRJB3040 | VO | ODRJB3040 |
| ODRJB3040 | ODRJB3040 | 040 | ODRJB3040 | VK | ODRJB3040 |

Note: If data\_set\_name is removed from the join clause, 4 records including the VK record connected with association ODRJB3030 will be returned.

## NICMOS Associations

* Associations always have one dataset that matches the association ID.
* Associations can have subproducts ending in 1-9 or A-I.
* Each product and exposure is in its own dataset.
* The exposure table dataset name always maps to the PSO key.
* Each exposure maps to only one product.

### Example using association NA0K18020

science

|  |  |  |
| --- | --- | --- |
| sci\_data\_set\_name | sci\_asn\_id | sci\_obsnum |
| NA0K18020 | NA0K18020 | 020 |
| NA0K18021 | NA0K18020 | 021 |

assoc\_member

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| asm\_data\_set\_name | asm\_program\_id | asm\_obset\_id | asm\_obsnum | asm\_asn\_id | asm\_member\_type | asm\_member\_name |
| NA0K18020 | A0K | 18 | 020 | NA0K18020 | PROD-TARG | NA0K18020 |
| NA0K18021 | A0K | 18 | 021 | NA0K18020 | PROD-BCK1 | NA0K18021 |
| NA0K18BDQ | A0K | 18 | BD | NA0K18020 | EXP-TARG | NA0K18BDQ |
| NA0K18BEQ | A0K | 18 | BE | NA0K18020 | EXP-BCK1 | NA0K18BEQ |
| NA0K18BFQ | A0K | 18 | BF | NA0K18020 | EXP-TARG | NA0K18BFQ |
| NA0K18BGQ | A0K | 18 | BG | NA0K18020 | EXP-BCK1 | NA0K18BGQ |
| NA0K18BHQ | A0K | 18 | BH | NA0K18020 | EXP-TARG | NA0K18BHQ |
| NA0K18BIQ | A0K | 18 | BI | NA0K18020 | EXP-BCK1 | NA0K18BIQ |

sci\_inst\_db\_join

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| sij\_sdb\_program\_id | sij\_sdb\_obset\_id | sij\_sdb\_obsnum | sij\_idb\_program\_id | sij\_idb\_obset\_id | sij\_idb\_obsnum | sij\_idb\_data\_set\_name |
| A0K | 18 | 020 | A0K | 18 | BD | NA0K18BDQ |
| A0K | 18 | 020 | A0K | 18 | BF | NA0K18BFQ |
| A0K | 18 | 020 | A0K | 18 | BH | NA0K18BHQ |
| A0K | 18 | 021 | A0K | 18 | BE | NA0K18BEQ |
| A0K | 18 | 021 | A0K | 18 | BG | NA0K18BGQ |
| A0K | 18 | 021 | A0K | 18 | BI | NA0K18BIQ |

shp\_data

|  |  |  |
| --- | --- | --- |
| shp\_data\_set\_name | shp\_asn\_id | shp\_obsnum |
| NA0K18BDQ | NA0K18020 | BD |
| NA0K18BEQ | NA0K18020 | BE |
| NA0K18BFQ | NA0K18020 | BF |
| NA0K18BGQ | NA0K18020 | BG |
| NA0K18BHQ | NA0K18020 | BH |
| NA0K18BIQ | NA0K18020 | BI |

### Sample query using join table

SELECT sci\_data\_set\_name, sci\_asn\_id, nsr\_obsnum, nsb\_data\_set\_name, nsb\_obsnum, nst\_sampnum

