CCSDS

The Consultative Committee for Space Data Systems

**Draft Recommendation for
Space Data System Practices**

CCSDS SPACECRAFT IDENTIFICATION FIELD CODE ASSIGNMENT CONTROL PROCEDURES

DRAFT RECOMMENDED PRACTICE

CCSDS 320.0-P-6.1

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(WHEN THIS RECOMMENDED PRACTICE IS FINALIZED, IT WILL CONTAIN THE FOLLOWING STATEMENT OF AUTHORITY:)

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STATEMENT OF INTENT

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FOREWORD

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

To make the most efficient use of the available identification space in the several CCSDS-recommended data structures that contain a SCID field, all CCSDS-compatible missions are assigned SCIDs by the Space Assigned Numbers Authority (SANA).

As specified in this Recommended Practice, SANA accepts only requests from designated Agency Representatives and only when received via the approved Request web interface.

This Recommended Practice also describes a web interface to be used 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 Practice is therefore subject to CCSDS document management and change control procedures, which are defined in the *Organization and Processes for the Consultative Committee for Space Data Systems* (CCSDS A02.1-Y-4). Current versions of CCSDS documents are maintained at the CCSDS Web site:

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

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- Canadian Space Agency (CSA)/Canada.
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- Space and Upper Atmosphere Research Commission (SUPARCO)/Pakistan.
- Swedish Space Corporation (SSC)/Sweden.
- Swiss Space Office (SSO)/Switzerland.
- United States Geological Survey (USGS)/USA.

PREFACE

This document is a draft CCSDS Recommended Practice. Its 'Pink Book' status indicates that the CCSDS believes the document to be technically mature and has released it for formal review by appropriate technical organizations. As such, its technical contents are not stable, and several iterations of it may occur in response to comments received during the review process.

Implementers are cautioned **not** to fabricate any final equipment in accordance with this document's technical content.

DOCUMENT CONTROL

Document	Title	Date	Status
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
CCSDS 320.0-B-5	CCSDS Global Spacecraft Identification Field: Code Assignment Control Procedures, Issue 5	September 2007	Superseded
CCSDS 320.0-B-6	CCSDS Global Spacecraft Identification Field: Code Assignment Control Procedures, Issue 6	October 2013	Current issue
CCSDS 320.0-P-6.1	CCSDS Spacecraft Identification Field Code Assignment Control Procedures, Draft Recommended Practice, Issue 6.1	October 2016	Current draft update

NOTE – Changes in the current draft are too numerous to permit useful markup.

CONTENTS

1 INTRODUCTION

1.1 PURPOSE

This Recommended Practice establishes the procedures governing requesting, assigning, and relinquishing CCSDS Spacecraft Identifier (SCID) field codes, which are specified in the data unit formats defined in references [1], [2], [3], and [4]. It specifies the organizations and personnel authorized to participate in the performance of those procedures, the requirements for configuration management, and the acceptable use of SCIDs.

1.2 APPLICABILITY

This Recommended Practice applies to users of the CCSDS protocols defined in references [1], [2], [3], and [4]. These procedures shall be followed by all organizations who require a spacecraft identifier to use CCSDS protocols for space communication and by the Space Assigned Numbers Authority (SANA), which registers these identifiers.

1.3 NOMENCLATURE

1.3.1 NORMATIVE TEXT

The following conventions apply for the normative specifications in this Recommended Practice:

a) the words 'shall' and 'must' imply a binding and verifiable specification;

b) the word 'should' implies an optional, but desirable, specification;

c) the word 'may' implies an optional specification;

d) the words 'is', 'are', and 'will' imply statements of fact.

NOTE – These conventions do not imply constraints on diction in text that is clearly informative in nature.

1.3.2 INFORMATIVE TEXT

In the normative sections of this document, informative text is set off from the normative specifications either in notes or under one of the following subsection headings:

– Overview;

– Background;

– Rationale;

– Discussion.

