

## **Recommendation for Space Data System Standards**

**CCSDS GLOBAL  
SPACECRAFT IDENTIFICATION FIELD:  
CODE ASSIGNMENT CONTROL PROCEDURES**

**RECOMMENDED STANDARD**

**CCSDS 320.0-B-5**

**BLUE BOOK**  
**September 2007**

## AUTHORITY

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This document has been approved for publication by the Management Council of the Consultative Committee for Space Data Systems (CCSDS) and represents the consensus technical agreement of the participating CCSDS Member Agencies. The procedure for review and authorization of CCSDS documents is detailed in the *Procedures Manual for the Consultative Committee for Space Data Systems*, and the record of Agency participation in the authorization of this document can be obtained from the CCSDS Secretariat at the address below.

This document is published and maintained by:

CCSDS Secretariat  
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Space Operations Mission Directorate  
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## STATEMENT OF INTENT

The Consultative Committee for Space Data Systems (CCSDS) is an organization officially established by the management of its members. The Committee meets periodically to address data systems problems that are common to all participants, and to formulate sound technical solutions to these problems. Inasmuch as participation in the CCSDS is completely voluntary, the results of Committee actions are termed **Recommended Standards** and are not considered binding on any Agency.

This **Recommended Standard** is issued by, and represents the consensus of, the CCSDS members. Endorsement of this **Recommendation** is entirely voluntary. Endorsement, however, indicates the following understandings:

- o Whenever a member establishes a CCSDS-related **standard**, this **standard** will be in accord with the relevant **Recommended Standard**. Establishing such a **standard** does not preclude other provisions which a member may develop.
- o Whenever a member establishes a CCSDS-related **standard**, that member will provide other CCSDS members with the following information:
  - The **standard** itself.
  - The anticipated date of initial operational capability.
  - The anticipated duration of operational service.
- o Specific service arrangements shall be made via memoranda of agreement. Neither this **Recommended Standard** nor any ensuing **standard** is a substitute for a memorandum of agreement.

No later than five years from its date of issuance, this **Recommended Standard** will be reviewed by the CCSDS to determine whether it should: (1) remain in effect without change; (2) be changed to reflect the impact of new technologies, new requirements, or new directions; or (3) be retired or canceled.

In those instances when a new version of a **Recommended Standard** is issued, existing CCSDS-related member standards and implementations are not negated or deemed to be non-CCSDS compatible. It is the responsibility of each member to determine when such standards or implementations are to be modified. Each member is, however, strongly encouraged to direct planning for its new standards and implementations towards the later version of the Recommended Standard.

## FOREWORD

This document is a procedural Recommendation that establishes control procedures for Spacecraft Identification (SCID) codes. As such, it defines the procedure governing assignment, use, relinquishment, and management of SCIDs.

To make the most efficient use of the available identification (ID) space in the several CCSDS-recommended data structures that contain a SCID field, all CCSDS-compatible missions will be assigned SCIDs by a single central authority, the World Data Center for Satellite Information (WDC SI), located at the Goddard Space Flight Center in Greenbelt, Maryland, USA.

As specified in this Recommendation, WDC SI will accept only requests from designated Agency Representatives and only when received on approved Request Forms.

This Recommendation also provides:

- a list of the CCSDS Agencies' Representatives as of the date of this document;
- a form for requesting and relinquishing SCIDs.

Through the process of normal evolution, it is expected that expansion, deletion, or modification of this document may occur. This Recommended Standard is therefore subject to CCSDS document management and change control procedures, which are defined in the *Procedures Manual for the Consultative Committee for Space Data Systems*. Current versions of CCSDS documents are maintained at the CCSDS Web site:

<http://www.ccsds.org/>

Questions relating to the contents or status of this document should be addressed to the CCSDS Secretariat at the address indicated on page i.

CCSDS RECOMMENDATION FOR GSCID FIELD  
CODE ASSIGNMENT CONTROL PROCEDURES

At time of publication, the active Member and Observer Agencies of the CCSDS were:

Member Agencies

- Agenzia Spaziale Italiana (ASI)/Italy.
- British National Space Centre (BNSC)/United Kingdom.
- Canadian Space Agency (CSA)/Canada.
- Centre National d'Etudes Spatiales (CNES)/France.
- China National Space Administration (CNSA)/People's Republic of China.
- Deutsches Zentrum für Luft- und Raumfahrt e.V. (DLR)/Germany.
- European Space Agency (ESA)/Europe.
- Russian Federal Space Agency (RFSA)/Russian Federation.
- Instituto Nacional de Pesquisas Espaciais (INPE)/Brazil.
- Japan Aerospace Exploration Agency (JAXA)/Japan.
- National Aeronautics and Space Administration (NASA)/USA.