FROM science

JOIN nicmos\_ref\_data

ON sci\_program\_id=nsr\_program\_id

AND sci\_obset\_id=nsr\_obset\_id

AND sci\_obsnum=nsr\_obsnum

JOIN dbo.sci\_inst\_db\_join

ON sci\_program\_id=sij\_sdb\_program\_id

AND sci\_obset\_id=sij\_sdb\_obset\_id

AND sci\_obsnum=sij\_sdb\_obsnum

JOIN nicmos\_b\_data

ON sij\_idb\_program\_id=nsb\_program\_id

AND sij\_idb\_obset\_id=nsb\_obset\_id

AND sij\_idb\_obsnum=nsb\_obsnum

LEFT OUTER JOIN nicmos\_times

ON nsb\_program\_id=nst\_program\_id

AND nsb\_obset\_id=nst\_obset\_id

AND nsb\_obsnum=nst\_obsnum

WHERE sci\_data\_set\_name LIKE 'NA0K1802%'

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| sci\_data\_set\_name | sci\_asn\_id | nsr\_obsnum | nsb\_data\_set\_name | nsb\_obsnum | nst\_sampnum |
| NA0K18020 | NA0K18020 | 020 | NA0K18BDQ | BD | 0-7\* |
| NA0K18020 | NA0K18020 | 020 | NA0K18BFQ | BF | 0-7\* |
| NA0K18020 | NA0K18020 | 020 | NA0K18BHQ | BH | 0-7\* |
| NA0K18021 | NA0K18020 | 021 | NA0K18BEQ | BE | 0-7\* |
| NA0K18021 | NA0K18020 | 021 | NA0K18BGQ | BG | 0-7\* |
| NA0K18021 | NA0K18020 | 021 | NA0K18BIQ | BI | 0-7\* |

\* There are actually 48 rows returned. One each for sampnum = 0,1,2,3,4,5,6,7 for each product/exposure combination. It was shortened here for space considerations.

## ACS Associations

* ACS association do not require the main product to match the association ID.
* Dither associations always have a product that matches the association ID, i.e., a product that ends in zero.
* Each product and exposure is in its own dataset.
* The exposure table dataset name always maps to the PSO key.
* For associations with multiple products, the subproducts map to a subset of the exposures while the main product maps to all the exposures.
* When using sci\_inst\_db\_join to join dither products and members, adding the keyword DISTINCT prevents multiple rows from being returned (due to the exposure joining twice in sci\_inst\_db\_join).

### Example using association JDRY21010 (dither)

science

|  |  |  |
| --- | --- | --- |
| sci\_data\_set\_name | sci\_asn\_id | sci\_obsnum |
| JDRY21010 | JDRY21010 | 010 |
| JDRY21011 | JDRY21010 | 011 |
| JDRY21012 | JDRY21010 | 012 |

assoc\_member

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| asm\_data\_set\_name | asm\_program\_id | asm\_obset\_id | asm\_obsnum | asm\_asn\_id | asm\_member\_type | asm\_member\_name |
| JDRY21010 | DRY | 21 | 010 | JDRY21010 | PROD-DTH | JDRY21010 |
| JDRY21011 | DRY | 21 | 011 | JDRY21010 | PROD-RP1 | JDRY21011 |
| JDRY21012 | DRY | 21 | 012 | JDRY21010 | PROD-RP2 | JDRY21012 |
| JDRY21UHQ | DRY | 21 | UH | JDRY21010 | EXP-RP1 | JDRY21UHQ |
| JDRY21UJQ | DRY | 21 | UJ | JDRY21010 | EXP-RP1 | JDRY21UJQ |
| JDRY21UOQ | DRY | 21 | UO | JDRY21010 | EXP-RP2 | JDRY21UOQ |
| JDRY21UQQ | DRY | 21 | UQ | JDRY21010 | EXP-RP2 | JDRY21UQQ |

sci\_inst\_db\_join

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| sij\_sdb\_program\_id | sij\_sdb\_obset\_id | sij\_sdb\_obsnum | sij\_idb\_program\_id | sij\_idb\_obset\_id | sij\_idb\_obsnum | sij\_idb\_data\_set\_name |
| DRY | 21 | 010 | DRY | 21 | UH | JDRY21UHQ |
| DRY | 21 | 010 | DRY | 21 | UJ | JDRY21UJQ |
| DRY | 21 | 010 | DRY | 21 | UO | JDRY21UOQ |
| DRY | 21 | 010 | DRY | 21 | UQ | JDRY21UQQ |
| DRY | 21 | 011 | DRY | 21 | UH | JDRY21UHQ |
| DRY | 21 | 011 | DRY | 21 | UJ | JDRY21UJQ |
| DRY | 21 | 012 | DRY | 21 | UO | JDRY21UOQ |
| DRY | 21 | 012 | DRY | 21 | UQ | JDRY21UQQ |