1.4   DEFINITIONS

Agency Representative, AR: An individual designated by a CCSDS Agency Head of Delegation as the person authorized to request and relinquish SCIDs on behalf of the respective agency.

CCSDS Agency: A CCSDS Member or Observer Agency.

CCSDS Agency Head of Delegation: The individual who serves as principal representative of a CCSDS Agency in dealings with the CCSDS. The CCSDS Agency HoD for a Member Agency is usually the CMC member.

NOTE – Affiliate organizations (Associates or Liaisons) make requests via the AR for their country. If there is no CCSDS agency for their country they may petition the Secretariat to be assigned the responsibility for their country.

Frequency Band, FB: The discrete sets of frequencies that have been identified as frequency bands (FB) by the International Telecommunication Union (ITU), with letter designations (derived from [5]).

Global Spacecraft Identifier, GSCID: The concatenation of the 2-bit Version Number (VN) and the SCID. Thus

$$GSCID = VN \cdot SCID$$

Where '·' refers to the concatenation operator.

Object Identifier, OID: The unique ISO identifier assigned to every spacecraft registered in the CCSDS spacecraft registry (reference [7]).

NOTE – While the SCID is only valid for the operational lifetime of the mission the OID is permanently assigned.

Qualified Spacecraft Identifier, Q-SCID: The concatenation of the frequency band (FB), 2-bit Version Number (VN) and the SCID. Thus

$$Q\text{-}SCID = FB \cdot VN \cdot SCID$$

Where '·' refers to the concatenation operator.

Spacecraft Identifier, SCID: A value used in specified fields of CCSDS-defined data structures.

NOTE – 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.

Version Number, VN: A field value used to differentiate CCSDS-defined transfer frames. The valid range of the currently defined VN field is shown in table 1-1.

NOTE – The association of the VN with the spacecraft is a managed parameter. Any spacecraft that uses more than one protocol with a different VN may require that two (or more) completely separate and distinct SCIDs be assigned.

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. [1] & [2]
2	01	0–255	8	Ref. [3]
3	10	0–1,023	10	Ref. [4]
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.				

NOTE – There is, in effect, a separate set of Q-SCID registry entries for each protocol version number and each frequency bin that a spacecraft is assigned to use, such as X-band uplink, X and Ka-band downlink. While it is to be avoided if at all possible, one spacecraft may have more than one SCID assigned in these different VN & frequency bins. (See annex A which defines the characteristics of the registries that are to be used for this procedure.)

1.5   REFERENCES

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

[1]   *TC Space Data Link Protocol*. Issue 2. Recommendation for Space Data System Standards (Blue Book), CCSDS 232.0-B-2. Washington, D.C.: CCSDS, September 2010.

[2]   *TM Space Data Link Protocol*. Issue 1. Recommendation for Space Data System Standards (Blue Book), CCSDS 132.0-B-1. Washington, D.C.: CCSDS, September 2003

[3]   *AOS Space Data Link Protocol*. Issue 2. Recommendation for Space Data System Standards (Blue Book), CCSDS 732.0-B-2. Washington, D.C.: CCSDS, July 2006.

[4]   *Proximity-1 Space Link Protocol—Data Link Layer*. Issue 4. Recommendation for
        Space Data System Standards (Blue Book), CCSDS 211.0-B-4. Washington, D.C.:
        CCSDS, July 2006.

[5]   *IEEE Standard Letter Designations for Radar-Frequency Bands*. IEEE Std. 521-2002.
        New York: IEEE, 2003.

[6]   "Agency Representatives." Space Assigned Numbers Authority.
        http://sanaregistry.org/r/agency_representatives/.

[7]   "Spacecraft Identifiers." Space Assigned Numbers Authority.
        http://sanaregistry.org/r/spacecraftid/.

[8]   "Organizations." Space Assigned Numbers Authority.
        http://sanaregistry.org/r/organizations/.

