

**VICAR Open Source Release.** R. G. Deen<sup>1</sup>, S. C. Mayer<sup>2</sup>, E. M. Sayfi<sup>3</sup>, C. Radulescu<sup>4</sup>, S. R. Levoe<sup>5</sup>; <sup>1</sup>Jet Propulsion Laboratory, California Institute of Technology, 4800 Oak Grove Dr, Pasadena, CA 91109, [Bob.Deen@jpl.nasa.gov](mailto:Bob.Deen@jpl.nasa.gov), <sup>2</sup>same, [Shari.C.Mayer@jpl.nasa.gov](mailto:Shari.C.Mayer@jpl.nasa.gov), <sup>3</sup>same, [Elias.M.Sayfi@jpl.nasa.gov](mailto:Elias.M.Sayfi@jpl.nasa.gov), <sup>4</sup>same, [Cos-tin.Radulescu@jpl.nasa.gov](mailto:Cos-tin.Radulescu@jpl.nasa.gov), <sup>5</sup>same, [Steven.R.Levoe@jpl.nasa.gov](mailto:Steven.R.Levoe@jpl.nasa.gov).

**Introduction:** VICAR (Video Image Communication and Retrieval) [1] is an image processing system developed at JPL. It is used primarily but not exclusively for planetary image processing. With origins in the 1960's [2], it is still used on a daily basis today to support missions such as MER, MSL, and Cassini.

**Open Source:** We are pleased to announce at this conference that the core of VICAR is being released as Open Source software.

This core consists of the infrastructure, image I/O routines, parameter processing, image display, file format conversion, and most of the general purpose application programs (almost 350).

Not being included at this time are the mission-specific programs (such as the Mars-specific programs) or the telemetry processors (due to ITAR concerns).

Highlights of the release include:

- Almost 350 application programs covering general image processing (stretch, warp, map projection, statistics, filtering, mosaicking, label manipulation, etc).
- “xvd” image display program [3]
- File format conversion (“transcoder”) [4]
- VICAR-format image I/O library, in both C and Java versions [5]
- IBIS (Image-Based Information System) for working with tabular data [6,7]
- Command-line parsing, plus optional command-line environment (TAE)

This release of VICAR is officially tested on Linux (32-bit) and Solaris platforms. It also builds and runs on Linux (64-bit) and Macintosh OS-X systems.

The poster will describe more about the contents of VICAR as well as highlight its history and uses.

Location for obtaining VICAR is TBD as of this writing but will be posted when ready on the VICAR web page [1].

#### References:

- [1] <http://www-mipl.jpl.nasa.gov/external/vicar.html>  
 [2] Billingsley, F. et al, “VICAR-Digital Image Processing System”, NASA Tech Briefs, NPO-10770, June 1, 1969.  
 [3] Deen, R.G. et al, “XVD Image Display Program”, NASA Tech Briefs, NPO-46412, Sep 1, 2009 .

[4] Levoe, S.R and R.G. Deen, “Metadata-Preserving Image File Format Conversion”, poster from 1<sup>st</sup> Planetary Data User’s Workshop, Flagstaff, AZ, 2012.

[5] Deen, R.G. and S.R. Levoe, “Java Image I/O for VICAR, PDS, and ISIS”, NASA Tech Briefs, NPO-47184, Feb 1, 2011.

[6] Stanfill, D.F. and M.A. Girard, “VICAR/IBIS Software System”, NASA Tech Briefs, NPO-17081, Oct 1, 1988.

[7] Bryant, N.A. and A.L. Zobrist, “Image-based Information, Communication, and Retrieval”, NASA Tech Briefs, NPO-14893, Sep 1, 1980.