shp\_data

|  |  |  |
| --- | --- | --- |
| shp\_data\_set\_name | shp\_asn\_id | shp\_obsnum |
| JDRY21UQQ | JDRY21010 | UQ |
| JDRY21UOQ | JDRY21010 | UO |
| JDRY21UJQ | JDRY21010 | UJ |
| JDRY21UHQ | JDRY21010 | UH |

Note: Subproduct JDRY21011 maps to UH and UJ. Subproduct JDRY21012 maps to UO and UQ. Main product JDRY21010 maps to all the exposures UH, UJ, UO and UQ.

### Sample query using join table for association JDRY21010

SELECT sci\_data\_set\_name, sci\_asn\_id, acr\_obsnum, aca\_data\_set\_name, aca\_obsnum

FROM science

JOIN acs\_science

ON sci\_program\_id=acs\_program\_id

AND sci\_obset\_id=acs\_obset\_id

AND sci\_obsnum=acs\_obsnum

JOIN acs\_ref\_data

ON sci\_program\_id=acr\_program\_id

AND sci\_obset\_id=acr\_obset\_id

AND sci\_obsnum=acr\_obsnum

JOIN dbo.sci\_inst\_db\_join

ON sci\_program\_id=sij\_sdb\_program\_id

AND sci\_obset\_id=sij\_sdb\_obset\_id

AND sci\_obsnum=sij\_sdb\_obsnum

JOIN acs\_a\_data

ON sij\_idb\_program\_id=aca\_program\_id

AND sij\_idb\_obset\_id=aca\_obset\_id

AND sij\_idb\_obsnum=aca\_obsnum

WHERE sci\_asn\_id LIKE 'JDRY21010'

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| sci\_data\_set\_name | sci\_asn\_id | acr\_obsnum | aca\_data\_set\_name | aca\_obsnum |
| JDRY21010 | JDRY21010 | 010 | JDRY21UHQ | UH |
| JDRY21010 | JDRY21010 | 010 | JDRY21UJQ | UJ |
| JDRY21010 | JDRY21010 | 010 | JDRY21UOQ | UO |
| JDRY21010 | JDRY21010 | 010 | JDRY21UQQ | UQ |
| JDRY21011 | JDRY21010 | 011 | JDRY21UHQ | UH |
| JDRY21011 | JDRY21010 | 011 | JDRY21UJQ | UJ |
| JDRY21012 | JDRY21010 | 012 | JDRY21UOQ | UO |
| JDRY21012 | JDRY21010 | 012 | JDRY21UQQ | UQ |

### Example using association JDQ901010 (non-dither)

science

|  |  |  |
| --- | --- | --- |
| sci\_data\_set\_name | sci\_asn\_id | sci\_obsnum |
| JDQ901011 | JDQ901010 | 011 |

assoc\_member

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| asm\_data\_set\_name | asm\_program\_id | asm\_obset\_id | asm\_obsnum | asm\_asn\_id | asm\_member\_type | asm\_member\_name |
| JDQ901011 | DQ9 | 01 | 011 | JDQ901010 | PROD-RPT | JDQ901011 |
| JDQ901FSQ | DQ9 | 01 | FS | JDQ901010 | EXP-RPT | JDQ901FSQ |
| JDQ901FUQ | DQ9 | 01 | FU | JDQ901010 | EXP-RPT | JDQ901FUQ |

sci\_inst\_db\_join

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| sij\_sdb\_program\_id | sij\_sdb\_obset\_id | sij\_sdb\_obsnum | sij\_idb\_program\_id | sij\_idb\_obset\_id | sij\_idb\_obsnum | sij\_idb\_data\_set\_name |
| DQ9 | 01 | 011 | DQ9 | 01 | FS | JDQ901FSQ |
| DQ9 | 01 | 011 | DQ9 | 01 | FU | JDQ901FUQ |

shp\_data

|  |  |  |
| --- | --- | --- |
| shp\_data\_set\_name | shp\_asn\_id | shp\_obsnum |
| JDQ901FUQ | JDQ901010 | FU |
| JDQ901FSQ | JDQ901010 | FS |