[9]   "Contacts." Space Assigned Numbers Authority. http://sanaregistry.org/r/contacts/.

[10]   "CCSDS Object Identifiers (OID)." Space Assigned Numbers Authority (SANA).
        http://sanaregistry.org/r/oid/.

[11]   *CCSDS SANA Registry Management Policy*. Issue 1. CCSDS Record (Yellow Book),
        CCSDS 313.1-Y-1. Washington, D.C.: CCSDS, May 2016.

2   OVERVIEW

2.1   PURPOSE OF THE CCSDS Q-SCID

The CCSDS Q-SCID serves as a mechanism for the identification of:

−   a simple spacecraft having only one logical space-ground link in a single frequency band; or

−   an association between space-based and ground-based application processes with complex spacecraft having more than one logical space-ground link operating at different frequencies. Therefore a single spacecraft may be assigned more than one GSCID.

The procedures contained in this document 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 mission operations; and that

−   commands sent to a CCSDS-compatible vehicle will be received and acted upon by application processes for which they were not intended.

Since the space link data structures (synchronization code and virtual channel data unit/transfer frame/telecommand frame) are common to many missions, misinterpretation of the identity of space vehicle is possible unless procedures are developed and followed to identify uniquely each vehicle or assembly during its active phases.   Different missions also are assigned spectrum in one or more frequency bands, so this separation of frequency band use also provides effective isolation for what are treated as separate namespaces.   This document defines the assignment procedures that ensure assignment of one (or more) unique qualified spacecraft identifiers (Q-SCID) based on the frequency band(s) in use.

Because the SCID field in the various CCSDS transfer frames is used to discriminate among operational spacecraft, and the fields are only eight or ten bits long, the SCID is not intended to provide a unique identifier for the spacecraft and its data for all times. Because of the increasing numbers of operational spacecraft there is a concern that, at any one time, the number of vehicles under active operational control not exceed the namespace in the available assignment domains. It is inevitable that the SCIDs will have to be reused and there is a procedure for relinquishing them.

In order to directly address these concerns the Q-SCID assignment domains address the following considerations:

a)   Separate SCID number assignment tables for each different protocol Version Number (VN).

b)   Separate Q-SCID number assignment tables for each frequency band / bin for each VN.

c) Any spacecraft using more than one protocol, and/or more than one frequency band, may have two, or more, separate Q-SCIDs assigned, potentially in different frequency bins.

d) The assignment process will attempt to assign the same SCID in each assignment domain, but this is not guaranteed.

The SANA, which performs Q-SCID assignments and manages the namespaces, will no longer assign SCIDs for simulation and testing, nor for ground based simulators or assemblies. Since these activities do not involve free space radiation there is no possibility of confusion between an operating spacecraft and a simulator. Missions may wish to assign separate simulation and test SCIDs to manage their own internal datasets, but this must be done by the missions themselves, or an agency or center can define how to manage it internally as a local matter.

In addition to the assignment of Q-SCIDs during the active operational lifetime, the SCID assignment process also provides a separate unique and permanent identifier for each spacecraft. In order to provide a unique, unambiguous, persistent spacecraft identifier the Q-SCID registration process also assigns a globally unique object identifier (OID), reference [10]. The OID is a permanent identifier for each spacecraft that may be used as a persistent identification for the spacecraft and its data.

NOTE – It is possible for an organization to request an OID assignment for a spacecraft, simulator, or assembly that does not have a Q-SCID assigned. Any spacecraft that receives communication services from a CCSDS agency or other service provider may have an OID assigned.

2.2   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 [2]);

– the conventional mission telecommand transfer frame (reference [1]);

– the Advanced Orbiting Systems Virtual Channel Data Unit (reference [3]);

– the Proximity-1 transfer frame (reference [4]);

The CCSDS Recommended Standards on Data Link Layer protocols (references [1], [2], [3], and [4] provide a mechanism for establishing a link layer association (either temporary or permanent) between space-based application process(es) and corresponding ground-based application process(es).