Observer Agencies

- Austrian Space Agency (ASA)/Austria.
- Belgian Federal Science Policy Office (BFSPPO)/Belgium.
- Central Research Institute of Machine Building (TsNIIMash)/Russian Federation.
- Centro Tecnico Aeroespacial (CTA)/Brazil.
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- Chinese Academy of Space Technology (CAST)/China.
- Commonwealth Scientific and Industrial Research Organization (CSIRO)/Australia.
- CSIR Satellite Applications Centre (CSIR)/Republic of South Africa.
- Danish National Space Center (DNSC)/Denmark.
- European Organization for the Exploitation of Meteorological Satellites (EUMETSAT)/Europe.
- European Telecommunications Satellite Organization (EUTELSAT)/Europe.
- Geo-Informatics and Space Technology Development Agency (GISTDA)/Thailand.
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- Space and Upper Atmosphere Research Commission (SUPARCO)/Pakistan.
- Swedish Space Corporation (SSC)/Sweden.
- United States Geological Survey (USGS)/USA.

## DOCUMENT CONTROL

<b>Document</b>	<b>Title</b>	<b>Date</b>	<b>Status</b>
CCSDS 320.0-B-1	CCSDS Global Spacecraft Identification Field: Code Assignment Control Procedures, Issue 1	October 1993	Original Issue (superseded)
CCSDS 320.0-B-2	CCSDS Global Spacecraft Identification Field: Code Assignment Control Procedures, Issue 2	November 1998	Superseded
CCSDS 320.0-B-3	CCSDS Global Spacecraft Identification Field: Code Assignment Control Procedures, Issue 3	April 2003	Superseded
CCSDS 320.0-B-4	CCSDS Global Spacecraft Identification Field: Code Assignment Control Procedures, Issue 4	January 2006	Superseded Adds Version Number 3 transfer frame identifier for missions using Proximity-1 space data links.
CCSDS 320.0-B-5	CCSDS Global Spacecraft Identification Field: Code Assignment Control Procedures, Recommended Standard, Issue 5	September 2007	Current Issue  Updates contact information for the WDC SI and Agency Representatives
EC 1	Editorial Change 1	March 2009	Corrects/updates front matter; corrects typographical errors in contact information for DLR AR

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## 1 INTRODUCTION

### 1.1 PURPOSE

This Recommendation establishes the procedures governing CCSDS Spacecraft Identification (SCID) field codes which are contained in the data unit formats specified in references [2], [3], [4] and [5]. As such it addresses the requesting, assigning, using, relinquishing, and managing of SCIDs.

The purpose of the CCSDS SCID is to serve as a mechanism for the identification of:

- a simple spacecraft having only one logical space-ground link; or
- an association between space-based and ground-based application processes with complex spacecraft having more than one logical space-ground link. Therefore, a single spacecraft may be assigned more than one SCID.

This identification may be used only throughout a spacecraft's active phases, e.g., simulations, prelaunch testing, and in-orbit operations. As quickly as practical after reception of telemetry data, the SCID should be replaced with a globally unique, unambiguous, permanent, and SCID-independent label for the spacecraft and/or payload data set(s). Thereafter, access to and identification of these data sets shall be by means of this label rather than the SCID field described in this document.

These procedures are intended to eliminate the possibility that data from any given CCSDS-compatible vehicle will be falsely interpreted as being from another CCSDS-compatible vehicle during the periods of simulation, testing, or mission operations. Since the data structure (synchronization code and virtual channel data unit/transfer frame/telecommand frame) are common to many missions, misinterpretation of the identity of space vehicle or ground-based simulator assemblies is possible unless procedures are developed and followed to identify uniquely each vehicle or assembly during its active phases. Because the SCID field is only eight or ten bits long for virtual channel data units and transfer frames respectively, the SCID is not intended to provide unique identification for all times. It is inevitable that the SCIDs will have to be reused; however, at any one time, the number of vehicles under simulation, test, or active operational control is not anticipated to exceed the available numbering domains.

As used throughout this document, the term SCID shall be construed to be limited in scope to the CCSDS-defined data fields. Other non-CCSDS-compatible data structures may also use this term; however, this document does not apply to the assignment and use of identification codes for non-CCSDS-compatible data structures. In such cases the potential for misinterpretation is negligible because of differences in the overall data structures.

### 1.2 BACKGROUND

SCID codes appear in many of the CCSDS-recommended data structures used for the space-ground links and other purposes. Typical of the space-ground data structures that incorporate

the SCID are:

- the Conventional Mission Telemetry Frame (reference [3]);
- the Conventional Mission Telecommand Transfer Frame (reference [2]);
- the Advanced Orbiting Systems Virtual Channel Data Unit (reference [4]);
- the Proximity-1 Transfer Frame (reference [5]).

Inasmuch as there are numerous technical and administrative considerations attendant to SCID management and control, i.e., requesting, assigning, using, and relinquishing SCIDs, this document hereby establishes procedures and guidance for SCID management and control.

### 1.3 GLOBAL SPACECRAFT IDENTIFIER (GSCID)

The GSCID is defined to be the concatenation of the 2-bit Version Number (VN) and the Spacecraft Identifier (SCID). Thus,

$$\text{GSCID} = \text{VN} \cdot \text{SCID}$$

Where “·” refers to the concatenation operator.

The valid range of the currently defined VN field is shown in table 1-1.

**Table 1-1: Bit Structure of Currently Defined VN Fields**

Version	Binary Encoded VN	Range of SCID	No. of Bits in SCID Encoded	Relevant CCSDS Documents
1	00	0–1,023	10	Ref. [2] & [3]
2	01	0–255	8	Ref. [4]
3	10	0–1,023	10	Ref. [5]
<p>NOTE – The binary encoded VN value of “11” is reserved for possible future use and should not be used for project-unique purposes prior to formal agreement within CCSDS for such use.</p>				

The CCSDS Recommendations on telemetry and telecommand protocols (references [2], [3], [4] and [5]) provide a mechanism for establishing an ASSOCIATION (either temporary or permanent) between space-based application process(es) and corresponding ground-based application process(es).

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The data streams transmitted between space and ground processes will contain IDENTIFIERS which will specify the relevant association. These identifiers are MANAGED parameters (i.e., the specific association implied by a given identifier must have been previously established). The utilization of the SCID field on a global scale necessitates its concatenation with other fields in the References and, therefore, the name Global SCID or GSCID.

#### 1.4 APPLICABILITY

This Recommendation applies to all spacecraft that are compatible with CCSDS protocols contained in those documents listed in the References section of this Recommendation.

#### 1.5 REFERENCES

The following documents contain provisions which, through reference in this text, constitute provisions of this Recommendation. At the time of publication, the editions indicated were valid. All documents are subject to revision, and users of this Recommendation are encouraged to investigate the possibility of applying the most recent editions of the documents indicated below. The CCSDS Secretariat maintains a register of currently valid CCSDS Recommendations.

- [1] *Procedures Manual for the Consultative Committee for Space Data Systems*. CCSDS A00.0-Y-9. Yellow Book. Issue 9. Washington, D.C.: CCSDS, November 2003.
- [2] *TC Space Data Link Protocol*. Recommendation for Space Data System Standards, CCSDS 232.0-B-1. Blue Book. Issue 1. Washington, D.C.: CCSDS, September 2003.
- [3] *TM Space Data Link Protocol*. Recommendation for Space Data System Standards, CCSDS 132.0-B-1. Blue Book. Issue 1. Washington, D.C.: CCSDS, September 2003.
- [4] *AOS Space Data Link Protocol*. Recommendation for Space Data System Standards, CCSDS 732.0-B-2. Blue Book. Issue 2. Washington, D.C.: CCSDS, July 2006.
- [5] *Proximity-1 Space Link Protocol—Data Link Layer*. Recommendation for Space Data System Standards, CCSDS 211.0-B-4. Blue Book. Issue 4. Washington, D.C.: CCSDS, July 2006.

## **2 SCID CODE ASSIGNMENT CONTROL PROCEDURES**

### **2.1 CCSDS SCID MANAGEMENT SYSTEM DUTIES AND RESPONSIBILITIES**

CCSDS SCID assignment and management, on an international basis, must be viewed as a cooperative effort among the CCSDS Agencies, with each constituent acting as agent for the users under its cognizance. The management system comprises four elements:

#### **2.1.1 CCSDS Secretariat shall**

- serve as the focal point for the resolution of any issues not adequately covered by these procedures;
- request that CCSDS Member Agencies appoint, maintain, and replace as necessary an official Agency Representative (AR) to handle all SCID requests from that Agency.

#### **2.1.2 CCSDS Head of Delegation shall**

- provide the CCSDS Secretariat and the World Data Center for Satellite Information (WDC SI) with the name and address of the person authorized to be the Agency Representative (AR) as needed to keep this information current.

NOTE –A list of ARs as of the date of this Recommendation is included as Annex A.

#### **2.1.3 Agency Representative (AR) shall**

- submit SCID requests in accordance with the provisions of this Recommendation;
- interact directly with WDC SI with regard to any issues relating to a specific SCID assignment request;
- monitor the life of those CCSDS missions within his/her Agency and relinquish all SCIDs at the earliest practical time, which shall not in any event be longer than two months after receipt of the last expected telemetry signal;
- inform the applicable Agency personnel of any relevant actions (i.e., SCID assignment, relinquishment) taken by WDC SI relating to that Agency.