Notes:

1. ACS association JDQ901010 does not have a product dataset that matches the association ID.

### Sample query using join table for association JDQ901010

SELECT sci\_data\_set\_name, sci\_asn\_id, acr\_obsnum, aca\_data\_set\_name, aca\_obsnum, acc\_ccdchip

FROM science

JOIN acs\_science

ON sci\_program\_id=acs\_program\_id

AND sci\_obset\_id=acs\_obset\_id

AND sci\_obsnum=acs\_obsnum

JOIN acs\_ref\_data

ON sci\_program\_id=acr\_program\_id

AND sci\_obset\_id=acr\_obset\_id

AND sci\_obsnum=acr\_obsnum

JOIN dbo.sci\_inst\_db\_join

ON sci\_program\_id=sij\_sdb\_program\_id

AND sci\_obset\_id=sij\_sdb\_obset\_id

AND sci\_obsnum=sij\_sdb\_obsnum

JOIN acs\_a\_data

ON sij\_idb\_program\_id=aca\_program\_id

AND sij\_idb\_obset\_id=aca\_obset\_id

AND sij\_idb\_obsnum=aca\_obsnum

LEFT OUTER JOIN acs\_chip

ON aca\_program\_id=acc\_program\_id

AND aca\_obset\_id=acc\_obset\_id

AND aca\_obsnum=acc\_obsnum

WHERE sci\_asn\_id LIKE 'JDQ901010'

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| sci\_data\_set\_name | sci\_asn\_id | acr\_obsnum | aca\_data\_set\_name | aca\_obsnum | acc\_ccdchip |
| JDQ901011 | JDQ901010 | 011 | JDQ901FSQ | FS | 1 |
| JDQ901011 | JDQ901010 | 011 | JDQ901FSQ | FS | 2 |
| JDQ901011 | JDQ901010 | 011 | JDQ901FUQ | FU | 1 |
| JDQ901011 | JDQ901010 | 011 | JDQ901FUQ | FU | 2 |

\* acs\_chip has multiple rows per PSO key, which is why there is 2 rows per exposure.

## COS Associations

* Each COS association always has one product and it matches the association name.
* COS associations can comprise one exposure or multiple member exposures.
* Each product and exposure is in its own dataset.
* The exposure table dataset name always maps to the PSO key.

### Example using association LA8P01240 (one exposure)

science

|  |  |  |
| --- | --- | --- |
| sci\_data\_set\_name | sci\_asn\_id | sci\_obsnum |
| LA8P01240 | LA8P01240 | 240 |

assoc\_member

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| asm\_data\_set\_name | asm\_program\_id | asm\_obset\_id | asm\_obsnum | asm\_asn\_id | asm\_member\_type | asm\_member\_name |
| LA8P01240 | A8P | 01 | 240 | LA8P01240 | PROD-FP | LA8P01240 |
| LA8P01G8Q | A8P | 01 | G8 | LA8P01240 | EXP-FP | LA8P01G8Q |

sci\_inst\_db\_join

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| sij\_sdb\_program\_id | sij\_sdb\_obset\_id | sij\_sdb\_obsnum | sij\_idb\_program\_id | sij\_idb\_obset\_id | sij\_idb\_obsnum | sij\_idb\_data\_set\_name |
| A8P | 01 | 240 | A8P | 01 | G8 | LA8P01G8Q |

shp\_data

|  |  |  |
| --- | --- | --- |
| shp\_data\_set\_name | shp\_asn\_id | shp\_obsnum |
| LA8P01G8Q | LA8P01240 | G8 |