The data streams transmitted between space and ground processes contain identifiers that specify the relevant association. These identifiers are managed parameters (i.e., the specific

association implied by a given identifier must have been previously established by agreement between service user and service provider). The utilization of the SCID field on a global scale necessitates its concatenation with the FB and VN of the protocol data structure in which it is used; the concatenation of FB, VN, and SCID is the Qualified SCID or Q-SCID.

The International Telecommunication Union (ITU) is the United Nations specialized agency, that, among other responsibilities, allocates global radio frequency spectrum and facilitates international coordination/notification for space systems and their earth stations. The World Radiocommunication Conferences (WRC) are held periodically to recommend allocation of frequency bands to radio services. Every space agency sends representatives, as part of their administration's delegation, to the WRC in order to protect valuable spectrum required for space science. Each agency also has a spectrum manager who is responsible for selection and coordination of frequencies for their agency's spacecraft.

Table 2-1 has the discrete sets of frequencies that have been identified as frequency bands (FB), with the following letter designations (derived from reference [5]).

Table 2-1: ITU/IEEE Frequency Bands (FB)

IEEE FB Name	Near Earth Downlink	Abrv	Deep Space Downlink	Abrv
HF-band **0–30 MHz**	Same	HF	Same	HF
VHF-band **30–300 MHz**	Same	VHF	Same	VHF
UHF-band **300–1000 MHz**	Same	UHF	Same	UHF
L-band **1–2 GHz**	Same	L	Same	L
S-Band **2–4 GHz**	2200–2290 MHz	S-NE	2290–2300 MHz	S-DS
C-Band **4–7 GHz**	3400–4200 MHz	C	N/A	C
X-Band SRS **7–12 GHz**	8450–8500 MHz	XS-NE	8400–8450 MHz	XS-DS
X-Band EESS **7–12 GHz**	8025–8400 MHz	XE-NE	N/A	XE-DS
Ku-Band **12–18 GHz**	13.4–15.35 GHz	Ku	N/A	Ku
K-Band **18–27 GHz**		K		K
Ka-Band SRS or EESS **27–40 GHz**	25.5–27 GHz	Ka-NE	31.8–32.3 GHz	Ka-DS
Ka-Band SRS **27–40 GHz**	37.0–38.0 GHz	KaS	37.0–38.0 GHz	KaS
V-Band **40–75 GHz** (future)		V		V
W-Band **75–110 GHz** (future)		W		W
Optical 1064 nm (future)		O1		O1
Optical 1550 nm (future)		O2		O2

Only the downlink frequencies are shown. The uplink frequencies that are used for any given satellite may just be an offset in the same frequency band range, i.e., 2–4 GHz, or they may actually be in a different frequency band, i.e., Ka band downlink and K-band uplink. In some cases these may be called 'Ka-band', or 'Ku-band' frequency assignments but the actual frequency bands that are in use are, numerically, different than that. As a result the Q-SCID request must specify the actual frequency band name and frequency range separately for both uplink and downlink separately so as to avoid confusion. It is not required to specify the actual frequencies in use, but the correct band designator, for uplink and downlink, must be provided.

It is expected that every spacecraft, early in its development process, will acquire a frequency assignment for uplink and downlink. The Q-SCID assignment procedures require that each registered spacecraft specify the one (or more) frequency bands that they have been assigned by their agency spectrum manager. Spacecraft may also use different link layer protocols for uplink and downlink. The assignment of one or more Q-SCIDs will be done relative to the number of frequency bands that a spacecraft uses, but for operational convenience every attempt will be made to assign the same SCID in all bands if that is possible.

3 SCID CODE ASSIGNMENT CONTROL PROCEDURES

3.1 CCSDS SCID MANAGEMENT SYSTEM DUTIES AND RESPONSIBILITIES

3.1.1 OVERVIEW

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:

– the CCSDS Secretariat;

– the CCSDS Agency Heads of Delegation;

– the Agency Representatives;

– the Space Assigned Numbers Authority (SANA).