#### **2.1.4 World Data Center for Satellite Information shall**

- serve as the assignment manager;
- accept, from authorized ARs, requests for SCID assignments;
- review and log SCID assignment requests;
- assign one or more SCIDs in response to the request and notify the appropriate AR of the assignment(s);

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- interact directly with the appropriate AR in matters dealing with a particular SCID assignment request;
- maintain complete and independent catalogs of SCID assignments for each version number and periodically provide the catalog of currently assigned SCIDs to the CCSDS Secretariat, CCSDS Heads of Delegation, and Member/Observing Agency ARs;
- work with the respective ARs to recover all SCIDs, corresponding to those spacecraft whose operational phases have been completed, for subsequent reassignment.

## **2.2 SCID ASSIGNMENT REQUEST PROCEDURES**

**2.2.1** All SCID Assignment Requests by an Agency shall be submitted by the designated AR.

**2.2.2** Organizations that are not affiliated with a CCSDS Agency shall contact the CCSDS Secretariat for SCID assignments.

NOTE – The CCSDS Secretariat will assign an existing AR to submit the SCID request.

**2.2.3** All SCID Assignment Requests shall be submitted on the approved request form as contained in Annex B.

**2.2.4** A separate form shall be used for each SCID requested.

**2.2.5** All SCID Assignment Requests are to be submitted in writing to:

World Data Center for Satellite Information  
Code 690.1  
NASA Goddard Space Flight Center  
Greenbelt, MD 20771  
USA

TELEPHONE: +1 301 286 6695  
FAX: +1 301 286 1635  
EMAIL: request@mail630.gsfc.nasa.gov

NOTE Telephone communications can be used only to request information, not to request SCIDs.

## **2.3 SCID CODE ASSIGNMENT PROCEDURES**

**2.3.1** All CCSDS SCID Assignments shall be made by the WDC SI.

**2.3.2** Each SCID Code Assignment shall be globally unique during its assignment period.

**2.3.3** SCID Code Assignments will be made on a spacecraft-by-spacecraft basis. User requests for reservation of a sequence of ID numbers for unspecified spacecraft will not be accepted. However, multiple SCIDs may be assigned for those missions which have multiple spacecraft or which require separate designations for protoflight spacecraft or simulations.

**2.3.4** User requests for assignment of specific numerical codes will be accepted. However, the user should refer to the catalog of existing SCID assignments (see 2.1.4) to avoid requesting assignments that could result in duplication, and, therefore, denial of a request.

**2.3.5** The SCIDs that are relinquished by an Agency will not be immediately reassigned. Rather, the relinquished SCIDs will be placed at the bottom of the stack of unassigned SCIDs, thereby maximizing the period of time before the relinquished number is reassigned.

## **2.4 SCID RELINQUISHING PROCEDURES**

**2.4.1** The AR shall determine, in conjunction with the mission manager, exactly when the operational phase of a mission is complete and when the related SCIDs can be relinquished.

**2.4.2** The AR will submit to WDC SI a copy of the original Assignment Request/Relinquishment form with the section entitled, "RELINQUISHMENT AUTHORIZATION" completed and signed. If the original Assignment Request/Relinquishment form cannot be located, a simple letter relinquishing the SCID will be acceptable.

**2.4.3** WDC SI will place that SCID code number at the bottom of the stack of SCIDs available for assignment.

## **ANNEX A**

### **LIST OF AGENCY REPRESENTATIVES**

(THIS ANNEX IS NOT PART OF THE RECOMMENDATION)

#### **Purpose:**

This annex contains complete address information, as of the date of this Recommendation, for the official CCSDS Agency Representatives. Please refer to the CCSDS web site for the current list. The authorization and functions of Agency Representatives are defined in 2.1.2 and 2.1.3.

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The following is the list of Agency Representatives who are authorized to officially request Spacecraft Identification Code Assignments (these are not the same individuals in every instance as the Heads of Delegation listed in the CCSDS Procedures Manual, reference [1]):

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**ANNEX B**

**SCID REQUEST FORM**

(THIS ANNEX IS PART OF THE RECOMMENDATION)

**Purpose:**

This annex provides the official form to be used by Agency Representatives for requesting and relinquishing SCIDs.



## **ANNEX C**

### **ACRONYMS AND ABBREVIATIONS**

(THIS ANNEX **IS NOT** PART OF THE RECOMMENDATION)

#### **Purpose:**

This annex defines acronyms and abbreviations used in this Recommendation.

CCSDS RECOMMENDATION FOR GSCID FIELD  
CODE ASSIGNMENT CONTROL PROCEDURES

For the purposes of this Recommendation, the following definitions apply.

AR	Agency Representative
CCSDS	Consultative Committee for Space Data Systems
GSCID	Global SCID
Hex	Hexadecimal
NSSDC	National Space Science Data Center
TC	Telecommand
TLM	Telemetry
S/C	Spacecraft
SCID	Spacecraft Identification
VN	Version Number
WDC SI	World Data Center for Satellite Information