### Example using association LA8P01250 (multiple exposures)

science

|  |  |  |
| --- | --- | --- |
| sci\_data\_set\_name | sci\_asn\_id | sci\_obsnum |
| LA8P01250 | LA8P01250 | 250 |

assoc\_member

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| asm\_data\_set\_name | asm\_program\_id | asm\_obset\_id | asm\_obsnum | asm\_asn\_id | asm\_member\_type | asm\_member\_name |
| LA8P01250 | A8P | 01 | 250 | LA8P01250 | PROD-FP | LA8P01250 |
| LA8P01GBQ | A8P | 01 | GB | LA8P01250 | EXP-FP | LA8P01GBQ |
| LA8P01GEQ | A8P | 01 | GE | LA8P01250 | EXP-FP | LA8P01GEQ |

sci\_inst\_db\_join

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| sij\_sdb\_program\_id | sij\_sdb\_obset\_id | sij\_sdb\_obsnum | sij\_idb\_program\_id | sij\_idb\_obset\_id | sij\_idb\_obsnum | sij\_idb\_data\_set\_name |
| A8P | 01 | 250 | A8P | 01 | GB | LA8P01GBQ |
| A8P | 01 | 250 | A8P | 01 | GE | LA8P01GEQ |

shp\_data

|  |  |  |
| --- | --- | --- |
| shp\_data\_set\_name | shp\_asn\_id | shp\_obsnum |
| LA8P01GBQ | LA8P01250 | GB |
| LA8P01GEQ | LA8P01250 | GE |

### Sample query using join table for association LA8P01240 and LA8P01250

SELECT sci\_data\_set\_name, sci\_asn\_id, css\_obsnum, csa\_data\_set\_name, csa\_obsnum

FROM science

JOIN cos\_science

ON sci\_program\_id=css\_program\_id

AND sci\_obset\_id=css\_obset\_id

AND sci\_obsnum=css\_obsnum

JOIN dbo.sci\_inst\_db\_join

ON sci\_program\_id=sij\_sdb\_program\_id

AND sci\_obset\_id=sij\_sdb\_obset\_id

AND sci\_obsnum=sij\_sdb\_obsnum

JOIN cos\_a\_data

ON sij\_idb\_program\_id=csa\_program\_id

AND sij\_idb\_obset\_id=csa\_obset\_id

AND sij\_idb\_obsnum=csa\_obsnum

WHERE sci\_asn\_id IN ('LA8P01240','LA8P01250')

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| sci\_data\_set\_name | sci\_asn\_id | css\_obsnum | csa\_data\_set\_name | csa\_obsnum |
| LA8P01240 | LA8P01240 | 240 | LA8P01G8Q | G8 |
| LA8P01250 | LA8P01250 | 250 | LA8P01GBQ | GB |
| LA8P01250 | LA8P01250 | 250 | LA8P01GEQ | GE |

## WFC3 Associations

* Associations do not require the main product to match the association ID.
* Dither associations always have a product that matches the association ID, i.e., a product that ends in zero.
* Each product and exposure is in its own dataset.
* The exposure table dataset name always maps to the PSO key.
* For associations with multiple products, the subproducts map to a subset of the exposures while the main product maps to all the exposures.
* When using sci\_inst\_db\_join to join dither products and members, adding the keyword DISTINCT prevents multiple rows from being returned (due to the exposure joining twice in sci\_inst\_db\_join).