3.1.2 CCSDS SECRETARIAT RESPONSIBILITIES

The CCSDS Secretariat shall

– serve as the focal point for the resolution of any issues not adequately covered by these procedures;

– act as intermediary for SCID requests from organizations not affiliated with a CCSDS Agency by assigning an existing AR to handle the request.

– handle any necessary updates to the official lists of CCSDS Agencies and to the Agency Heads of Delegation.

NOTE – The official list of CCSDS Agencies may be viewed at reference [8]. The official list of CCSDS Agency Heads of Delegation may be viewed at reference [9]. The Secretariat is also responsible for synchronizing these official registries with those maintained in the SANA.

3.1.3 CCSDS AGENCY HEAD OF DELEGATION RESPONSIBILITIES

3.1.3.1 Each CCSDS Agency Head of Delegation shall appoint an official Agency Representative to handle all SCID requests from his or her Agency.

3.1.3.2 As needed, CCSDS Agency Heads of Delegation shall provide current AR name and contact information using a web form found at reference [6], or via e-mail to info@sanaregistry.org with CC to secretariat@mailman.ccsds.org.

NOTE – The official list of ARs may be viewed at reference [6].

3.1.3.3   The CCSDS Agency Heads of Delegation shall update the AR name and contact information in the SANA whenever there is a change. This may be done using a web form found at reference [6] or via e-mail to info@sanaregistry.org with CC to secretariat@mailman.ccsds.org.

NOTE   –   The SANA web pages include a web form requiring authenticated access for any registry changes. The SANA will verify correct permissions before making changes to any of these entries.

3.1.4   AGENCY REPRESENTATIVE RESPONSIBILITIES

The Agency Representative shall

– submit Q-SCID requests in accordance with the provisions of this Recommended Practice;

– interact directly with SANA with regard to any issues relating to a specific Q-SCID assignment request;

– monitor the life of those CCSDS missions within his or her agency and relinquish all Q-SCIDs at the earliest practical time, which shall not in any event be later than two months after the ~~last communication with~~ the spacecraft;

Insert: end of the operational phase of

– inform the applicable agency personnel of any relevant actions (i.e., Q-SCID assignment, relinquishment) taken by SANA relating to that agency.

3.1.5   SANA RESPONSIBILITIES

SANA shall

– maintain the on-line list of Agencies (reference [8]);

– maintain the on-line list of Agency HoD (reference [9]);

– maintain the official list of ARs (reference [6]);

– serve as the Q-SCID assignment manager;

– accept, from authorized ARs, requests for Q-SCID assignments;

– review and log Q-SCID assignment requests;

– assign one or more Q-SCIDs in the assigned frequency bin in response to requests and notify the appropriate AR of the assignment(s) (reference [7]);

– assign a unique, persistent, OID for each spacecraft in response to the request and notify the appropriate AR of the assignment(s) (see reference [10]);

– interact directly with the appropriate AR in matters dealing with a particular Q-SCID or OID assignment request;

–   maintain complete and independent sets of Q-SCID assignments for each frequency bin (FB) and protocol version number (VN) as registries on the SANA site;

NOTE   –   The official list of Q-SCIDs is maintained at reference [7].

–   maintain a reference to the spacecraft OID assignments for each protocol version number as a registry on the SANA site;

–   optionally record, in the spacecraft OID registry, the name, abbreviation, and any aliases for the spacecraft;

NOTE   –   The official list of OID assignments is maintained at reference [10].

–   work with the respective ARs to recover all Q-SCIDs, corresponding to those spacecraft whose operational phases have been completed, for subsequent reassignment.

3.1.6   SANA REGISTRY EXTENSIONS

This document references registries, such as the Organization and Contact registries, that have been defined in other documents (see references [6], [8], [9], and [10]). Similarly, this document defines a registry (reference [7]) that may be referenced in other standards. Furthermore, the Agency Representative registry, in particular, may be extended by other standards as the means to unambiguously identify specific Agency Representatives who have roles and responsibilities for managing the registration of different types of information than Q-SCIDs.

3.2   Q-SCID CODE LIFETIME

3.2.1   An assigned Q-SCID may be used throughout a spacecraft's active operational phases, e.g., prelaunch testing, launch, and on-orbit operations.

3.2.2   As quickly as practical after reception of telemetry data, the SCID should be replaced with the OID, a globally unique, unambiguous, permanent, label for the spacecraft and/or payload data set(s) that is independent of the SCID.

NOTE   –   A globally unique, persistent, OID is created and assigned to the spacecraft for this purpose. It may be used during the entire operational life of the spacecraft and persists after termination of active operations.

3.2.3   Thereafter, access to and identification of these data sets should be by means of this OID, or by some other agency assigned identifier, rather than the SCID field described in this document.

NOTE – Because CCSDS SCIDs are reused, and the same SCID may be used in different frequency bands, identification of archived data by SCID is problematic. The OID is permanent and unambiguous; it may be represented in several different, but inter-changeable, forms, as needed. (See ISO/IEC 8825-1:2008, X.690, 8.19–8.22 for viable mappings from a character string-based OID to other digital forms.)

3.3   SCID ASSIGNMENT REQUEST PROCEDURES

3.3.1   All Q-SCID Assignment Requests by an Agency shall be submitted by the designated AR (see reference [6]).

3.3.2   Organizations that are not affiliated with a CCSDS Agency shall contact the ~~SANA for~~ Q-SCID assignments.

Insert: Secretariat for assistance with

3.3.3   All Q-SCID Assignment Requests shall be submitted using the approved request form located on the SANA website at http://sanaregistry.org/r/spacecraftid/spacecraftid.html.

3.3.4   The AR shall specify the protocol that is to be used (VN) and the uplink and downlink frequency band(s) (FB) that have been assigned.

Insert: on-line

NOTE – The form requests only the uplink and downlink frequency bands, it does not require the exact operating frequencies. As long as the same VN and FB is used for uplink and downlink only one SCID need be assigned. The correct FB, by actual numeric frequency range, must be selected.

3.3.5   A separate form shall be used for each Q-SCID request.

NOTE – The form supports the request for Q-SCIDs for different protocols (VN) and frequency bands (FB) for any given spacecraft and may support requests for more than one spacecraft, such as a constellation.

~~**3.3.6**   All Q-SCID Assignment Requests shall be submitted to the SANA using the on-line web form.~~ **Remove this clause**

3.3.7   In exceptional circumstances the AR may fill out a copy of the on-line form and email it to info@sanaregistry.org.

3.4   SCID CODE ASSIGNMENT PROCEDURES

3.4.1   All CCSDS Q-SCID Assignments shall be made by SANA.

3.4.2   SANA shall assign the specific Q-SCID codes based on availability. Only in exceptional circumstances will user requests for specific numerical code assignments be honored.

3.4.3   Each Q-SCID Code Assignment shall be globally unique within the assigned VN and frequency band during its assignment period.

3.4.4   Q-SCID Code Assignments shall be made on a spacecraft-by-spacecraft basis.

3.4.5   Each request for a Q-SCID Code Assignment shall also return a unique, persistent, OID identifier for each spacecraft.

NOTE – Each spacecraft gets a unique OID. Each aperture on the spacecraft, and the frequency band(s) for the aperture, may also be assigned a unique sub-OID within the spacecraft OID tree.

3.4.6   User requests for reservation of a sequence of ID numbers for unspecified spacecraft shall not be accepted; however, multiple Q-SCIDs may be assigned for those missions that have multiple spacecraft.

NOTES

1   Agencies that desire separate designations for protoflight spacecraft or simulators may request a unique OID for each such instance, but not SCIDs.

2   Any assignment of an OID to a protoflight spacecraft, simulator, or other 'flight-less bird' shall be treated as assignment of a Q-SCID with a VN of 'non-radiating'. These Q-SCIDs are separate from, but may overlap, those assigned to real VNs. Alternatively, any agency may self-assign SCIDs for simulators as long as these are never used for RF radiation.

3.4.7   User requests for assignment of specific numerical codes may be accepted in exceptional circumstances and may be satisfied only if those numerical codes are available.

3.4.7.1   The user should refer to the catalog of existing Q-SCID assignments (reference [7]) to avoid requesting specific assignments that could result in duplication, and, therefore, denial of a request.

3.4.7.2   If a request for a specific numerical code cannot be honored the SANA shall assign another SCID based on availability.

3.4.7.3   If a spacecraft requires more than one Q-SCID, because of use of different uplink and downlink protocols (VN) or different assigned frequency bands (FB), the SANA shall attempt to assign the same numeric SCID in each bin based on availability.

3.4.7.4   All OID assignments shall be made in the OID sub-tree for Spacecraft (see reference [10]).

3.5 SCID RELINQUISHING PROCEDURES

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

3.5.2 The AR shall use the approved Q-SCID form located on the SANA website at http://sanaregistry.org/r/spacecraftid/spacecraftid.html and mark 'RELINQUISH current GSCID' in the **AUTHORIZATION** section.

3.5.3 Only an authorized AR for the Agency shall be permitted to relinquish an assigned Q-SCID.

3.5.4 SANA shall place the relinquished SCID code number at the bottom of the stack of SCIDs available for assignment.

NOTE – The relinquished SCID code number is placed at the bottom of the stack of unassigned SCIDs in order to maximize the period of time before the relinquished number might be reassigned.

ANNEX A

SANA CONSIDERATIONS

(INFORMATIVE)

The following registries have been created by SANA.

Name: CCSDS Spacecraft Identifier

Structure: Tabular (one table for each Q-SCID Version), 12 columns by the number of rows needed for the SCID count (8 or 10 bits). The data types in this table are provided only as an example of the field type and size. The actual fields will be determined when the tables are implemented.

Column Name	Data Type	Data Range	Notes
Spacecraft Name	Character (64)	Any valid alpha-numeric	Assigned by the agency
Channel	Character (3)	TC, TLM, AOS, Other	
Version Number (s)	Integer (short), may be more than one	1, 2, or 3	May be extended by new protocols
SCID	Hex (3)	001-max	Max is maximum SCID value for each Version Number
GSCID	Hex (3)	001-max	Per frequency band
Object ID	ISO OID	1.3.112.4.7…	Unique OID is assigned to each spacecraft
Requestor Name	Character (64)	Valid person name in English	Name must be in AR registry
Requestor Affiliation	Character (64)	Valid organization name	Name must be in Organization registry
Requestor Affiliation Country	Character (2)	Valid 2 character country code	Name must be valid ISO country code
Last Request Date	Date	yyyy-mm-dd	
Registered by	ISO OID	1.3.112.4.2.1 …	Unique OID for the person who last changed the registry
Status	Enumerated	'Assigned', 'Returned', OID only, NULL	
Spacecraft Name Abbreviation	Character (8)	Any valid alpha-numeric	Agency assigned abbreviation or acronym

Spacecraft Name Alias(es)	Character (128)	Comma separated list of any valid alpha-numeric	Agency assigned alias list (pre/post launch, familiar)
S/C Transmitting Frequency Band (s)	Character (6), one per assigned band	Frequency Band designator abbreviation	Frequency band designators from table 2-1, may be more than one.
S/C Receiving Frequency Band (s)	Character (6), one per assigned band	Frequency Band designator abbreviation	Frequency band designators from table 2-1, may be more than one.
Expected Launch Date	Date	yyyy-mm-dd	Assignment will typically be pre-launch
Expected Mission End Date	Date	yyyy-mm-dd	May be extended upon request to SANA
Note	Char (64)		

Registration Authority: CCSDS Secretariat

Registration Rule:

a) Request must come from an assigned Agency Representative. If there is no Agency Representative for the Agency, or if the Agency (or other organization) is not registered, then those registry entries must first be created.

b) Requestor may ask for specific SCID assignment, but this is not guaranteed.

c) Requestor may ask for *only* an OID assignment, not just SCID. This is of benefit to organizations that do not use CCSDS link layer protocols but still wish to have a unique, registered, designator. OIDs shall be assigned sequentially in the spacecraft subsection of the OID tree.

d) Each request must separately specify the specific uplink and downlink frequency bands within which it is to operate (see table 2-1). These are assigned by the agency spectrum manager.

Name: CCSDS Agency registry

Structure: This **practice** references the CCSDS Organization registry defined in CCSDS 313.1-Y-1 (reference [11]).

a) Every request for a SCID must come from an organization that has a 'member agency', 'observer agency', or 'affiliate' Organization Type.

b) Any organization wishing to request a SCID that is not yet registered must first register with the SANA.

c) An organization may have any of the defined Role types.

Name: CCSDS Contact registry

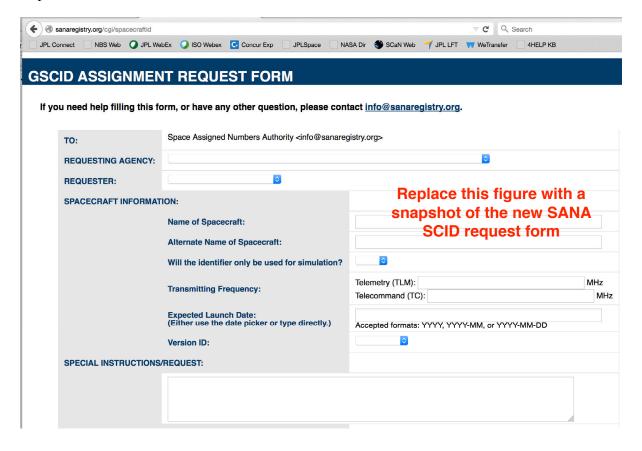**Structure**: This **practice** references the CCSDS Contact registry defined in CCSDS 313.1-Y-1 (reference [11]).

a) Every request for a SCID must come from a person identified by their Agency as being the official Agency Representative.

b) Only persons with the Contact registry Role of 'Agency Representative for SCID Requests' set may request a SCID.

c) Any person wishing to request a SCID, and who is not yet registered, must first register with the SANA.

d) The Agency Head of Delegation or Organization PoC must appoint the 'Agency Representative for SCID Requests'.

e) Only persons with the Contact registry Role of 'Agency HoD' or 'Organization PoC' set may appoint an 'Agency Representative for SCID Requests'.

ANNEX B

SCID REQUEST FORM

(INFORMATIVE)

This annex provides an example, as of the date of publication, of the official, on-line, form that is to be used by Agency Representatives for requesting and relinquishing SCIDs. This is provided only as an example of the sort of information needed to make a SCID request. The on-line form, found at http://sanaregistry.org/r/spacecraftid/spacecraftid.html, may differ from this example and the website should be used for all official requests by the Agency Representative.

ANNEX C

ACRONYMS AND ABBREVIATIONS

(INFORMATIVE)

Term	Meaning
AR	Agency Representative
FB	Frequency Band
GSCID	Global Spacecraft Identifier
Hex	Hexadecimal
HoD	Head of Delegation
IEEE	Institute of Electrical and Electronics Engineers
ITU	International Telecommunication Union (UN organization)
OID	Object Identifier (ISO)
Q-SCID	Qualified Spacecraft Identifier
S/C	Spacecraft
SANA	Space Assigned Numbers Authority
SCID	Spacecraft Identifier
TC	Telecommand
TLM	Telemetry
VN	Version Number
WRC	World Radiocommunication Conference