Gemini Observatory

Version

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| 01 | May 27, 2011 | Nicolas A. Barriga | First Version |
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# Introduction

This document provides a description of the Gemini Data Service (GDS) Interface to the Gemini software.

## Document Purpose

The purpose of this document is to present the GDS interface to the different Gemini systems.

This document does not rehash the critical information in references and . It is assumed that the reader has read these other documents and understands their content.

## Intended Readership

The intended audience for this document is *groups who are writing software, design review documents or providing operational support* *for Aspen instruments*.

## Conventions

The GDS is still under active development and things that are expected to undergo some changes are marked like this paragraph with a yellow exclamation point. There are not many of these situations in this document.

Code examples and individual methods are written in a fixed-width font like this: unsubscribeToStatus.

## Acronyms

ACM Action Command Model

CMS C++ Messaging Service

DHS Data Handling System

GIAPI Gemini Instrument Application Programmer Interface

GMP Gemini Master Process

GSDN Gemini Data Storage Network

ICD Interface Control Document

JMS Java Message Service

PCS Primary Control System

TCS Telescope Control System

TLC Top Level Computer

WCS World Coordinate System

GDS Gemini Data Service

## Reference Materials

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|  |  |
| --- | --- |
| [1] | Kim Gillies and Arturo Nunez, "Aspen GIAPI Design and Use," 2006. |
| [2] | Kim Gillies, "Guidelines for Designing Gemini Aspen Instrument Software," 2004. |
| [3] | FITS Standard Specification. [Online]. http://archive stsci.edu/fits/fits\_standard/fits\_standard.html |

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# Overview of the Gemini Data Service

Add general description of the GDS. Take from doxygen docs. Add a few diagrams

## GDS Configuration

## Supported FITS Data Types

## Data Types Conversion policy

# GDS to OCS Interface

## GDS to ODB Interface

The GDS can interface with the ODB if it needs to store information available in the database that cannot be found anywhere else. The interaction with the ODB is more complex than with other modules as the ODB handle programs indexed by a program ID. The interface of the observation events does not include this information as the instrument does not have access to the ODB and it also needs to support engineering observations that don’t have a program ID.

Thus GDS has the concept of a Program ID Database, which must be populated with a link between the program ID and the observation data label. This DB needs to be populated **before** an observation command is sent to the instrument. The GDS uses this information to query the ODB.

Is recommended that the data collection from the ODB is always performed on the OBS\_PREP observation event. GDS will use the event’s data label to find the program ID and issue the query to the ODB. The items that that ODB can collect and store in the FITS file must be stored in the GDS configuration file and conform to the list of available items in Table 1:

|  |  |  |
| --- | --- | --- |
| Channel Name | Meaning | Data Type |
| odb:piFirstName | Principal Investigator’s First Name | STRING |
| odb:piLastName | Principal Investigator’s Last Name | STRING |
|  |  |  |

Table 1: Supported ODB channels

## GDS <-> Seqexec Interface

Document which commands/data is sent by seqexec to GDS and how. Also add the new seqexec<-> DHS usage pattern.

## GDS <-> EPICS Interface

Document which EPICS channel are read by GDS

# GDS <-> Instrument Interface

According to , section 9, “An instrument must provide information describing its state and health to Gemini”. This status information is provided via status items, which, among other things, contain the status name, data type and current value. The GDS collects some of the status information published, in order to add it the FITS file generated by the instrument.

The data collection is done at specific points during an observation, called observation events, described at , section 13.4, which published by the instrument. The following table contains the status items that will be collected, the keyword name to be used in the fits file, the observation event in which it will be collected and its data type.

|  |  |  |  |
| --- | --- | --- | --- |
| Status Item | FITS Keyword | Observation Event | Data Type |
| gpi:status | STATUS | OBS\_START\_ACQ | DOUBLE |
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