### Example using association IB0R02010 (dither)

science

|  |  |  |
| --- | --- | --- |
| sci\_data\_set\_name | sci\_asn\_id | sci\_obsnum |
| IB0R02010 | IB0R02010 | 010 |
| IB0R02011 | IB0R02010 | 011 |
| IB0R02012 | IB0R02010 | 012 |

assoc\_member

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| asm\_data\_set\_name | asm\_program\_id | asm\_obset\_id | asm\_obsnum | asm\_asn\_id | asm\_member\_type | asm\_member\_name |
| IB0R02010 | B0R | 02 | 010 | IB0R02010 | PROD-DTH | IB0R02010 |
| IB0R02011 | B0R | 02 | 011 | IB0R02010 | PROD-CR1 | IB0R02011 |
| IB0R02012 | B0R | 02 | 012 | IB0R02010 | PROD-CR2 | IB0R02012 |
| IB0R02U2Q | B0R | 02 | U2 | IB0R02010 | EXP-CR1 | IB0R02U2Q |
| IB0R02U3Q | B0R | 02 | U3 | IB0R02010 | EXP-CR1 | IB0R02U3Q |
| IB0R02U5Q | B0R | 02 | U5 | IB0R02010 | EXP-CR2 | IB0R02U5Q |
| IB0R02U7Q | B0R | 02 | U7 | IB0R02010 | EXP-CR2 | IB0R02U7Q |

sci\_inst\_db\_join

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| sij\_sdb\_program\_id | sij\_sdb\_obset\_id | sij\_sdb\_obsnum | sij\_idb\_program\_id | sij\_idb\_obset\_id | sij\_idb\_obsnum | sij\_idb\_data\_set\_name |
| B0R | 02 | 010 | B0R | 02 | U2 | IB0R02U2Q |
| B0R | 02 | 010 | B0R | 02 | U3 | IB0R02U3Q |
| B0R | 02 | 010 | B0R | 02 | U5 | IB0R02U5Q |
| B0R | 02 | 010 | B0R | 02 | U7 | IB0R02U7Q |
| B0R | 02 | 011 | B0R | 02 | U2 | IB0R02U2Q |
| B0R | 02 | 011 | B0R | 02 | U3 | IB0R02U3Q |
| B0R | 02 | 012 | B0R | 02 | U5 | IB0R02U5Q |
| B0R | 02 | 012 | B0R | 02 | U7 | IB0R02U7Q |

shp\_data

|  |  |  |
| --- | --- | --- |
| shp\_data\_set\_name | shp\_asn\_id | shp\_obsnum |
| IB0R02U7Q | IB0R02010 | U7 |
| IB0R02U5Q | IB0R02010 | U5 |
| IB0R02U3Q | IB0R02010 | U3 |
| IB0R02U2Q | IB0R02010 | U2 |

Note: Subproduct IB0R02011 maps to U2 and U3. Subproduct IB0R02012 maps to U5 and U7. Main product IB0R02019 maps to all the exposures U2, U3, U5 and U7.

### Sample query using join table for association IB0R02010

SELECT sci\_data\_set\_name, sci\_asn\_id, w3r\_obsnum, w3a\_data\_set\_name, w3a\_obsnum

FROM science

JOIN wfc3\_science

ON sci\_program\_id=w3s\_program\_id

AND sci\_obset\_id=w3s\_obset\_id

AND sci\_obsnum=w3s\_obsnum

JOIN wfc3\_ref\_data

ON sci\_program\_id=w3r\_program\_id

AND sci\_obset\_id=w3r\_obset\_id

AND sci\_obsnum=w3r\_obsnum

JOIN dbo.sci\_inst\_db\_join

ON sci\_program\_id=sij\_sdb\_program\_id

AND sci\_obset\_id=sij\_sdb\_obset\_id

AND sci\_obsnum=sij\_sdb\_obsnum

JOIN wfc3\_a\_data

ON sij\_idb\_program\_id=w3a\_program\_id

AND sij\_idb\_obset\_id=w3a\_obset\_id

AND sij\_idb\_obsnum=w3a\_obsnum

WHERE sci\_asn\_id LIKE 'IB0R02010'

