

## Building a use-case example for response data product

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Example of a **dedicated table** for response data products:

This is a translation for the TAP implementation of response functions as described in the diagram 'dataset categories' available [here](#).

I have updated the diagram to show the specific attributes of a ResponseDataset.

This disentangles ObsDataset, currently in Obscore1.1, containing all characterisation axes, from ResponseDataset, which does not use all columns of the Characterisation axes parts .

A ResponseDataset has a specific *res\_dataproduct\_type* defined in a specific vocabulary proposed as "response-dataproductype" to the Semantic working group.

As defined in section 5.1.2 of the note, the vocabulary contains :

### *#response-function*

*#aeff* geometric area of the telescope and/or instrument reduced by efficiency factors such as reflectivity and vignetting, among other effects

Ref: (Deil and Wood et al., 2022).

*#arf* records the combined telescope/instrument effective area and detector quantum efficiency as a function of energy

Ref: (George and Arnaud et al., 1998).

*#bkgrate* models the rate of residual events that are not from the expected source type  
(e.g. for gamma-ray instrument it measures residual non-gamma-ray events coming from charged cosmic rays)

Ref: (Deil and Wood et al., 2022).

*#edisp* records the combined telescope/instrument effective area and detector quantum efficiency as a function of energy

Ref: (George and Arnaud et al., 1998).

*#psf* probability density function of spatial/angular spreading of incident photons from a pointsource caused by the instrument (detector and/or mirror and/or analysis)

Ref: (Deil and Wood et al., 2022; George and Yusaf, 2011).

*#rmf* the probability density function mapping from energy space into detector pulse height (or position) space  
 Ref: (George and Arnaud et al., 1998).

#### Proposed mandatory fields

<i>Column Name</i>	<i>Datatype</i>	<i>Size</i>	<i>Units</i>	<i>ObsCoreDM Utype</i>	<i>UCD</i>	<i>Response dataset example</i>	<i>Psf example as in Ian example in VOTable</i>
resp_dataproduct_type	adql:VARCHA R	TBD	NULL	ResponseDataset.dataProductType	meta.code.class	<b>edisp</b>	<b>response-fonction</b>
resp_dataproduct_subtype	adql:VARCHA R	TBD	NULL	ResponseDataset.dataProductSubtype	meta.code.class	<b>?</b>	<b>psf</b>
obs_id	adql:VARCHA R	TBD	NULL	DataID.observationID	meta.id	ID of the progenitor observation	4374
obs_publisher_did	adql:VARCHA R	TBD	NULL	Curation.publisherDID	meta.ref.void	<b>ID of the Obsdataset it applies to</b>	<b>ivo://cxc.cfa.harvard.edu/cda?10.25574/4374</b>
resp_publisher_did	adql:VARCHA R	TBD	NULL	Curation.publisherDID	meta.ref.void	<b>Publisher did of this dataset</b>	<b>??</b>
resp_release_date	adql:TIMESTAMP	NULL	NULL	Curation.releaseDate	time.release	Release_date of this dataset	2024-10-18T09:25:13
resp_description	adql:VARCHA R	TBD	NULL	Curation.reference	meta.bib	Reference to the publication of the data set.	

resp_creator_name	adql:V ARCHA R	TBD	NULL	DataID.creator	meta.id	Creator of this response dataset	CXC
STI_tstart	adql:TI MESTA MP		datels otime	Char.TimeAxis.Coverage.Support.Start Time	time.start;obs.exposu re	Stable time interval stoptime	52655.01173
STI_tstop	adql:TI MESTA MP	TBD	datels oTime	Char.TimeAxis.Coverage.Support.StopT ime	time.stop;obs.exposu re	Stable time interval stoptime	52656.99358
resp_access_url	adql:C LOB	NUL L	NULL	Access.reference	meta.ref.url	As in ObsDataset	<a href="https://cda.cfa.harvard.edu/csccli/retrieveFile?filename=acisf04374_000N030_r0641m_psf3.fits&amp;filetype=psf&amp;version=rel2.1">https://cda.cfa.harvard.edu/csccli/retrieveFile?filename=acisf04374_000N030_r0641m_psf3.fits&amp;filetype=psf&amp;version=rel2.1</a>
resp_access_format	adql:V ARCHA R	NUL L	NULL	Access.format	meta.code.mime	As in ObsDataset	image/x-fits
resp_access_estsize	adql:BI GINT	NUL L	kbyte	Access.size	phys.size;meta.file	As in ObsDataset	
resp_ucl							Phot.count ??

Questions :

1. Do we need to select the *Target.name* field from Obscore to select a response function ? If yes , is it always the same as the progenitor ObsDataset?