Deep Space Mission System

RAPSO Mid-Range View-Periods Generation Procedure

SVE Standard Practice

DSMS No. **814-003**
Issue Date: October 11, 2001
JPL D-21558

Jet Propulsion Laboratory
California Institute of Technology

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Section 1

Introduction

1.1 PURPOSE

To support the Mid-Range scheduling/allocation process of the Resource Allocation Planning and Scheduling Office (RAPSO), each spacecraft shall have, at all times, Mid-Range View-periods (MRVPs) which end no sooner than two (2) years from the current date.

1.2 SCOPE OF DOCUMENT

This practice is applicable to all MRVP files generated by the Flight Projects for the RAPSO.

1.3 EFFECTIVITY

This document is effective on the date of issuance.

1.4 CONFLICTING REQUIREMENTS AND DEVIATIONS

When conflicts occur between the requirements contained herein and those contained in other DSN general standard documents or any reference documents, the user **shall** adhere to the most recent standard.

1.5 NOTATION AND TERMINOLOGY

Abbreviations and acronyms used in this document are defined with the first textual use of the term. Appendix A contains a list of abbreviations, acronyms, and terms used in this document.

1.6 APPLICABLE DOCUMENTS

DSMS 820-013 DSMS External Interface Specifications

Section 2

MRVPs File Format

2.1 GENERAL

The MRVPs shall be published in the file format defined in module OPS-6-15, "DSN Interface to Flight Projects for View-period Predictions", of 820-013 "DSMS External Interface Specifications".

2.2 REQUIRED EVENTS

The required "events" to be included in a MRVPs release file shall be:

START IN VIEW
RISE
SET
END IN VIEW

Additional events may be included in the MRVP file as the provider sees fit. See Tables 3-3 through 3-6 of OPS-6-15. These tables provide a complete list of all of the allowable events. Note however, that any additional events beyond the four events listed above must be treated as comments (/"ignored").

Note that MRVPs need not be generated for all possible ground antennas. However, MRVP files must contain the view-periods for the antennas on which tracking time is requested. Therefore, a valid MRVPs file may contain the view-periods for only a single antenna, or potentially dozens of antennas.

Section 3

Generation And Updates To MRVPs

3.1 GENERAL

MRVPs are usually generated based upon a propagation of the current NSS trajectory product into the future. This extended trajectory is then used to create the MRVPs. This is not required.

Also, it is not always possible to predict/propagate view-periods for all spacecraft into the future with an equal level of precision. Therefore, uniformity of precision is not required.

3.2 SYSTEM REQUIREMENTS

The system shall provide for:

3.2.1 Duration Minimum

A minimum of two (2) year's worth of MRVPs (The Project defines/derives the set of criteria used to decide when and whether a MRVPs update is required).

3.2.2 Varied Durations

MRVP files of varied durations (including multiple years in the cases of selected Deep Space Missions).

3.2.3 Revisions/Updates

Revisions/Updates to the MRVPs are expected to be more accurate than the previous MRVP for a spacecraft, unless it contains refined trajectory information.

Note:

MRVPs may be updated at anytime.

Newly released MRVP files will replace existing MRVPs in the RAPSO scheduling database/system.

Upon notification of an updated MRVP (See Section 4(B) below for notification definition), RAPSO will incorporate the new release into the scheduling database/system within 24 hours or less. (Note the exceptions listed at the bottom of Section 4.)

Section 4

MRVPs File Naming Convention

4.1 FILE NAME FORMAT

The Mid-Range Viewperiod file shall be named "###_ext.vue" where the ### is replaced with the actual DSN SCID (Deep Space Network Space Craft IDentifying number) for that spacecraft/mission.

Illustrative MRVP Filename Examples:

The Geotail file is named "001_ext.vue"
The Mars Global Surveyor Mission file is "094_ext.vue"
The Chandra file is named "151_ext.vue"
(etc.)

4.2 FILE SERVER PUBLICATION

The Mid-Range View-Period file shall be published to the fileserver (aka. "lillypad") external to the NSS firewall (ftp://dsn.jpl.nasa.gov/dsn/nss/viewperiods/###_ext.vue).

(Notification is defined as having performed the copying/moving of the MRVPs file to the location specified in 4.2 above, with the filename specified in 4.1 above.)

4.3 EXCEPTIONS

4.3.1 Initial Delivery

The first time ("initial delivery") Mid-Range View-Periods for a spacecraft is released, the notification provisions of Section 6 ("Special Studies") must be followed. After that initial loading of the Mid-Range View-Periods is performed for that spacecraft, the normal auto-loading provisions of this section (24 hours or less) shall apply.

4.3.2 Special Study Updates

Updates of MRVPs for Special Studies, even if the updated view-periods are named the same and moved to the same directory as the previous release, are subject to the provisions of Section 6. These updates are treated just as if they are for a new Special Study, rather than an "update" as defined in Section 3.

Section 5

Spacecraft Without DSN SCID Assignments

5.1 GENERAL

If a MRVPs file is generated for a spacecraft without an officially assigned DSN SCID number, the notification provisions of Section 6 ("Special Study") shall apply.

Future updates of MRVPs for spacecraft without officially assigned DSN SCID numbers will be treated according to the provisions of Section 6 ("Special Studies" MRVPs) rather than Section 3 ("Generation and Updates of MRVPs").

Section 6

"Special Studies" MRVPs

6.1 GENERAL

Upon release of a "Special Study" MRVPs file (for purposes of this section), the Project or Project representative releasing the "special study" MRVPs file shall notify by e-mail the RAPSO analyst assigned to the "Special Study." The e-mail notification shall contain the following information:

I. The name of the "Special Study"/spacecraft.
II. The specific filename of the "Special Study" MRVPs file released.
III. Confirmation that the "Special Study" MRVPs file has been moved onto the NSS external server ("lillypad").

6.2 INCLUSION OF A MRVP FILE INTO THE RAPSO DATABASE

In order to have a "Special Study" MRVPs file incorporated into the RAPSO scheduling database/system, the "Special Study" MRVPs must be published to the location specified in Section 4.2. The publisher of the MRVPs file shall uniquely name it with a name different from the filename convention specified in Section 4.1 (This is to prevent potential confusion of view-period products).

The "Special Study" MRVPs file will then be incorporated into the RAPSO scheduling database/system commensurate with the current RAPSO workload.

Appendix A

Abbreviations, Acronyms, and Terms

DSMS	Deep Space Mission System
DSN	Deep Space Network
MRVP	Mid-Range View-Period
NSS	Network Support Subsystem
RAPSO	Resource Allocation Planning and Scheduling Office
SCID	Space Craft IDentifying number

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