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| sci\_data\_set\_name | sci\_asn\_id | w3r\_obsnum | w3a\_data\_set\_name | w3a\_obsnum |
| IB0R02010 | IB0R02010 | 010 | IB0R02U2Q | U2 |
| IB0R02010 | IB0R02010 | 010 | IB0R02U3Q | U3 |
| IB0R02010 | IB0R02010 | 010 | IB0R02U5Q | U5 |
| IB0R02010 | IB0R02010 | 010 | IB0R02U7Q | U7 |
| IB0R02011 | IB0R02010 | 011 | IB0R02U2Q | U2 |
| IB0R02011 | IB0R02010 | 011 | IB0R02U3Q | U3 |
| IB0R02012 | IB0R02010 | 012 | IB0R02U5Q | U5 |
| IB0R02012 | IB0R02010 | 012 | IB0R02U7Q | U7 |

### Example using association ID0B10010 (non-dither)

science

|  |  |  |
| --- | --- | --- |
| sci\_data\_set\_name | sci\_asn\_id | sci\_obsnum |
| ID0B10011 | ID0B10010 | 011 |

assoc\_member

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| asm\_data\_set\_name | asm\_program\_id | asm\_obset\_id | asm\_obsnum | asm\_asn\_id | asm\_member\_type | asm\_member\_name |
| ID0B10011 | D0B | 10 | 011 | ID0B10010 | PROD-RPT | ID0B10011 |
| ID0B10HEQ | D0B | 10 | HE | ID0B10010 | EXP-RPT | ID0B10HEQ |
| ID0B10HFQ | D0B | 10 | HF | ID0B10010 | EXP-RPT | ID0B10HFQ |

sci\_inst\_db\_join

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| sij\_sdb\_program\_id | sij\_sdb\_obset\_id | sij\_sdb\_obsnum | sij\_idb\_program\_id | sij\_idb\_obset\_id | sij\_idb\_obsnum | sij\_idb\_data\_set\_name |
| D0B | 10 | 011 | D0B | 10 | HE | ID0B10HEQ |
| D0B | 10 | 011 | D0B | 10 | HF | ID0B10HFQ |

shp\_data

|  |  |  |
| --- | --- | --- |
| shp\_data\_set\_name | shp\_asn\_id | shp\_obsnum |
| ID0B10HFQ | ID0B10010 | HF |
| ID0B10HEQ | ID0B10010 | HE |

### Sample query using join table for association ID0B10010

SELECT sci\_data\_set\_name, sci\_asn\_id, w3r\_obsnum, w3a\_data\_set\_name, w3a\_obsnum, w3t\_sampnum

FROM science

JOIN wfc3\_science

ON sci\_program\_id=w3s\_program\_id

AND sci\_obset\_id=w3s\_obset\_id

AND sci\_obsnum=w3s\_obsnum

JOIN wfc3\_ref\_data

ON sci\_program\_id=w3r\_program\_id

AND sci\_obset\_id=w3r\_obset\_id

AND sci\_obsnum=w3r\_obsnum

JOIN dbo.sci\_inst\_db\_join

ON sci\_program\_id=sij\_sdb\_program\_id

AND sci\_obset\_id=sij\_sdb\_obset\_id

AND sci\_obsnum=sij\_sdb\_obsnum

JOIN wfc3\_a\_data

ON sij\_idb\_program\_id=w3a\_program\_id

AND sij\_idb\_obset\_id=w3a\_obset\_id

AND sij\_idb\_obsnum=w3a\_obsnum

LEFT OUTER JOIN wfc3\_times

ON w3a\_program\_id=w3t\_program\_id

AND w3a\_obset\_id=w3t\_obset\_id

AND w3a\_obsnum=w3t\_obsnum

WHERE sci\_data\_set\_name LIKE 'ID0B10011'

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| sci\_data\_set\_name | sci\_asn\_id | w3r\_obsnum | w3a\_data\_set\_name | w3a\_obsnum | w3t\_sampnum |
| ID0B10011 | ID0B10010 | 011 | ID0B10HFQ | HF | NULL |
| ID0B10011 | ID0B10010 | 011 | ID0B10HEQ | HE | NULL |

\* For association ID0B10010 there were no records in wfc3\_times so the value came back NULL.