

A horizontal banner image featuring a sequence of celestial bodies from left to right: a blue planet with white clouds, a brown planet, a reddish-brown planet, a white planet, and a large gas giant with orange and white bands. The text "Planetary Data System" is overlaid in white on the right side of the banner.

Planetary Data System

PDS 2010 Options

PDS 2010 Tech Session

June 11, 2009

PDS 2010 Data Design WG

Underlying Philosophy

- A model based, integrated system
- Model: rigorously defined, explicit, internally consistent
- Base formats optimized for archiving.

Considerations (1)

- Support PDS3 and PDS4 ~ 10 years?
- Assuming we roll out in 2010 which will be the beta test mission?
- PDS4 will be released in stages
 - What features first?

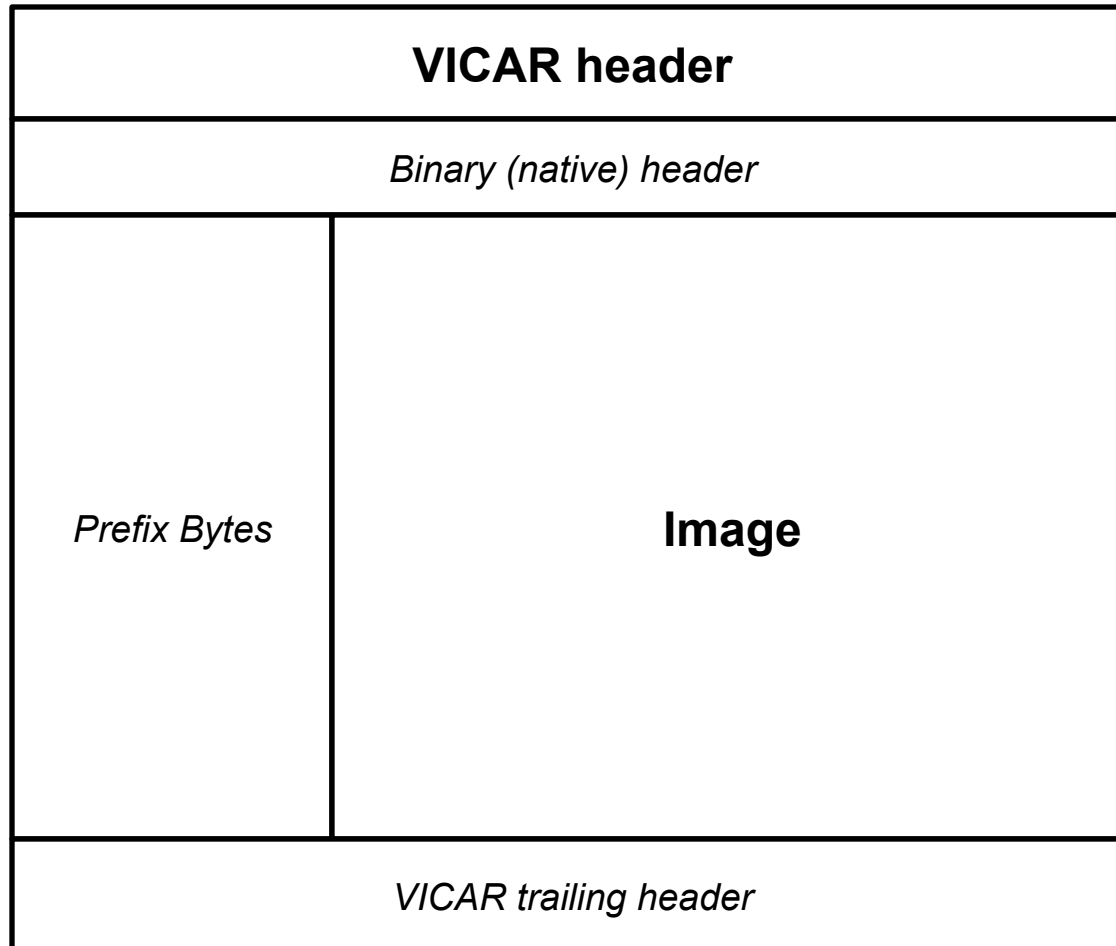
Considerations (2)

- Initial Release
 - Minimum aspects, capabilities, tools
 - Must be sufficient to support archive planning
- First Expansion – before first mission submission?
 - NLT target for data submission & ingestion support
- Future Expansions
- Legacy Migration
 - Data formats, labels, metadata

Options & Implications

- Model Decisions:
 - BYTE order
 - Simple archive vs. one time migration costs
 - ?
- Implementation Decisions
 - Format conversions
 - FITS Images, ISIS2, ISIS3, CRISM, VICAR

VICAR File Structure



VICAR

- In PDS4, row prefix bytes must be deconvolved from the image.
- At least three options –
 - Providers provide PDS4 compliant files;
 - PDS accepts VICAR products with row prefix bytes and does deconvolution during ingestion;
 - Allow exception to the model - PDS accepts and archives VICAR products with row prefix bytes.
- The first two require PDS develop and maintain software.

Options & Implications

- Model Decisions:
 - BYTE order
 - Simple archive vs. one time migration costs
 - Complex Products
 - ?
- Implementation Decisions
 - Format conversions
 - FITS Images, ISIS2, ISIS3, CRISM, VICAR
 - Others?
 - Grammer(s)
 - Labels vs. Indices
 - ?

The MC tasks

- Identify critical capabilities for first release
- Identify and prioritize the 'nice to have' capabilities for first release.
- Identify capabilities to be incorporated in future expansions.
- To do this, they will need cost estimates for the most important options.

Backups

Requirements

- 1.5 PDS will have tools to assist data producers in assembling, validating, and submitting archival products.
- 2.10 PDS will follow best practices in system and software engineering for developing and operating the system
3. PDS will make these data accessible to users
4. PDS will ensure the long-term preservation of the data and maintain their usability.

Requirements, Restrictions, Decisions

- 3.3.3 PDS will provide tools for translating archival products between selected formats.
 - Under PDS3, providers determine format users receive.
- Array_Base is a homogeneous, N-dimensional array of scalars.
 - Implies no interleaved formats which affects Banded Images (row, or sample interleaved), ISIS2, ISIS3, CRISM(?), VICAR.
 - Consider VICAR – a current and legacy format that predates the PDS. Remember the VICAR structure from Anne's presentation: