



SNIA Technical Work Group Policies and Procedures

SNIA Technical Council

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SNIA Technical Work Group Policies & Procedures

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1 Introduction

Technical Work Groups (TWGs) are subject-focused groups of SNIA Members and SNIA Participants, created by the SNIA Technical Council or SNIA Technology Affiliates to carry out the original technical work of the organization.

The primary objective of this document is to establish fair and consistent policies and procedures for the operation of SNIA Technical Work Groups. This document is owned and maintained by the SNIA Technical Council under the provisions of the Policies and Procedures of SNIA.

Each TWG is provided with resources by SNIA to assist the TWG in the execution of its Charter and the publication and promotion of TWG developed materials. For example, a TWG may receive an e-mail reflector, web space, coordination of face-to-face Work Group meetings, and other benefits of SNIA support.

The SNIA Technical Council (TC) is the body entrusted with management oversight of TWGs. Each TWG is created by the TC and is expected to produce meaningful material of technical merit. The TC is responsible for creating and dissolving TWGs, establishing policies and procedures for TWGs, overseeing the Charters, Programs of Work, and state of new and existing TWGs, and reviewing TWG relevancy.

Bounded by a charter and program of work, a TWG has a finite lifetime and may be dissolved by the TC when it has no Work Items or insufficient participation.

This document is intended for use by all Members and Participants of SNIA.

2 References

2.1 SNIA Documents to which this document is subordinate

1. ["Policies and Procedures of the Storage Networking Industry Association"](#) (SNIA P&P).
This document was written based on V4.21 (November 16, 2017) of the SNIA P&P.
2. ["Storage Networking Industry Association \(SNIA\) Intellectual Property Policy"](#) (SNIA IP Policy).
This document was written based on Version 4.0 of the SNIA IP Policy.
3. ["Bylaws of the Storage Networking Industry Association"](#) (SNIA Bylaws).
This document was written based on the November 16, 2017 version of the SNIA Bylaws.

2.2 SNIA Documents that are subordinate to this document

1. ["Guidelines for Approval of New SNIA Technical Work Groups \(TWG\) v4"](#),
Revision Date February 25, 2022.

2.3 Other reference documents

1. ["SNIA Contributor Agreement for Non-Members Version 1.0 Version Data March 25, 2016"](#) (CLA Agreement).

3 Definitions and Terminology

3.1 Definitions

Charter	A short text that clearly explains the purpose and objectives of a Technical Work Group (TWG). The Charter conveys the scope, relevance and uniqueness of the TWG, and thereby constrains the TWG activities to only those fulfilling the scope. The Charter acts as a "summary" introduction to the TWG for SNIA membership, other TWGs, and outside interested parties.
CLA	Contributor License Agreement.
CLA Agreement	SNIA CLA for Non-Members.
CLA Participant	Individual who has executed a CLA Agreement for a specific CLA Project.
CLA Project	A SNIA Architecture Work Item or SNIA Software Work Item that has been designated a CLA Project by the TC and the SNIA Board.
MEMBER	A Voting Member or a Participant of SNIA, i.e., one of the MEMBERS as defined in the SNIA IP Policy.
Official Vote	A TWG vote that is required to be conducted as defined in section 6.5.1.
Program of Work	A list of Work Items that a Technical Working Body has been tasked to perform.
Representative	An individual who is on the roster of the TWG.
SNIA	Storage Networking Industry Association
SNIA Architecture	As defined in the SNIA IP Policy, Technical Work done by a TWG that is formally designated as SNIA Architecture by the SNIA Board.
SNIA P&P	Current version of " <i>Policies and Procedures of the Storage Networking Industry Association</i> " document.
SNIA Software	As defined in the SNIA IP Policy, Technical Work done by a TWG that is formally designated as SNIA Software by the SNIA Board.

SNIA Technical Document	Technical Work in document form that has completed one or more of the document approval processes defined in section 10.6.
SNIA Work-in-Progress	As defined in the SNIA IP Policy, Technical Work in draft form that the SNIA Board might ultimately consider for formal designation as SNIA Architecture or SNIA Software.
Software Module	An individual item of software code, binary, executable, etc.; typically organized as a single file.
Software Package	A collection of software modules and associated documentation.
Technical Work	As defined in the SNIA IP Policy, Technical Work means Work which is developed, created, modified, or accepted by a Technical Working Body within the Charter and scope of its activities. Technical Work may include Single Work, Joint Work, and Contributed Work, as defined in the SNIA IP Policy.
Technical Working Body	As defined in the SNIA Policies and Procedures, a group within SNIA whose primary focus is on technical development activities. The Technical Council (TC) and all Technical Work Groups (TWGs) are considered Technical Working Bodies.
TC	SNIA Technical Council. See SNIA P&P.
TCMD	SNIA Technical Council Managing Director. See SNIA P&P.
TWB	Technical Working Body
TWG	SNIA Technical Work Group. See section 1.
TWG Member	A MEMBER, that has joined and retained membership in the TWG (section 6).
TWG Voting Member	A TWG Member that is entitled to be a TWG Voting Member as defined by the SNIA P&P and SNIA membership entitlements.
Work	As defined in the SNIA IP Policy, Work means architecture, specifications, proposed standards, information, data, materials, publications, white papers, presentations, proposals, documents, software, firmware, computer programs, and code, but does not include hardware or mask works.

Additionally, Work specifically includes architecture and specifications which are based on the ideas in software developed in or contributed to a TWG for use in SNIA Software.

Work Item

Technical Work that is a named constituent of a Program of Work. Where the result of a Work Item is SNIA Work-in-Progress, the definition of the Work Item will include the intended disposition of the material and a rough schedule.

3.2 Terminology

May	Indicates an action that is optional.
Optional	Describes an action that may or may not be performed. If performed, the action shall be performed as described.
Shall	Indicates an action that is mandatory and is required to be performed.
Should	Indicates an action that is optional, but it is <i>strongly</i> recommended that the action be taken.

4 TWG Documentation

4.1 Charter

The Charter of a TWG clearly explains and bounds the purpose and objectives of the TWG.

A template for a TWG Charter is available within the file "[Guidelines for Approval of TWG v4.zip](#)."

4.1.1 *Charter Requirements*

If a TWG intends to develop a SNIA Standard or SNIA Software, the Charter shall indicate this.

If a TWG intends to develop SNIA Software, the Charter shall include the license(s) under which the TWG may accept Contributions of software and the license(s) under which that software may be released. The licensing provisions of the Charter shall be approved by the TC. The licensing provisions shall also be approved by the SNIA Board if any license is other than a license pre-approved by the SNIA Board.

If a TWG intends to perform a CLA Project, the Charter shall explicitly allow CLA Projects.

4.1.2 *Charter Maintenance*

The TWG is responsible for keeping its *Charter* up to date. This responsibility includes bringing proposed updates to the TC and keeping this information up to date in the appropriate section on the SNIA web site.

Whenever a TWG proposes changing its Charter, the TWG shall poll Representatives to ascertain whether the proposed change may cause TWG Members or their Representatives to leave the group. The TWG shall also make good faith efforts to ascertain whether the proposed change will prevent companies who are considering joining the TWG from joining the TWG. This information shall be considered by the TWG in deciding whether or not to forward the proposal to the TC. The intent of this provision is not to provide each TWG Member with a veto over TWG activities; the intent is to enable fully informed decisions that avoid unconsidered side-effects.

Proposals to change the Charter of a TWG, along with the poll results, shall be presented to the TC and approved by the TC before taking effect.

4.2 Program of Work

The Program of Work of a TWG is the list of the Work Items of the TWG. Each Work Item is a planned, actively pursued, external deliverable of the TWG. A new version of a deliverable (e.g., specification or software) is a new Work Item which shall be added to the Program of Work (see 4.2.3) before beginning work.

A template for a TWG Program of Work is available within the file "[Guidelines for Approval of TWG v4.zip](#)."

Each TWG shall have one or more defined Work Items that collectively are the Program of Work of the TWG. The TWG is responsible for keeping its Program of Work up to date, including the status of all Work Items. This responsibility includes bringing proposed updates to the TC and keeping this information up to date in the Administrative folder of the TWG.

4.2.1 Work Item Definition

A Work Item is a complete deliverable (or related set of complete deliverables) toward which the TWG is actively making progress. Each Work Item shall be within the scope of the Charter of the TWG.

The statement of each Work Item shall include:

- Name (by which it is referenced)
- Scoping statement that describes the Work Item
- Deliverable(s)
- Target completion date(s) (a year and quarter is sufficiently precise)
- Work Item type
- Intended disposition of this Work Item when complete, e.g., publication by SNIA, handoff to a standards development organization, etc.
- Expected consumers of the deliverable and how they will benefit

4.2.2 Work Item Types

Each Work Item is of one of the following types. These types of Work Items are defined because different processes apply to Work Items of different types.

4.2.2.1 SNIA Architecture Work Item

A Work Item is a SNIA Architecture Work Item if it may have as a deliverable or if it may significantly influence the technical content of a SNIA Architecture.

4.2.2.2 SNIA Software Work Item

A Work Item is a SNIA Software Work Item if it may have SNIA Software as a deliverable or if it may significantly influence the technical content of SNIA Software. A SNIA Software Work Item may include associated documentation.

4.2.2.3 Document Work Item

A Work Item is a Document Work Item if it leads to a document (not software) deliverable that does not rise to the level of SNIA Architecture.

Examples of Document Work Items include technical white papers, dictionary terms, and TWG presentations.

4.2.2.4 Other Software Work Item

A Work Item is an other software Work Item if it has a software deliverable that does not rise to the level of SNIA Software. An other software Work Item may include associated documentation.

Policies and procedures for other software Technical Work are not yet defined, and other software Work Items are not allowed at this time.

4.2.2.5 CLA Project Work Item (a.k.a. CLA Project)

A CLA Project is a SNIA Architecture Work Item or SNIA Software Work Item that has been designated a CLA Project by the TC and the SNIA Board.

A CLA Project is distinguished from other similar Work Items in that it allows contributions from CLA Participants.

4.2.3 Updating Work Items

4.2.3.1 Approval Process

Whenever a TWG proposes adding, deleting, or modifying a Work Item, the TWG shall poll Representatives to ascertain whether the proposed change may cause TWG Members or their Representatives to leave the group. The TWG shall also make good faith efforts to ascertain whether the proposed change will prevent companies who are considering joining the TWG from joining the TWG. This information shall be considered by the TWG in deciding whether or not to forward the proposal to the TC. This information shall also be provided to the TC for consideration in its deliberations. The intent of this provision is not to provide each TWG Member with a veto over TWG activities; the intent is to enable fully informed decisions that avoid unconsidered side-effects.

All changes to the Program of Work of a TWG shall be first approved by the TWG via an Official Vote (6.5.1) and then be brought to the TC for approval. These include but are not limited to the following:

- Modifications to the definitions of previously approved Work Items
- Creation of new Work Items
- Deletion of Work Items (other than by completion)

As part of the TWG Work Item approval/review process, the TC determines the Work Item Type (4.2.2) and the process to be followed for approval of the resulting material. For SNIA Architecture Work Items and Document Work Items, the TC shall review the title as part of the approval process.

Upon approval of a new work item, the SNIA Board and SNIA membership will be informed of the new work item.

4.2.3.2 SNIA Architecture Work Items

For Work Items of the SNIA Architecture type, the TC will inform the SNIA Board so that the Work Item may be designated as a SNIA Work-in-Progress.

4.2.3.3 SNIA Software Work Items and Other Software Work Items

A TWG may request that the TC add or modify a Work Item to its Program of Work. The TWG shall work with the TCMD and a representative of the TC to specify the proposed Work Items and any associated changes to the Charter of the TWG. The proposal shall be presented to the TC and approved by the TC (with added/changed licenses also subject to approval by the SNIA Board) before the change becomes effective.

For Work Items of SNIA Software type, the TC will inform the SNIA Board so that the Work Item may be designated as a SNIA Work-in-Progress.

4.2.3.4 CLA Project Work Item (a.k.a. CLA Project)

For a CLA Project to be considered, the Charter of a TWG is required to explicitly allow CLA Projects.

A CLA Project shall be added to the TWG's Program of Work by the specified process for the SNIA Software Work Item or SNIA Architecture Work Item. In addition, the CLA Project shall be approved by the SNIA Board of Directors.

A TWG may request that the TC add or modify a CLA Project Work Item in its Program of Work. The TWG shall work with the TCMD and a representative of the TC to specify the proposed Work Items and any associated changes to the Charter of the TWG.

4.2.4 Work Item Status

The TC may request status on the development of any Work Item at any time.

5 TWG Lifecycle

5.1 Overview

A TWG has a lifecycle defined as a set of TWG States. A TWG is always in one of the states of the TWG lifecycle. All TWG State transitions required the approval of the TC.

A TWG is formed in either in the Provisional State (section 5.3.1) or in the Active State (section 5.2).

5.2 TWG States

The following table summarizes the states of the TWG lifecycle and the attributes of a TWG in the various stages of the TWG lifecycle.

Attribute	TWG State			
	Provisional	Active	Maintenance	Dissolved
Meetings	Regularly scheduled	Regularly scheduled	As needed	No
SNIA-provided resources	Full	Full	Full	Archive
Charter	Yes (draft)	Yes	Yes	No
Work Items	Yes (draft)	Yes	Yes	No
Technical Work	No	Yes	Yes	No
Members	Yes	Yes	Yes	No
IP Policy ^a	Not Applicable	Yes	Yes	Yes
Leadership	TC appointed	Elected	Elected	TC
Transitions allowed	>Active >Dissolved	>Maintenance >Dissolved	>Active >Dissolved	None

^a IP Policy includes all IP obligations incurred by a MEMBER while they were a TWG Member.

TWG States with Attributes

The Provisional State (see 5.3.1) is a short-term state during which a charter is developed and technical work planned, but not yet performed. A Provisional TWG may transition to the Active State or to the Dissolved State.

The Active State is the state during which a TWG carries out work within its Charter. Most sections of this document assume a TWG in the Active State. A TWG in the Active State may transition to the Maintenance State or to the Dissolved State.

The Maintenance State is a state where a TWG has decided, with TC approval, to meet irregularly as needed. Aside from irregular meetings, that TWG is the same as a TWG in the Active State. This state is intended for situations where a TWG has nothing to do until some external event or input happens, e.g., a software TWG performing only maintenance as issues are reported or a TWG waiting for external approvals of a standard and having no other work to perform. A TWG in the Maintenance State may transition back to the Active State or to the Dissolved State.

The Dissolved State is the terminal state for a TWG when its work has been completed and/or there is no longer a reason for the existence of that TWG. TWG materials are archived; that TWG does not otherwise exist. Obligations under the SNIA IP Policy survive the transition to the Dissolved State. Any matters that would have gone to the TWG now go to the TC.

5.3 Formation

The process for the formation of a TWG is described in the document “*Guidelines for Approval of SNIA Technical Work Groups (TWG) v4*” found in file “[Guidelines for Approval of TWG v4.zip](#).” Formation of a new TWG requires the approval of the TC.

When a TWG is formed, the TC approves a Charter document (section 4.1) and a *Program of Work document* (section 4.2).

When a new TWG is formed, the TC shall appoint a chair or co-chairs for the new TWG. That chair serves on a temporary basis until TWG Members and their Representatives are recruited and either the annual election of TWG chairs takes place or a special TWG chair election is held.

The TC may create a TWG in the Active State or create a TWG in the Provisional State (see 3.3.1) and later transition that TWG to the Active State.

5.3.1 Provisional TWG

To assist the formation of new TWGs, the TC may create a TWG in the Provisional State (i.e., a Provisional TWG). The purpose of a Provisional TWG is to complete the TWG formation process by socializing its agenda, recruiting members, refining its Charter, and refining its Program of Work to be presented to the TC as part of the request to transition the TWG to the Active State. A Provisional TWG is not considered a TWG as defined by the SNIA IP Policy and therefore does not invoke provisions of the SNIA IP Policy.

A Provisional TWG shall not perform technical work. This restriction includes work on developing any material that may become SNIA Architecture or SNIA Software.

A Provisional TWG shall perform work related to finalizing its charter and program of work. This includes collecting requirements, promoting the planned work of the TWG, seeking members, planning work, etc.

A Provisional TWG is encouraged to complete the documents necessary to seek transition to the Active State as soon as possible, so that it is able to proceed with technical work.

6 TWG Membership and Participation

6.1 TWG Membership

A MEMBER becomes a TWG Member when a Representative of that MEMBER joins the TWG. The MEMBER remains a TWG Member until the MEMBER requests that its TWG membership be terminated. Being a TWG Member obligates the MEMBER to provisions of the SNIA IP Policy relevant to this TWG.

Participation in a TWG includes (for Representatives):

- Being listed on the TWG membership roster (i.e., in the TWG area of the SNIA Members web site)
- Access to the Web Site Area (section 19.2), Email Reflectors (section 19.1), CLA Project Repositories, and other materials of the TWG
- Right to attend all TWG meetings
- Right to contribute to Rough Consensus (section 6.5.2)

The rules for participation in a TWG are as follows:

- A MEMBER shall not have a SNIA IP Policy Waiver in place.
- A Representative may join a TWG. This may, under the SNIA IP Policy, obligate the Representative and/or the Representative's company/organization with respect to any of the work items of the TWG.
- A MEMBER may have multiple Representatives in a single TWG.
- Designated SNIA Staff and SNIA Contractors may participate in a TWG as an aspect of their assigned duties.

6.2 CLA Participation

CLA Participation is for a specific CLA Project of a TWG.

A CLA Participant has the following participation rights:

- Read-only access to the CLA Project Repository for the documents and software of the CLA Project
- Ability to offer Contributions (as defined in the CLA Agreement) for consideration by the TWG

CLA Participants do not have the right to:

- Attend TWG meetings (except by explicit invitation (see section 7.1.2.3))
- Access the TWG's Email Reflectors
- Access the TWG's Web Site Area
- Vote on any matter

The rules for CLA participation in a TWG are as follows:

- The individual shall have executed a CLA Agreement for the CLA Project in which the individual participates

6.3 TWG Industry Expert

During the development process a TWG may require the assistance of a non-SNIA Member Industry Expert. The Chair of a TWG, with an Official Vote (section 6.5.1), may make a request to the TCMD that the desired Industry Expert be granted a SNIA Individual Membership at no charge so that they may join and participate in the TWG. If granted by the SNIA Executive Committee in consultation with the TC, the Industry Expert shall be offered an Individual Membership with all rights associated with it. If this offer is accepted, the Industry Expert shall agree to all policies and procedures associated with a SNIA Individual Membership, including the SNIA IP Policy. The TCMD will review the Industry Expert's membership on an annual basis.

It is not the intent of this provision that it be used in any way to subvert the intent of the SNIA IP Policy. Therefore, the use of an Industry Expert from a company that may reasonably be considered a candidate for SNIA membership shall be carefully considered by the TWG, the TCMD, and the TC.

6.4 Officers

6.4.1 Chairs

6.4.1.1 Chair Responsibilities

The main purpose of a TWG Chair is to assure that meetings run smoothly and stay focused on the meeting's agenda. In addition, the Chair is responsible for keeping the TCMD informed of the status of all activities in the TWG.

The responsibilities of a TWG Chair include, but are not limited to, the following:

- Assuring that meetings are run in a *Professional Manner* following an approved agenda.
- Assuring that all bylaws, policies, and procedures of SNIA are followed by the TWG.
- Ensuring that meeting attendance is recorded (7.7)
- If the TWG does not have a Secretary, the TWG Chair shall perform the duties of the Secretary. See section 6.4.2.

Each TWG Chair, when requested by the TCMD, is responsible for creating a Status Report of their respective TWG.

6.4.1.2 Chair Rules and Restrictions

The following rules and restrictions shall apply to TWG Chairs.

- A TWG shall have one or two Chairs.
- A TWG may have two Chairs and in such a case the two Chairs will be referred to as Co-Chairs and shall work for different MEMBERS.

- In the case of a vacancy, the TCMD or the TC may appoint an interim Chair or Co-Chairs, to serve until a special chair election is held or the annual election of chairs takes place.
- The TC may remove a Chair or Co-Chair if their duties are not being performed properly and in a professional manner.
- Any time there is a dispute between two Co-Chairs that needs to be resolved; it shall be resolved by an Official Vote (6.5.1).

6.4.1.3 Chair Elections

At the beginning of each calendar year, Chair elections are held. The annual election provides the opportunity for other interested TWG participants to become Chair or Co-Chair.

When a Chair position of a TWG in the Active State is held by an interim Chair or a Chair position is vacated, and the regular annual election is not imminent, a special Chair election shall be conducted.

Chair elections shall be conducted by the TCMD. The TCMD shall issue a call for nominations a minimum of two (2) weeks before the election date.

Any Representative may nominate a Representative as a candidate. Self-nomination is allowed. Existing Chairs may re-run. There is no term limit.

One week before the close of the nomination period, the TCMD shall publish the list of nominees to inform the Representatives and allow additional nominations to be made.

If there is exactly one candidate, then that candidate becomes the Chair and no election is required.

If there are exactly two (2) candidates, then those candidates become the Co-Chairs and no election is required.

If there are three (3) or more candidates, then:

- a) If exactly two candidates are Representatives of TWG Voting Member companies, then those candidates become the Co-Chairs of the TWG.
- b) If exactly one candidate is a Representative of a TWG Voting Member, then that candidate becomes a co-chair and an election shall be held between the remaining candidates to select the second Co-Chair as defined in 6.4.1.4.
- c) If more than two candidates are Representatives of a TWG Voting Member, then an election shall be held between those candidates that are Representatives of a TWG Voting Member to select two Co-Chairs as defined in 6.4.1.4.
- d) If no candidate is a Representative of a TWG Voting Member Company, then an election shall be held to select two Co-Chairs from among the candidates as defined in 6.4.1.4.

6.4.1.4 Election Process

To fill two positions, an Official Vote (section 6.5.1) shall be conducted where each TWG Voting Member (section 6.5.1.2) may vote for zero, one, or two of the candidates. The two candidates with the greatest number of votes will be Co-Chairs of the TWG. In the event of a tied vote:

- a) if there is a single candidate receiving the largest number of votes, the TCMD shall conduct a run-off election among the remaining candidates
- b) if multiple candidates received the largest number of votes, the TCMD shall conduct a run-off election among those candidates via an Official Vote.

To fill a single position, an Official Vote (section 6.5.1) shall be conducted where each TWG Voting Member (section 6.5.1.2) may vote for zero or one of the candidates. The candidate with the greatest number of votes will become a Co-Chair of the TWG. In the event of a tied vote, the TCMD shall conduct a run-off election among those candidates via an Official Vote.

6.4.2 Secretary

A TWG may elect a Secretary, someone other than the Chair.

The responsibilities of a TWG Secretary include, but are not limited to, the following:

- Scheduling votes,
- Taking and counting the votes,
- Maintaining a roster of Representatives that are eligible to vote when an Official Vote (section 6.5.1) is called,
- Distributing an agenda for each conference call and meeting as described in section 7.6,
- Taking detailed minutes as described in section 7.8,
- Distributing minutes for each conference call and meeting as described in section 7.8, and
- Keeping the conference call schedule up-to-date on the TWG area of the SNIA Member web site.

If a TWG does not elect a Secretary, then the above duties become the responsibility of the Chair. At the start of a meeting, where there is no Secretary present, the TWG Chair may assign someone else in the meeting the duty of taking the meeting minutes.

6.5 TWG Voting

When a vote is required, the Chair determines the appropriate voting procedure from Official Vote (section 6.5.1) or Rough Consensus (section 6.5.2), unless an Official Vote is specifically required by this document.

6.5.1 Official Vote

6.5.1.1 Quorum

Quorum for an Official Vote of a TWG is three *TWG Voting Members*.

6.5.1.2 Official Voting Process

The following rules apply to the Official Voting process:

- Official votes for the release of a Final Document shall be announced a minimum of 7 calendar days in advance on the TWG's email reflector.
- Official Votes may not take place at an *Informal Meeting* (section 7.5).
- A quorum (section 6.5.1.1) of a TWG is required for an Official Vote.
- Participation in an Official Vote is restricted to *TWG Voting Members*.
- There shall be at most one vote per *TWG Voting Member*.
- A vote shall be *Yes*, *No* or *Abstain*.
- An Official Vote shall be considered approved if the majority of the votes cast were *Yes*. Votes of *Abstain* shall not be considered in the count of votes cast when determining the majority vote.
- An Official Vote may be taken by the Chair asking for any objections to the motion being voted. If there are no objections, then the Official Vote shall be considered passed unanimously. If there are any objections, a counted vote shall be conducted.
- Anyone voting against approval of the release of a work product shall, upon request, provide verbal or written justification based on technical and/or other considerations.

Results of an Official Vote shall be recorded in the minutes of the meeting in which it takes place, including whether the vote passed or failed. A roll call vote is required if requested by 2 or more TWG Voting Members. The voting results recorded for a roll call vote shall include the name of each Voting Member's Representative and how each Representative voted.

Note: The "Role" and "Voting" columns in the Roster section of the TWG's web site typically do not, and in general cannot, by themselves accurately show who is or is not permitted to vote in an Official Vote.

6.5.1.3 Official Vote Required

An Official Vote is required for all *Matters of Substance*. The following items are considered *Matters of Substance* and require an Official Vote of the TWG:

- Release of any Technical Material (Documents, Source code, draft PAS Explanatory Report, etc.) outside the TWG (this does not include SNIA branded material covered by section 13)
- Formation (section 9.1) and Disbanding (section 9.2) of Subgroups
- Appointment of a Chair or Co-Chair of a Subgroup (section 9.1)
- Creation, Modification, or Removal of Work Items (section 4.2.3)
- Election of Chairs (section 6.4.1.3)
- Acceptance of a contribution (as defined by the CLA Agreement) from a CLA Participant
- Resolving a dispute between Co-Chairs (section 6.4.1.2)
- Request for Individual Membership for Industry Expert (section 6.3)

At any time, a Chair may determine an item is a matter of substance and call for an Official Vote. An Official Vote is also required if requested by 2 or more TWG Voting Members.

6.5.1.4 Electronic Votes

A TWG may conduct an electronic vote based upon the following requirement:

The electronic vote shall be distributed to all the Representatives at least seven (7) days before the votes are required to be cast. However the vote is conducted, all votes for which a majority of the ballots cast are in the affirmative shall be deemed to have passed. Abstentions shall not be counted as votes cast in determining whether or not a vote has passed. A record of all electronic votes shall be kept and included as part of the next set of TWG meeting minutes. The voting results recorded shall include the name of each Voting Member's Representative and how each Representative voted. If a TWG Voting Member casts multiple votes, the vote of the principal representative shall be the vote that is counted. If the principal representative does not vote, then the last vote cast shall be the vote that is counted. If any TWG Voting Member requests the use of an electronic vote, then an electronic vote shall be used.

6.5.2 Rough Consensus

Not every decision made in a TWG or its Subgroups requires an Official Vote. Most decisions may be made by the Chair determining rough consensus of the Representatives.

All Representatives may participate in a Rough Consensus.

Rough Consensus may be declared via any method that the Chair believes gives appropriate guidance to the general will of the group. It is usually a technique that is capable of generally determining the will of the group. One method is to call for

opponents to make their opinions clear, and the shortage of these opinions may be used to infer that the proponents have achieved what may be considered Rough Consensus.

An Official Vote (section 6.5.1) is required if requested by 2 or more TWG Voting Members.

6.5.3 Appeal Process

Any time any MEMBER has a problem with the way a decision has been made, either by Official Vote or rough consensus, they have the right to appeal the decision based upon the following process.

- The appeal shall be made within 30 days of the contested decision.
- The initial appeal shall be made to the TCMD, in writing. The TCMD shall make a written decision on the appeal within 14 days based upon an investigation of the facts.
- If the MEMBER does not agree with the decision of the TCMD, they may submit a formal appeal in writing to the TC. The formal appeal shall be made within 14 days of the decision by the TCMD.
- The TC shall then have 60 days to make a final written decision on the appeal.

7 TWG Meetings

7.1 Meeting Admission Requirements

7.1.1 Representative

Any number of Representatives may attend any meeting of the TWG, i.e., any TWG Member may be represented by any number of individuals at any meeting of the TWG.

7.1.2 Guest

A guest is any attendee of a TWG meeting who is not on the TWG membership roster. There are multiple categories of guests that are defined in the subsections of 7.1.2.

7.1.2.1 Employee of TWG Member not on TWG membership roster

Prior to attendance, the individual shall join the TWG. The individual shall not attend a TWG meeting as a guest.

Note: Joining the TWG may require authorization from the MEMBERS' Primary Representative.

7.1.2.2 MEMBER who is not a TWG Member

Any MEMBER (that is not a TWG Member) that is bound by the SNIA IP Policy may have individuals attend a total of at most two meetings of any TWG (of which it is not a member) within any 12 month period for the purposes of TWG membership consideration. This shall be recorded in the attendance for the meeting. Attendance is restricted to observation only; there shall be no active participation.

7.1.2.3 CLA Participant

A CLA Participant may attend a TWG meeting only by specific invitation of the TWG Chair/Co-Chairs. CLA Participant guests may actively participate within the bounds of their invitation.

7.1.2.4 Invited Non-SNIA member company

The chair/co-chairs of a TWG or the SNIA business development function, may request that the SNIA Chief Operations Officer invite representatives of a company that is not a SNIA member to a specific TWG meeting as guests. The company is required to be eligible for SNIA membership.

After approval by the Chief Operations Officer, the chair/co-chairs may issue the invitation to the representatives.

If the TWG meeting is part of a SNIA or other event, the guest is required to be a registered event attendee. A non-SNIA member company may be invited and attend meetings of a TWG as a guest at most twice within any 12 month period.

Guests are restricted to observation only and shall not actively participate in the meeting.

7.1.3 Uninvited Non-SNIA member company

If an individual not representing a MEMBER is present without an invitation, the TWG chair/co-chairs shall request that the individual withdraw and inform the TCMD and SNIA Chief Operations Officer. If the individual refuses to withdraw, the chair/co-chair shall do one of the following:

- a) in the case of an on-line attendee, expel the individual from the call; or
- b) in the case of an in-person attendee, suspend the meeting,

and shall inform the TCMD and the SNIA Chief Operations Officer of the situation.

7.1.4 SNIA Advisor

The SNIA Board of Directors or the TC may designate individuals as advisors to a TWG. These individuals may attend TWG meetings and participate ONLY in non-technical content. These individuals participate on behalf of SNIA and not on behalf of their company. Serving as an advisor does not change the advisor's company's position, rights, or obligations relative to the SNIA IP Policy.

An Advisor shall be introduced to the TWG as a SNIA Advisor at each meeting that the Advisor attends.

7.1.5 SNIA Staff and SNIA Contractors

Designated SNIA Staff and SNIA Contractors may participate in a TWG as an aspect of their assigned duties.

7.2 SNIA Symposia and SNIA Technical Symposia

SNIA regularly sponsors *SNIA Symposia* and *SNIA Technical Symposia* where TWBs, Committees, Initiatives, and Forums may meet face to face.

TWGs and TWG Subgroups are encouraged to meet face to face at least twice a year and should consider SNIA Symposia and SNIA Technical Symposia as venues for these meetings.

7.3 Additional Meetings

TWGs may meet face to face outside of (and in addition to) the SNIA Symposia and SNIA Technical Symposia. For such meetings, one of the TWG Members should host the meeting by providing meeting room facilities, including internet access and conference call capability.

In addition, TWGs should make use of phone conference calls on a regular basis to help accelerate the completion of the TWG's Program of Work. See section 19.3 for available conference call resources.

7.4 Announcements and Cancellations

The following rules apply to all *face to face* meeting announcements and cancellations.

- A minimum 14 day notice shall be given for any meeting announcement or cancellation.
- Meeting cancellations require TCMD approval.

The following rules apply to all *conference call* meeting announcements:

- A minimum 7 day notice shall be given for meeting announcements.
- Changes to the published schedule of a regular reoccurring conference call shall have a minimum 7 day notice for the announcement of changes.

7.5 Informal Meetings

Meetings that do not meet the criteria for a proper meeting announcement (section 7.4) will be classified as *Informal Meetings*. There are certain restrictions that apply to *Informal Meetings* that are described in section 6.5.1 of this document.

7.6 Agenda

The Chair shall prepare an agenda for each meeting.

At least 14 days prior to any face to face meeting a written draft Agenda shall be posted to the TWG web site (section 19.2) and distributed to the Representatives and any invited attendees. Prior to any conference call meeting, a written draft Agenda shall be posted and distributed to the Representatives and any invited attendees. The agenda shall follow the SNIA naming, format, and content requirements defined in "[Conventions and Format for Meeting Agenda and Minutes](#)." The purposes for prior distribution of a draft Agenda for a meeting include:

- Informing Representatives and invited attendees of the purpose of the meeting
- Enabling attendees to plan and prepare for the meeting
- Providing a notice of matters of substance that will be decided at the meeting.

When the purpose of a meeting is to conduct on-going work, it is sufficient to list on the agenda "ongoing work" on a specified approved TWG Work Item. All planned Official Votes shall be specifically on the agenda.

7.7 Attendance Tracking

Good record keeping makes accurate attendance tracking necessary. The SNIA IP Policy makes accurate attendance records essential.

7.7.1 Representative Attendance Tracking

Attendance at every TWG meeting (face-to-face or concall) shall be recorded using the SNIA web site tool for attendance tracking. The information recorded for each attendee shall include at least: attendee's name, name(s) of company/organization represented, and email address. If an attendee is a guest (section 7.1.2) this shall be noted in the list of attendees.

7.7.2 Guest Attendance Tracking

A guest is an attendee of a TWG meeting who is not on the TWG membership roster (section 7.1.2).

Each TWG Chair shall maintain a TWG Guest Attendance Log spreadsheet, located in the Administrative folder of the TWG area of the SNIA Member web site. The Chair shall record attendance in this spreadsheet for any guest at a meeting. The guest attendance (name, company, and email address) shall also be recorded in the minutes of the meeting.

At the beginning of a meeting the TWG Chair will notify any SNIA Member guest that attendance at the meeting will count towards obligating, under the SNIA IP Policy, their company to the work items of the TWG. If according to the TWG Guest Attendance Log, this is the 3rd time anyone from a company that is not a TWG Member has attended a TWG meeting in the last 12 months, the TWG Chair shall request that the individual withdraw and inform the TCMD and SNIA Chief Operations Officer. If the individual refuses to withdraw, the chair/co-chair shall do one of the following:

- a) in the case of an on-line attendee, expel the individual from the call; or
- b) in the case of an in-person attendee, suspend the meeting,

and shall inform the TCMD and the SNIA Chief Operations Officer of the situation.

Immediately after any TWG meeting in which guests attended, the TWG Chair shall notify the TCMD of the guests by emailing a copy of the updated TWG Guest Attendance Log to the TCMD.

Upon notification the TCMD shall:

- For SNIA Members: Remind via email each guest and their company's Primary Representative about the SNIA policy for guest attendance at TWG meetings.
- For invited non-SNIA Members: Provide necessary information to SNIA Member Services for Membership recruitment.

7.8 Minutes

At every TWG meeting (face to face or conference call), if the TWG does not have a Secretary (section 6.4.2) the Chair shall take the minutes or appoint someone to take the minutes of the meeting.

The minutes of a meeting as a minimum shall include:

- A record that the SNIA IP Policy meeting announcement was made at the start of the meeting
- Results of the call to approve the minutes of the previous meeting
- Action Items
- Results of Official Votes (section 6.5.1)
- Results of discussions
- Updates on near-term deliverables

- The name and contact information of the person recording the minutes
- The actual attendance or a pointer to where attendance is recorded

The minutes of every TWG meeting shall be posted to the TWG area of the SNIA Member web site and distributed to the Representatives within 5 business days of the meeting. The minutes posted to the TWG area of the SNIA Member web site shall follow the SNIA naming, format, and content requirements as defined in “[Conventions and Format for Meeting Agenda and Minutes](#).” At the next TWG meeting, the minutes from the prior meeting shall be reviewed, corrected as necessary, and approved through a vote.

7.9 Meeting Conduct

7.9.1 Intellectual Property Announcements

At the start of every meeting the TWG Chair (or Chair representative) shall announce to all present:

“You are hereby informed that, under the SNIA IP Policy, your presence at this meeting may obligate you and/or your company/organization with respect to any of the work items of the SNIA [name(s)] Technical Work Group[s].”

Joint meetings of multiple TWGs are an example where multiple TWGs should be listed in the above announcement.

This announcement and the fact that it was given shall be recorded in the meeting minutes.

7.9.2 Recording of Meetings

Audio and/or video recording of a TWG Meeting shall not take place.

7.10 Joint Meetings of TWGs

When two or more TWGs meet together it shall be considered a concurrent meeting of all of the TWGs involved in the meeting. Each individual in attendance is required to be eligible to attend a meeting of all of the involved TWGs, and shall be considered to have attended a meeting of each of the involved TWGs.

Individuals who are not members of all of the TWGs meeting jointly are guests and are limited in their participation as described in section 7.1.2.

8 Other TWG Meetings

8.1 Definition and Purpose

A TWG may sponsor or participate in a meeting, when needed, to present or discuss information (with limitations) with an audience that extends beyond the TWG membership. Examples include Alliance Partners, SNIA Forums, SNIA Initiatives, SNIA Committees, Birds of a Feather sessions, educational events, requirements discussions, TWG Member and Representative recruitment, and presenting publicly available work to interested parties.

There are three types of Other TWG Sponsored meetings:

- Joint Meeting of a TWG and SNIA Forum, Initiative, or Committee
- Joint Meeting with Alliance Partner(s)
- Open Meeting

At these meetings, the following rules shall apply:

- TWG decisions shall not be made,
- no contributions to TWG Technical Work or Software Development may be made or discussed,
- requirements may be discussed,
- the SNIA IP Policy is not applicable,
- audio and/or video recording shall not take place,
- minutes shall be taken and posted, and
- attendance shall be recorded in the minutes.

8.2 Joint Meeting of a TWG and SNIA Forum, Initiative, or Committee

When a TWG meets with one or more SNIA Forums, SNIA Initiatives, and/or SNIA Committees, the TWG shall only share material that has been approved for sharing (see section 13) with those groups.

8.3 Joint Meeting with Alliance Partner(s)

When a TWG meets with one or more Alliance Partners, the TWG shall only share material that has been approved for sharing (see section 13) with those Alliance Partners.

The “[SNIA Joint Meeting Notice](#)” slides shall be presented at the start of the meeting. A similar set of slides from the Alliance Partner(s) shall also be presented. These slides establish each Alliance Partner’s rules for participation in the meeting.

The TWG should be familiar with the relevant terms of the Alliance Agreement(s) between SNIA and the Alliance Partner(s).

8.4 Open Meeting

8.4.1 Meeting Requirements

When a TWG holds an open meeting, all information presented and all discussion is public and non-confidential.

An Open Meeting is not a TWG Meeting. Therefore, the following rules shall apply:

- at the start of the meeting, the “[TWG Open Meeting Notice Slides](#)” shall be presented,
- no confidentiality agreement applies; no materials marked as confidential may be presented or discussed,
- SNIA information that has not been released to the public shall not be presented or discussed, and
- designs or solutions that might be included in a SNIA Standard or SNIA Software shall not be presented or discussed, unless these
 - are part of publicly released SNIA material, or
 - have been offered to SNIA through the SNIA Feedback Portal.

At an Open Meeting, the following types of material, except as prohibited above, may be presented or discussed:

- publicly available material,
- requirements for TWG documents and software,
- material that has been offered through the SNIA Feedback Portal, and
- content of TWG documents and software that has been publicly released as a draft or final document.

8.4.2 Attendance

An Open Meeting is open to any invited audience, including individuals and organizations that are not associated with the TWG or SNIA. The scope of the invitation is at the discretion of the TWG.

8.4.3 Meeting Approval

To hold an Open Meeting

- the TWG shall determine to hold the Open Meeting via an Official Vote and
- the TC shall approve the holding of the TWG sponsored Open Meeting.

To request approval of an Open Meeting, the TWG shall submit to the TCMD:

- Purpose of the meeting
- Agenda
- Participants to be invited
- Date, time, duration

The TC will consider the request either online or at a regular meeting, typically yielding a result within 10 days.

8.4.4 Meeting Announcement

All announcements of the meeting shall use the “[*TWG Open Meeting Announcement Template*](#)”.

9 TWG Subgroups

In order to accomplish a TWG's Program of Work, it may be beneficial to subdivide the work into smaller groups called Subgroups. TWGs may form Subgroups as defined below.

A Subgroup is a relatively long-lasting component of a TWG with established leadership and SNIA resources (e.g., an email reflector, and calendar), that performs some defined portion of the TWGs work.

9.1 Formation and Structure

The following rules and restrictions apply to the formation and structure of Subgroups.

- Creating or disbanding a Subgroup requires an Official Vote (section 6.5.1) of the TWG.
- A Subgroup shall only work on approved TWG Work Items (section 4.2) and shall not create new Work Items. The parent TWG shall assign Work Items to its Subgroups.
- A Subgroup shall have a Chair or two Co-Chairs. If there are Co-Chairs, the Co-Chairs shall work for different MEMBERS.
- The appointment of a Chair or Co-Chair requires an Official Vote (section 6.5.1) of the parent TWG, if there are more than two candidates.
- A Subgroup may have a Secretary (section 6.4.2).
- A Subgroup shall have at least 3 active MEMBERS.
- A Subgroup shall not create additional Subgroups.
- The TCMD shall be notified of a new Subgroup within 7 days of its creation. The TCMD will then notify the TC that a new Subgroup has been formed, giving the TC the opportunity to review it. The TC then has 30 days from this notification of the new Subgroup formation to veto it. If no veto is generated within that time period, then the new Subgroup is automatically approved. During this period, the TWG has contingent authorization to proceed as though the change will be approved.
- All Representatives (members) of a Subgroup shall be Representatives (members) of the parent TWG.

9.2 Operation

A Subgroup shall follow all of the procedures for meetings that apply to the parent TWG (section 7).

In addition to the rules that apply to a TWG, the following rules apply to a Subgroup.

- A Subgroup Chair, or someone representing the Chair, should give a Subgroup status report periodically to the parent TWG.

- A Subgroup should consider SNIA Symposia and SNIA Technical Symposia as venues for face-to-face meetings.
- A Subgroup may meet separately from its parent TWG.
- A Subgroup shall not release any type of technical material without approval of their parent TWG, which may in turn require additional TC approval.
- Upon completion of all of its assigned Work Items, a Subgroup shall be dissolved by its parent TWG.
- A Subgroup may be dissolved at any time by an Official Vote (section 6.5.1) of its parent TWG.
- For the purpose of applicability of the SNIA IP Policy, the scope of a Subgroup is the parent TWG.

10 Development and Release of SNIA Architecture and Document Technical Work

The development and release of SNIA Architecture and Document Technical Work is governed by the policies and procedures defined in this section.

10.1 Definitions

The term Technical Work used in this section relates to SNIA Architecture Work Items and Document Work Items. The term Technical Work as it relates to other categories such as SNIA Software Technical Work is described elsewhere in this document (section 11.1).

Technical Work is technical material that is developed, created, modified, or accepted by a Technical Working Body (TWB) in the course and scope of its activities. The technical material may be in the form of architectures, specifications, white papers, presentations, proposals, etc. This statement is a summary of the SNIA IP Policy.

The following are examples of SNIA Technical Work:

1. Technical material that is offered to and accepted for consideration by SNIA as a basis for further SNIA work.
2. Technical material that is offered to and accepted for consideration by SNIA for adoption as SNIA Architecture.
3. Technical material that is accepted, created, or modified by a TWB in the course of its work (a SNIA Technical Document).
4. Technical material that is the end product of a TWB and has not yet been approved as SNIA Architecture (a SNIA Technical Document).

10.2 Copyrights and Disclaimers

Technical Work created by TWBs shall grant copyright to SNIA, and shall include the appropriate standard SNIA legal disclaimer for the classification as defined below. All SNIA Technical Documents shall be clearly labeled on every page as follows, where *Classification* is the SNIA Document Classification, and *TWB name* is the TWB that authored the document:

“<Classification> document of the <TWB name>”

10.3 Document Versioning

Documents shall follow the versioning practices defined in the SNIA TWG Versioning Policy available on the SNIA web site at [TWG Documents & Templates](#).

10.4 Document Format

Templates for TWG documents are available on the SNIA web site at [TWG Documents & Templates](#).

10.5 SNIA Technical Document Classifications

Any Technical Work produced by a TWB that is a document shall be classified in one of the following ways. The document's classification is what governs the approval procedure to have the document published and released to the public. The Charter and Work Items of the TWG that develops a document shall determine the classification to be used.

10.5.1 In-Development Document Classifications

The following classifications cover cases where a document is still under development in a TWB. Any documents covered by this classification are expected to incur significant change before the Work Item to which they refer is completed.

10.5.1.1 Internal Use Draft

All documents that have not completed the Release Process (section 10.6.1) shall be classified as an *Internal Use Draft*.

An *Internal Use Draft* is an internal document of the developing TWB and may not be released outside of the TWB except for the purpose of release approval. *Internal Use Draft* documents shall have the following statement, or equivalent, included on the front cover of the document:

"For SNIA <TWB name> Internal Use Only. This *Internal Use Draft* is an internal document of the <TWB name> that has not been approved for release outside of the membership of the <TWB name>. This draft may not represent the position of the <TWB name>. Suggestions for revision should be directed to <TWB name> at <TWB email address>."

Documents classified as *Internal Use Draft* shall be marked (including on the front page) as follows:

"For SNIA <TWB name> Internal Use Only".

10.5.1.2 Working Draft

When a TWG Internal Use Draft has completed an Approval Process (section 10.6) for release outside of the developing TWG as a draft, it shall be classified as a *Working Draft*, unless specified otherwise below. Some SNIA Technical Documents may not progress beyond the Working Draft classification. A document shall be approved by an Official Vote of the TWB in order to progress beyond this classification (section 10.6.1).

Publication of a *Working Draft* is not an assertion of consensus, endorsement, or technical quality. *Working Draft* documents shall have the following statement, or equivalent, included on the front cover of the document:

"Publication of this *Working Draft* for review and comment has been approved by the <TWB name>. This draft represents a "best effort" attempt by the <TWB name> to reach preliminary consensus, and it may be updated, replaced, or made obsolete at any time. This document should not be used as reference material or cited as other than a "work in progress." Suggestions for revision should be directed to <https://www.snia.org/feedback/>."

10.5.2 Completed Document Classifications

The following classifications cover cases where a document has completed development in a TWB. Any documents covered by these classifications are expected to only change in response to problems identified during the Technical or Architecture approval processes (sections 10.6.3 and 10.6.4). A TWB may view a Work Item as being completed when the document to which it refers reaches one of these classifications.

Drafts of completed documents that are in the form of a completed document but have not been fully approved shall be clearly marked as being in this state. The preferred method for this marking is to watermark each page in a large font size with the text “Pending Approval by XXX” where XXX is the body whose approval is required to advance the document. Alternatively, the draft may be labeled as a Working Draft (10.5.1.2) until approved and then formatted as a completed document.

10.5.2.1 SNIA Technical White Paper

The SNIA Technical White Paper classification covers documents that provide the industry with information on a SNIA-relevant topic.

A SNIA Technical White Paper document shall have the following statement, or equivalent, included on the front cover of the document:

“This document has been developed by the <TWB name> and approved for release by the SNIA Technical Council. SNIA believes that the ideas, methodologies, and technologies described in this document accurately represent SNIA positions and are appropriate for widespread distribution. Suggestions for revision should be directed to <https://www.snia.org/feedback/>.”

10.5.2.2 SNIA Technical Proposal

The SNIA Technical Proposal classification covers documents that are deemed by the developing TWB to be suitable for publication.

A SNIA Technical Proposal document shall have the following statement, or equivalent, included on the front cover of the document:

“This document has been released by SNIA. The <TWB name> believes that the ideas, methodologies, and technologies described in this document are technically accurate and are appropriate for widespread distribution. Suggestions for revision should be directed to <https://www.snia.org/feedback/>.”

10.5.2.3 SNIA Standard

The SNIA Standard classification (formerly “SNIA Technical Position” classification) covers documents that have completed all SNIA approval processes and represent a clear consensus position of the organization.

SNIA Standard documents shall have the following statement, or equivalent, included on the front cover of the document:

“This document has been released and approved by SNIA. SNIA believes that the ideas, methodologies, and technologies described in this document accurately represent SNIA

positions and are appropriate for widespread distribution. Suggestions for revision should be directed to <https://www.snia.org/feedback/>.”

A document that has been approved as SNIA Architecture is a SNIA Standard.

10.6 SNIA Technical Document Approval Processes

The approval processes are documented as follows:

- 1) Release Process
- 2) IP Review Process
- 3) Technical Approval Process
- 4) Architecture Approval Process
- 5) ISO/IEC Standardization Process

The Release and IP Review processes operate on Technical Work Items that are still in development. The other processes cover the approval of a completed TWG Work Item by the entire SNIA organization, and the subsequent publication of work to the public or to ISO/IEC for international standardization.

10.6.1 TWG Work-in-Progress Release Process

The Work-in-Progress Release Process is followed when a TWG that is developing SNIA Technical Work seeks to make an Internal Use Draft available to a wider audience than the TWG’s own membership as a Working Draft. That audience may be defined as specific other TWGs; one or more specific SNIA Forums or SNIA Initiatives; MEMBERS; specific consultants, partners, and other interested parties outside of SNIA; or the public.

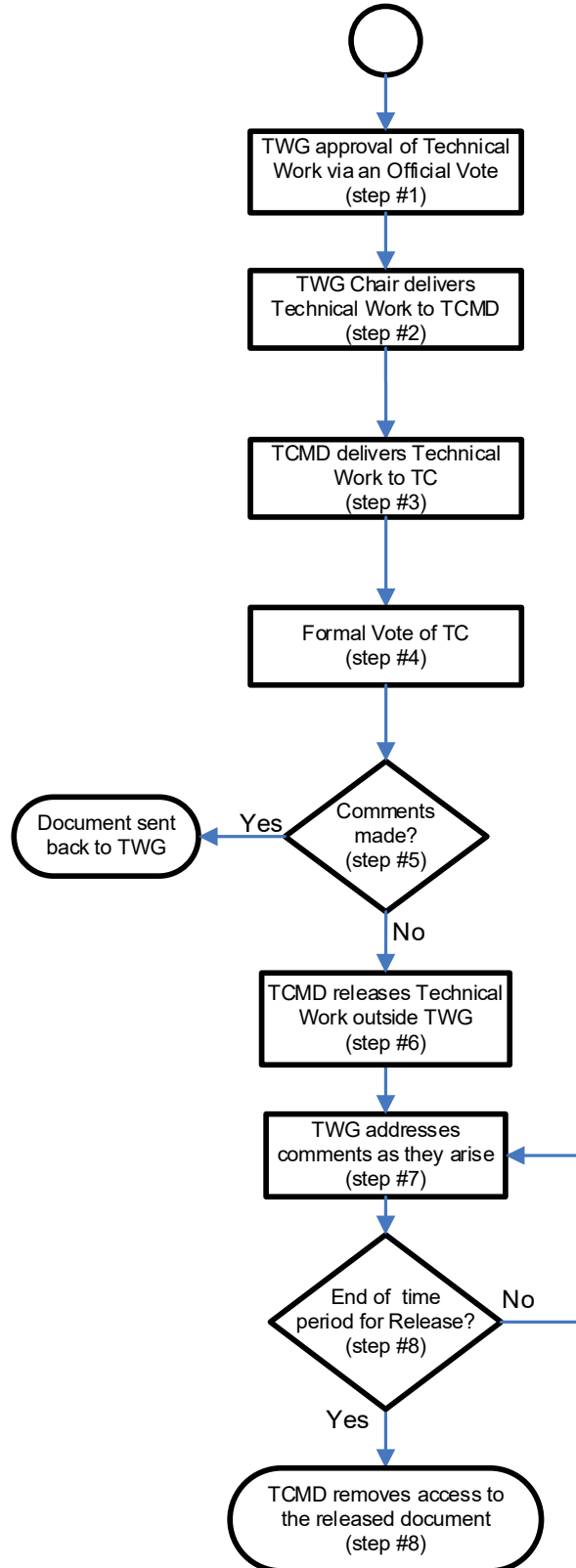
The principal goal of releasing a Working Draft is to gain additional review and feedback from a larger audience than the TWG, to encourage developers to implement the Technical Work to help identify potential issues during the development process, to gather more experimental data, and to speed up the final development of the document.

The steps in the release process are:

- 1) The developing TWG shall approve publication of the Technical Work by an Official Vote (section 6.5.1). The motion shall include identification of the intended audience and the duration of the availability of the release.
- 2) The Chair of the developing TWG shall inform the TCMD of the results of the vote and shall supply a copy of the Technical Work to the TCMD, including a .zip file containing all of the files needed to edit and generate the Technical Work. The .zip file shall include all text (e.g., MS Word document), figures, diagrams, etc. in editable form (e.g., flow charts and block diagrams shall be in a readily editable format).
- 3) The TCMD will then notify the TC of the availability of the Technical Work.
- 4) A vote of the TC is conducted.

- 5) If comments are made during the TC vote that require a TWG response, the document shall be returned to the developing TWG for additional work. After addressing the comments, the developing TWG may resubmit the document starting with step 1) above.
- 6) The TCMD will release the Technical Work to the intended audience by posting the document to the web site or other means and making an announcement to the intended audience. The time period for the release shall be stated in the announcement.
- 7) During the release time period, the developing TWG addresses comments as they arise. Comments received from non-SNIA member organizations, and from MEMBERS that are not opted out from the developing TWGs, shall always be addressed, and the commenting party shall be informed of the disposition of those comments. Comments from MEMBERS that are opted out from the developing TWG may or may not be addressed, and disposition returned to the commenter, at the discretion of the developing TWG.
- 8) At the completion of the release time period, the TCMD will ensure that the Technical Work ceases to be available outside of the developing TWG.

Work in Progress Release Process



10.6.2 IP Review

10.6.2.1 IP Review Process

The purpose of the IP Review Process is to implement the SNIA IP Policy (i.e., to seek to identify situations where use of SNIA Architecture or SNIA Software may require a license of patents (section 14)).

Execution of an IP Review requires a draft document which is able to be reviewed by MEMBERS.

The IP Review Process is:

- 1) The SNIA Board issues a Call for IP Disclosure to the MEMBERS.
- 2) Any results of the Call for IP Disclosure (MEMBER statements regarding possible Essential Claims) are forwarded to the SNIA Board, the TC, and the developing TWG no later than seven (7) days after the Call for IP Disclosure period ends.
- 3) These results are made available on the members-only SNIA web site.
- 4) If Essential Claims were disclosed, the SNIA Board, in consultation with the TC and the developing TWG, shall determine what actions, if any, should be taken based upon the results of the IP Review.

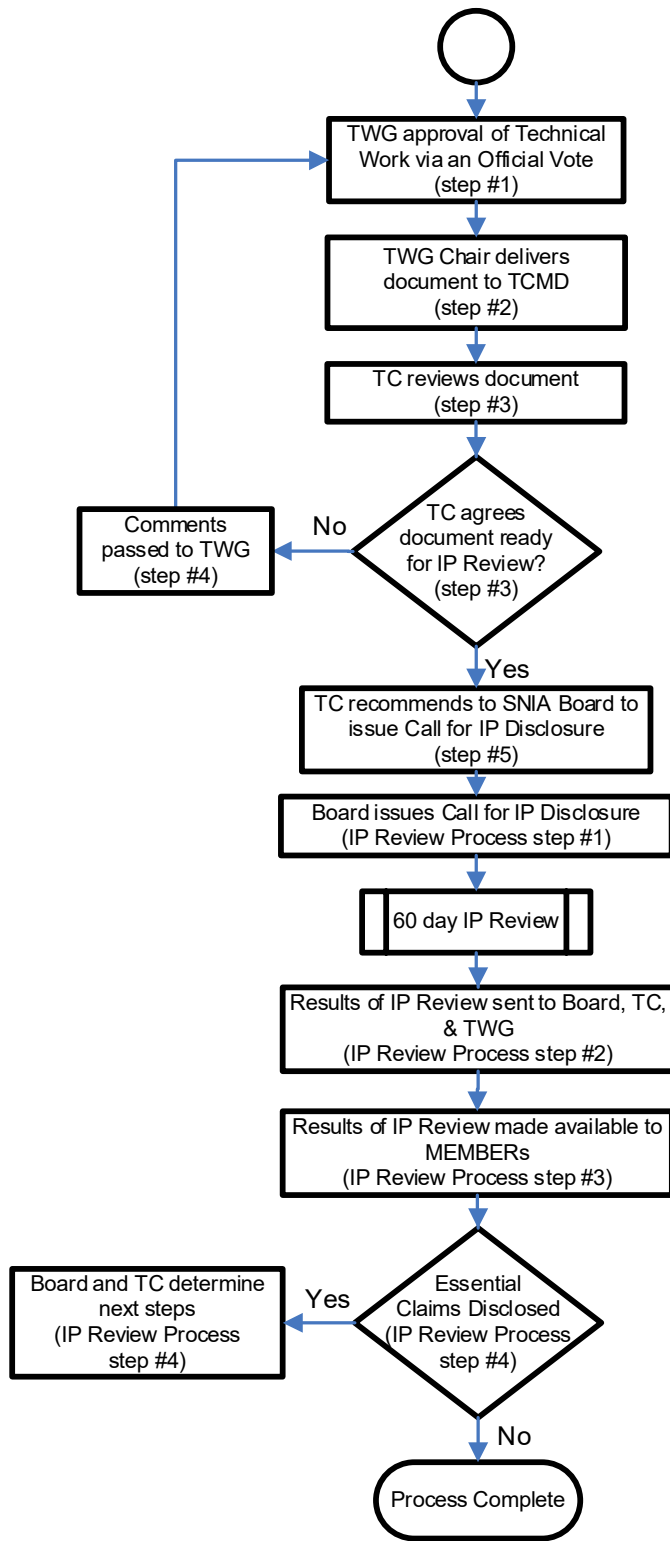
10.6.2.2 Periodic IP Review Process

Technical Work that has been designated SNIA Work-in-Progress and has progressed to the point of having a draft deliverable (possibly incomplete) shall execute the Periodic IP Review Process at least once every six months.

The Periodic IP Review Process shall not be interpreted or used as an interruption of TWG progress on a Work Item. Rather, it is an asynchronous process that should be planned and executed as routine.

- 1) The developing TWG shall approve by an Official Vote (section 6.5.1) the release of a Working Draft document to the MEMBERS for the purpose of an iteration of the Periodic IP Review Process.
- 2) The Chair of the developing TWG shall inform the TCMD of the results of the TWG vote and shall supply a copy of the Technical Work to the TCMD. The TCMD will then notify the TC of the availability of the Technical Work.
- 3) The TC will determine whether the document is ready for IP Review.
- 4) If the TC determines that the document is not ready for IP Review, the document shall be returned to the developing TWG with comments from the TC.
- 5) If the TC determines that the document is ready for IP Review, the TC shall make a recommendation for IP Review to the SNIA Board, as described in section 10.6.2.1.

Periodic IP Review Process



10.6.3 SNIA Technical White Paper Approval Process

The SNIA Technical White Paper Approval Process is followed when a TWG developing a SNIA Technical White Paper has completed development of that SNIA Technical White Paper.

The steps in the SNIA Technical White Paper Approval process are:

- 1) The developing TWG shall approve publication of the SNIA Technical White Paper by an Official Vote (section 6.5.1). The motion shall include definition of the intended audience.
- 2) The Chair of the developing TWG shall inform the TCMD of the results of the vote and supply a copy of the SNIA Technical White Paper.
- 3) The TCMD will then notify the TC of the availability of the SNIA Technical White Paper and schedule a vote of the TC to approve the release of the SNIA Technical White Paper. The TC vote will complete within 30 days.
- 4) If the TC did not approve the release of the SNIA Technical White Paper, then the SNIA Technical White Paper and TC comments shall be returned to the developing TWG, otherwise the process continues with the next step.
- 5) The TCMD will release the SNIA Technical White Paper.

10.6.4 SNIA Technical Proposal Approval Process

The SNIA Technical Proposal Approval Process is followed when a TWG developing a SNIA Technical Proposal has completed development of that SNIA Technical Proposal.

The steps in the Technical Approval process are:

- 1) The developing TWG shall approve publication of the SNIA Technical Proposal by an Official Vote (section 6.5.1).
- 2) The Chair of the developing TWG shall inform the TCMD of the results of the vote and supply a copy of the SNIA Technical Proposal.
- 3) The TCMD will then:
 - a. Initiate the IP Review Process (section 10.6.2.1);
 - b. Notify the TC of the availability of the SNIA Technical Proposal; and
 - c. Schedule a vote of the TC to approve the release of the SNIA Technical Proposal to complete within 30 days.
- 4) If the TC did not approve the release of the SNIA Technical Proposal, then the SNIA Technical Proposal and TC comments shall be returned to the developing TWG, otherwise the process continues with the next step.
- 5) The TCMD will:
 - a. Release the SNIA Technical Proposal with a disclaimer until the IP Review Process has completed;

- b. Remove the disclaimer from the released document if the IP Review Process has completed with no IP encumbrances; and
- c. Remove the released document if the IP Review has completed with IP encumbrances.

10.6.5 Architecture Approval Process

Completion of the Architecture Approval Process is required when the SNIA Technical Work has been designated as SNIA Work-in-Progress by the TC.

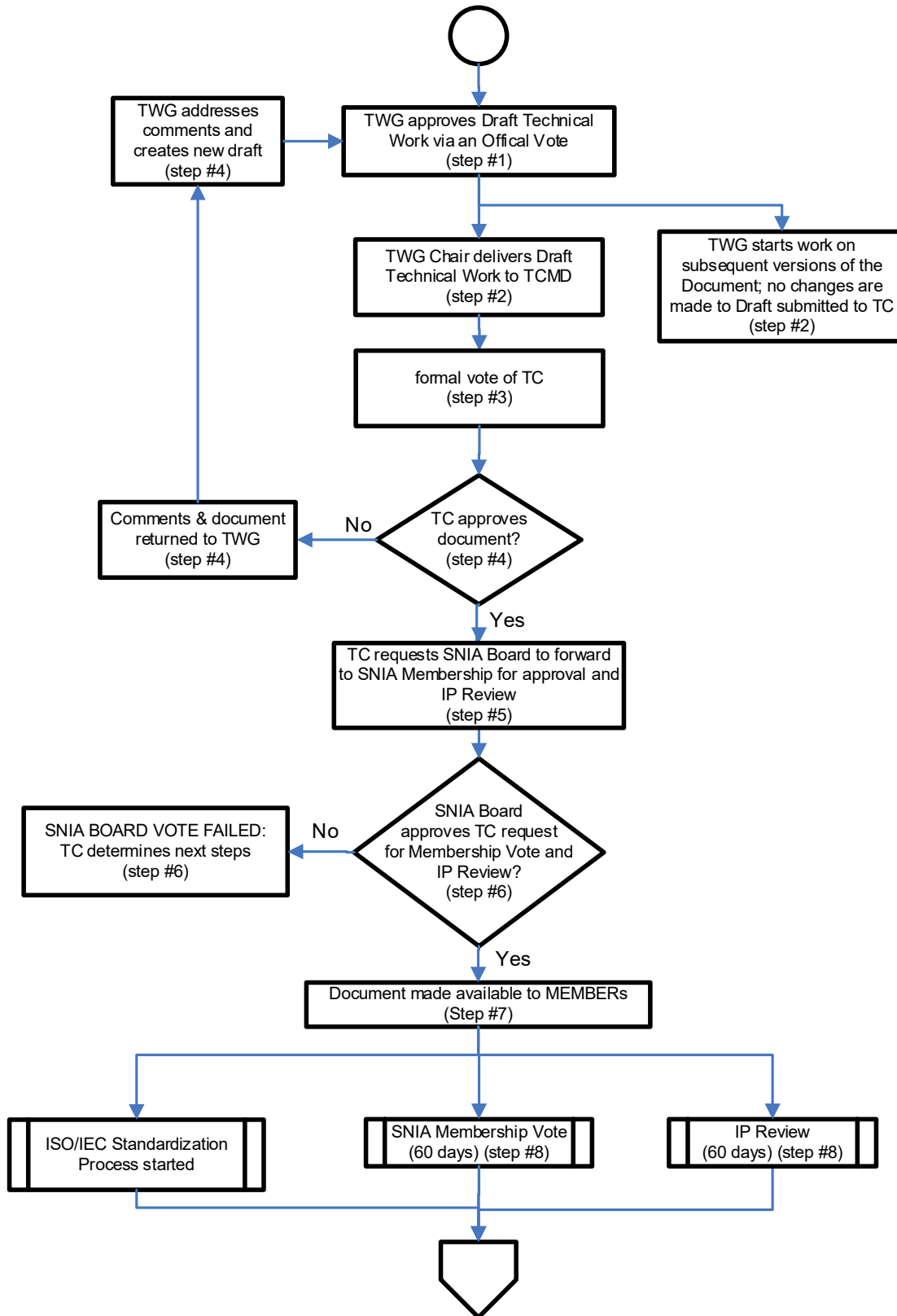
Because of the lengthy and formal nature of the Architecture Approval Process, it should normally be the case that a draft of the material being moved by the TWG into the Architecture Approval Process has been previously exposed to the MEMBERS for technical review via the Release Process (section 10.6.1) and that the results of this review have been incorporated into the document being moved into the Architecture Approval Process.

The steps in the Architecture Approval process are:

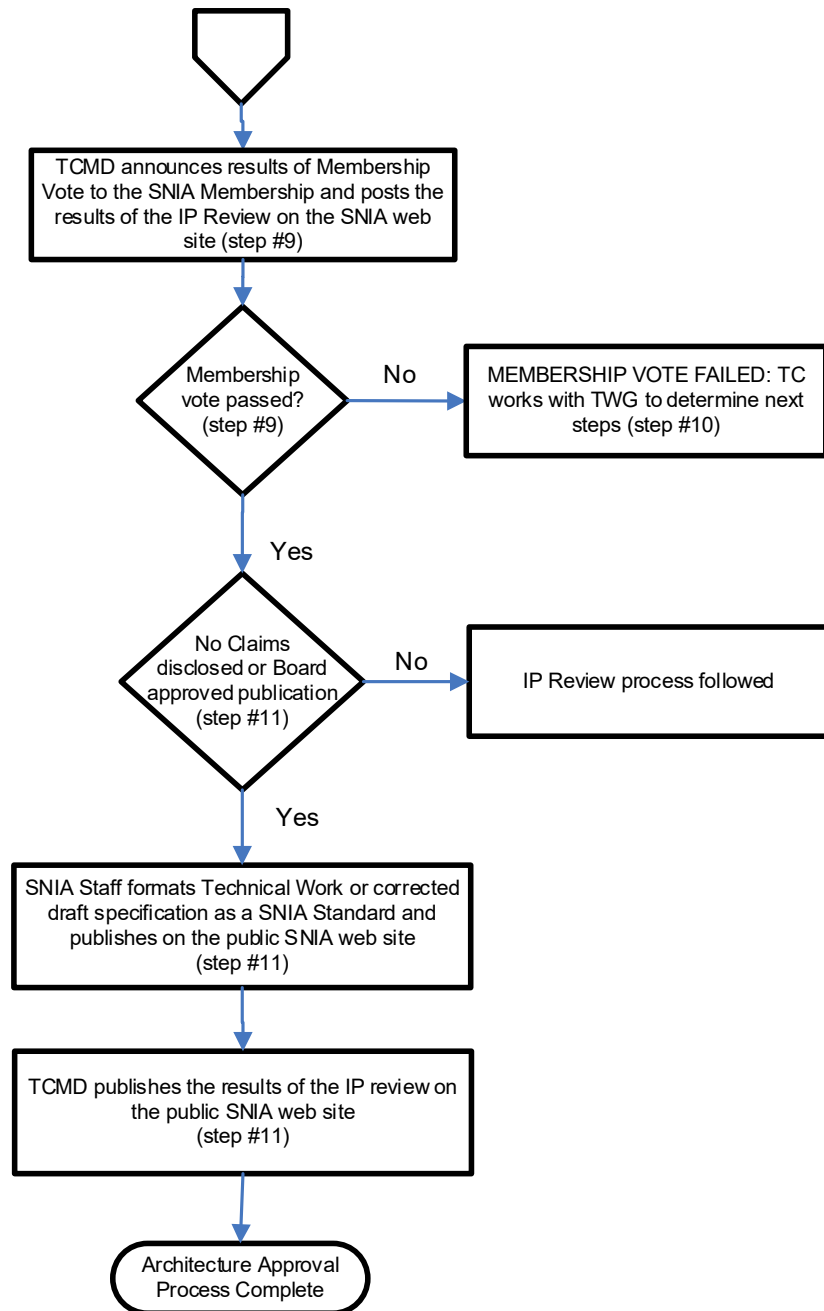
- 1) The developing TWG shall approve publication of the draft Technical Work by an Official Vote (section 6.5.1). This vote shall also indicate whether the developing TWG expects the draft Technical Work to enter the ISO/IEC Standardization Process (section 10.6.6) after approval as SNIA Architecture in Step 7 below.
- 2) The Chair of the developing TWG shall inform the TCMD of the results of the vote and supply a copy of the Technical Work. The version of the document submitted for approval shall not be changed during the approval process (work on subsequent versions may proceed in parallel with Architecture Approval).
- 3) The TCMD will schedule a vote of the TC to approve the release of the Technical Work.
- 4) If the TC did not approve the release of the Technical Work, then the Technical Work and TC comments shall be returned to the developing TWG, otherwise the process continues with the next step.
- 5) The TC shall request the SNIA Board to
 - present the draft Technical Work to the MEMBERS for concurrent approval as a SNIA Architecture and IP Review (section 10.6.2.1); and
 - approve publication of the Technical Work upon MEMBER approval provided no Essential Claims are disclosed.
- 6) If the SNIA Board does not approve the TC request, then the TC will determine the next steps.
- 7) The draft Technical Work will be made available to the MEMBERS for approval as SNIA Architecture and for a concurrent IP Review Process (section 10.6.2.1), which is a 60-day process. The ISO/IEC Standardization Process (section 10.6.6) may be started at this time.
- 8) Approval vote and Document IP Review is performed by the MEMBERS.

- 9) The TCMD shall ensure that the results of the SNIA Membership Vote are announced to the SNIA Membership. The TCMD posts the results of the IP Review on the internal-facing Standards web pages as described in section 10.6.2.1.
- 10) If the MEMBERSHIP vote fails, the TC shall work with the TWG to determine the next steps.
- 11) If no Essential Claims were disclosed or the SNIA Board approved publication, then SNIA Staff shall format the Technical Work or a corrected draft specification, if one has been approved by the TC (section 10.6.7), as a SNIA Standard and create a PDF and publish it on the public SNIA web site. The results of the Final IP Review of the specification shall be published with the specification on the public SNIA website.

Architecture Approval Process



Architecture Approval Process (continued)



10.6.6 ISO/IEC Standardization Process

The ISO/IEC Standardization Process is required when SNIA Technical Work has been designated as SNIA Architecture and has been determined to be appropriate for ISO/IEC standardization by the TC, and step 7 of the Architecture Approval Process (section 10.6.4) has been reached. Only the parts of this process that are relevant to TWGs are described here; other aspects are described by ISO/IEC.

SNIA is an accredited ISO/IEC PAS (Publicly Available Specification) Submitter. This enables SNIA to send SNIA Standards directly to ISO/IEC for country voting, to become ISO/IEC standards.

Prior to starting the PAS Explanatory Process (below), a TWG shall seek approval of the TC to submit a specific version of a specification to ISO/IEC. This is typically done when the finished specification is brought to the TC requesting Membership vote.

10.6.6.1 SNIA PAS Submission Process

1. Using the PAS Explanatory Report Template, past PAS Explanatory Reports, and with the help of the TCMD, the TWG shall develop a draft PAS Explanatory Report for the specification that it desires to submit to ISO/IEC.
2. When the draft PAS Explanatory Report is ready for review, the TWG submits the report to the TC, via the TCMD, for review and approval.

NOTE: To expedite the process, it is recommended that the TWG submit via email at least one draft of the report to the Technical Council for review and feedback via email before bringing the final draft to the Technical Council for approval.

3. Once the PAS Explanatory Report is approved by the TC for submission to ISO/IEC, the TWG shall provide the TCMD with the following:
 - Source material for the SNIA Standard (specification), including source files for any images in the document, all in a single ZIP file (ISO/IEC requirement).
 - A PDF of the specification formatted in A4 format (ISO/IEC requirement).

NOTE: This may affect page numbers and document layout/appearance, resulting in the need to refresh the table of contents, tables of figures, etc., however, there are mechanisms to print in A4 format without changing the page numbering by setting the margins on the printed page appropriately.

4. The TCMD will work with the SNIA Technical Council Chair(s) to make the submission to ISO/IEC including the approved PAS Explanatory Report and the ZIP file containing the specification,
5. After ISO/IEC receives the submission, ISO/IEC starts its PAS approval process, which includes a ballot for approval which is submitted to all ISO/IEC Members (countries). During the ISO/IEC PAS vote, questions may come in from ISO/IEC Members through ISO/IEC which will require a response by the TWG (see

section 10.6.6.2.1). This may be an iterative process. If the ballot passes, ISO/IEC will proceed with publication.

NOTE: ISO/IEC will assign a number and title (under ISO title structure rules) to the standard. After publication by ISO/IEC, the ISO/IEC standard is available world-wide for purchase from ISO/IEC. SNIA has no other access to the published ISO/IEC standard. The SNIA Standard on which the ISO/IEC standard was based remains available at no cost on the SNIA web site.

10.6.6.2 Comment Resolution Process

The Comment Resolution Process is the part of the ISO/IEC Standardization Process that handles the review and resolution of ISO/IEC PAS ballot comments. In SNIA, this is the Editorial Comment Resolution Process (see 10.6.6.2.1) and the Technical Comment Resolution Process (see 10.6.6.2.2).

1. All comments are sent to the Technical Editor, as they are received.
2. The Technical Editor evaluates whether a comment is technical or editorial in nature and forwards it to the appropriate process (see 10.6.6.2.1 and 10.6.6.2.2).

10.6.6.2.1 Editorial Comment Resolution Process

The Editorial Comment Resolution Process deals with editorial comments from the ISO/IEC PAS ballot process.

1. The Technical Editor works with ISO/IEC to resolve these comments.
2. The Technical Editor creates a *Comment Resolution* document for ISO/IEC and the TWG adopts it via an Official Vote.
3. The TC submits the *Comment Resolution* document and updated draft specification (if an updated specification was necessary) to ISO/IEC.

10.6.6.2.2 Technical Comment Resolution Process

The Technical Comment Resolution Process deals with technical comments from the ISO/IEC PAS ballot process.

1. The Technical Editor takes the technical comments to the developing TWG.
2. The TWG creates a *Comment Resolution* document for ISO/IEC and the TWG adopts it via an Official Vote.
3. If there are technical changes as a result of *Comment Resolution*, then the developing TWG creates an updated draft specification for approval as a SNIA Architecture.
4. The TC submits the *Comment Resolution* document and updated draft specification (if an updated specification was necessary) to ISO/IEC.

10.6.7 Specification Correction Process

The Specification Correction Process shall only be used for editorial changes to a specification.

After a specification has been approved by the SNIA Board for a SNIA Membership Vote or approved by the SNIA Membership as a SNIA Standard, editorial issues may be discovered. These issues and their resolution are tracked by the developing TWG, e.g., in a corrected draft specification. No changes are made to a specification during the approval process.

The Specification Correction Process below defines how the corrected draft specification is reviewed and approved.

The steps in the Specification Correction Process are:

- 1) The developing TWG shall approve a corrected draft specification by an Official Vote (section 6.5.1).
- 2) The Chair of the developing TWG shall inform the TCMD of the results of the vote and supply a copy of the corrected draft specification.
- 3) The TC reviews the corrected draft specification to verify that it contains only editorial corrections.
- 4) If the TC approves the corrected draft specification, the corrected draft specification is posted as the published SNIA Standard and the SNIA Board is notified.
- 5) If the TC did not approve the corrected draft specification, then the corrected draft specification and TC comments shall be returned to the developing TWG,

10.7 Test Specifications

When a TWG creates a SNIA Technical Document with portions that are able to be tested for compliance, for example an API specification, the TWG should create a Compliance Test Specification that defines how testing for compliance to the SNIA Technical Document should or shall be performed.

Since the experts who create a SNIA Technical Document are best qualified to define how compliance testing should be done, it is strongly recommended that the TWG work with the TCMD to assure that a Compliance Test Specification is produced.

11 Development and Release of SNIA Software Technical Work

The development and release of SNIA Software Technical Work is governed by the policies and procedures defined in this section.

Software by itself shall not establish a standard or specification to which compliance or conformance may be claimed.

11.1 Definitions

The term Technical Work used in this section relates to SNIA Software Technical Work. The term Technical Work as it relates to other categories such as SNIA Architecture and Document Technical Work is described elsewhere in this document (section 10.1).

Technical Work is technical material that is developed, created, modified, or accepted by a TWG in the course and scope of its activities. The technical material may be in the form of architectures, specifications, white papers, presentations, proposals, software, etc. This statement is a summary of the SNIA IP Policy.

The following are examples of Technical Work:

1. Technical material that is offered to and accepted for consideration by SNIA as a basis for further SNIA work.
2. Technical material that is offered to and accepted by SNIA for adoption as SNIA Software.
3. Technical material that is created, developed, modified, or accepted by a TWG in the course of its work.
4. Technical material that is the end product of a TWG and has not yet been approved as SNIA Software.

A Software Module is an individual item of software code, binary, executable, etc., typically organized as a single file. A Software Module in the context of TWG activity is Technical Work.

A Software Package is a collection of Software Modules and associated documentation. A Software Package is the unit of approval and release for SNIA Software. A Software Package is the typical scope of a SNIA Software Work Item. A Software Package in the context of TWG activity is Technical Work.

11.2 Licenses, Copyrights and Disclaimers

Each Software Module developed by a TWG shall include, at the beginning of the module:

1. A copyright notice as follows:
“Copyright (c) <current and previous years>, Storage Networking Industry Association”
2. The complete text of an approved outbound software license(s).
3. The complete text of the approved inbound software license(s).

4. Other licenses and copyrights as applicable.

Each Software Package shall include a text file describing all of the copyright holders and software licenses that apply to the package.

Each Software Package shall include a ReadMe.txt file which defines the applicable SNIA Software Package classification for the software package.

11.3 Software Package Classifications

Any Technical Work produced by a TWG that is a software package shall be classified in one of the following ways. The software package's classification is what governs the approval procedure to have the document published and released to the public. The Charter and Work Items of the TWG that develops a software package shall determine the classification to be used.

11.3.1 In-Development Software Package Classifications

The following classifications cover cases where a software package is still under development in a TWG. Any software packages covered by this classification are expected to incur significant change before the Work Item to which they refer is completed.

11.3.1.1 Internal Use Draft

All software packages that have not completed the Software Release Process (section 11.4.1) shall be classified as an *Internal Use Draft*.

An *Internal Use Draft* is an internal software and documentation of the developing TWG and may not be released outside of the TWG except for the purpose of release approval. *Internal Use Draft* Software Packages shall have the following statement, or equivalent, included in the Software Package:

“For SNIA <TWG name> Internal Use Only. This *Internal Use Draft* is a Software Package of the <TWG name> that has not been approved for release outside of the membership of the <TWG name>. This draft may not represent the position of the <TWG name>. Suggestions for revision should be sent to <TWG name> at <TWG email address>.”

11.3.1.2 Working Draft

All software packages that have not completed an Approval Process shall be classified as a *Working Draft*, unless specified otherwise below. Some SNIA Technical Work may not progress beyond the Working Draft classification. A software package shall be approved by an Official Vote of the TWG in order to progress beyond this classification (section 11.4.1).

Publication of a *Working Draft* is not an assertion of consensus, endorsement, or technical quality. *Working Draft* software packages shall have the following statement, or equivalent, included in the software package:

“Release of this *Working Draft* software and associated documentation for review and comment has been approved by the <TWG name>. This draft represents a “best effort”

attempt by the <TWG name> to reach preliminary consensus, and it may be updated, replaced, or made obsolete at any time. This software and associated documentation should not be used as reference material or cited as other than a “work in progress.” Suggestions for revision should be directed to ...”

Working Draft software and associated documentation for review may be released as source code, in binary executables, or both.

11.3.1.3 Trial-Use Draft (analogous to beta test)

The purpose of this classification is to provide a stable draft of the proposed SNIA Software to encourage prototype implementations. It should be used when it is believed that implementation experience is needed before the content of the proposed software is finalized and submitted for SNIA Approval. *Trial-use-Draft* software packages shall have the following statement, or equivalent, included in the software package:

“Publication of this *Trial-Use Draft* software and associated documentation for trial use and comment has been approved by the SNIA Technical Council and the <TWG name>. Distribution of this draft material for comment shall not continue beyond () months from the date of publication. It is expected, but not certain that following this () month period, this draft material, revised as necessary will be submitted to <the SNIA Membership and/or Technical Council> for final approval. Suggestions for revision should be directed to ...”

11.3.2 Completed Software Package Classifications

The following classifications cover cases where a software package has completed development in a TWG. Any software covered by these classifications is expected to change only in response to problems identified during the Technical or Software Approval processes. A TWG may view a Work Item as being completed when the Technical Work to which it refers reaches one of these classifications.

11.3.2.1 SNIA Software

Software that has been approved by the TWG, TC, SNIA Board and MEMBERS is SNIA Software. The SNIA Software classification covers software packages that have completed all SNIA approval processes for SNIA Software and therefore represent a clear consensus position of the organization.

A SNIA Software software package shall include the following statement, or equivalent:

“This software and associated documentation has been released and approved by SNIA. SNIA believes that the ideas, methodologies and technologies described in this material accurately represent SNIA goals and are appropriate for widespread distribution. Suggestions for revision should be directed to ...”

11.4 Software Package Approval Processes

The unit of approval is an entire software package.

Four different approval processes are documented, as follows:

1) Software Release Process

- 2) IP Review Process
- 3) SNIA Software Approval Process
- 4) SNIA Software Errata Review Process

The Software Release and IP Review processes operate on Technical Work that is still in development. The other processes cover the approval of completed Technical Work by the entire SNIA organization.

11.4.1 Open Repositories

Open Repositories are publicly available code repositories encompassing a source code control functionality. These repositories may be used by the developing TWG to make intermediate changes available to a wider audience than the TWG's own membership. An Open Repository does not take the place of Software Releases, but does make visible the process of creating the software for a release. For an external developer that is using the Technical Work, this allows access to bug fixes (such as security related ones) without waiting for the next software release from the TWG. The TWG shall utilize an approval process for updates to the repository which ensure that governance of the Technical Work remains with the members of the TWG. The approval process for updates may include designation of one or more TWG members as maintainers, full TWG votes and/or ticketing steps.

11.4.2 Software Release Process

The Release Process is followed when a TWG that is developing SNIA Software wishes to make Work that is still under development available to a wider audience than the TWG's own membership as a complete package which is able to be downloaded and installed. That audience may be defined as specific other TWGs; one or more specific SNIA Forums or SNIA Initiatives; MEMBERS; specific consultants, partners, and other interested parties outside of SNIA; or the public.

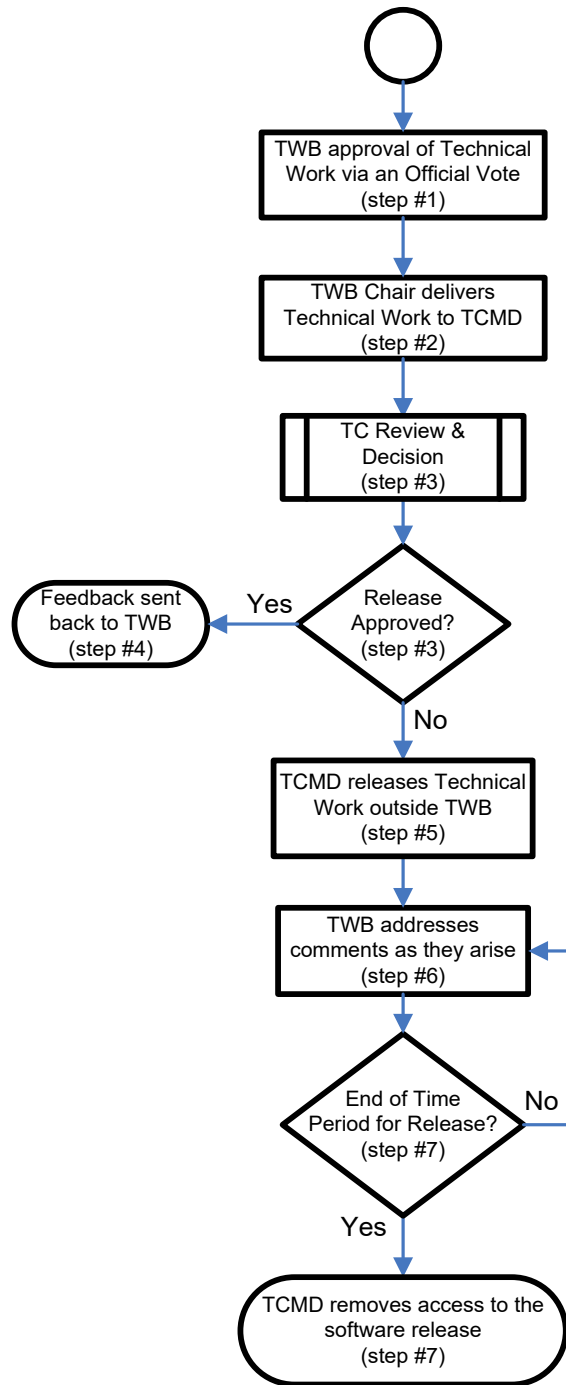
The principal goal of releasing In-Development SNIA Technical Work (either through a Software Release or an Open Repository) is to gain additional review and feedback from a larger audience and to help accelerate its development, to encourage developers to implement the Work to help identify potential issues during the development process, to gather more experimental data, and to speed up the final development of the software,

The steps in the release process are:

1. The developing TWG shall approve publication of the Technical Work in one of the In-Development Work Classifications by an Official Vote (section 6.5.1). The motion shall include identification of the intended audience.
2. The Chair of the developing TWG shall inform the TCMD of the results of the vote, and shall supply a copy of the "ready to release" software package to the TCMD. The TCMD will then notify the TC of the availability of the Technical Work.

3. A formal TC Decision on the Technical Work is required. At this time, a SNIA Board decision is also required. A TC meeting shall be planned to include members of the developing TWG. The agenda of that meeting will include a presentation by the developing TWG that addresses the following points:
 - a. Purpose for releasing the software
 - b. Release notes that will accompany the software release.
 - c. Why the software is ready for release
 - d. Who the software is being released to
 - e. When the software will be released
 - f. The time period the software will be released for
 - g. Plan for updating and/or fixing problems
 - h. Any plans for supporting the release
 - i. Anything else that the developing TWG wishes to bring to the attention of the TC
4. If the TC does not approve the requested release, the TC shall provide written feedback to the developing TWG stating why release approval was not granted and what additional work or changes are necessary before initiating a new release approval request starting at step 1.
5. The TCMD will release the Technical Work to the intended audience by posting the software package to the web site or other means and making an announcement to the intended audience. Where the release is limited to a specific time period, that period shall be identified in the announcement.
6. During the release period the developing TWG shall address comments (bug reports, suggestions, etc.) as they arise. Comments received from non-SNIA member organizations, and from MEMBERS that are not opted out from the developing TWGs, shall always be reviewed, and the commenting party shall be informed of the disposition of those comments. Comments from MEMBERS that are opted out from the developing TWG may or may not be reviewed, and disposition returned to the commenter, at the discretion of the developing TWG.
7. Where the release is limited to a specific time period, at the completion of that period the TCMD will ensure that the Technical Work ceases to be available outside of the developing TWG.

Software Release Process



11.4.3 IP Review Process

The purpose of the IP Review Process is to implement the SNIA IP Policy, i.e. to seek to identify at an early stage, situations where use of SNIA Software may require a license of patents (section 14).

Execution of an IP Review requires a draft software package (not necessarily complete or self-consistent) which is able to be reviewed by MEMBERS. This software package shall include the full source (as it exists) and any build documentation.

11.4.3.1 Periodic IP Review

Technical Work that has been designated SNIA Work-in-Progress and has progressed to the point of having a draft deliverable (possibly incomplete or inconsistent) shall, at least every six months, execute the Periodic IP Review Process.

- 1) The developing TWG shall approve by an Official Vote (section 6.5.1) the release of a Working Draft software package to the MEMBERS for the purpose of an iteration of the periodic IP Review.
- 2) The Chair of the developing TWG shall inform the TCMD of the results of the TWG vote and shall supply a copy of the software package to the TCMD. The TCMD will then notify the TC of the availability of the software package.
- 3) The TC will determine whether the software package is ready for IP Review and make its recommendation to the SNIA Board. If the TC determines the software package is not ready, the software package shall be returned to the developing TWG with comments from the TC.
- 4) The SNIA Board issues a Call for IP Disclosure to the MEMBERS.
- 5) Within 7 days of the end of the 60 day Call for IP Disclosure period, the SNIA Board sends the results of the IP Review to the TC and the Chair of the developing TWG.
- 6) If during the Call for IP Disclosure period statements regarding possible Essential Claims were disclosed by the MEMEBRS, then the TC shall determine the next steps.

The Periodic IP Review Process shall not be understood or used as an interruption of TWG progress on a Work Item. Rather, it is an asynchronous process that should be planned and executed as routine. The only situation where progress on the Work Item may be interrupted is in the event of results of the IP Review that require step 6, in which case the TC determines the necessary next steps.

A flowchart describing this process (Periodic IP Review Process) is in section 10.6.2.2 (the process is the same as for SNIA Technical Documents).

11.4.3.2 Final SNIA Software IP Review Process

Every software package produced by a TWG that seeks to be approved as SNIA Software shall be subject to the Final SNIA Software IP Review Process.

The Final SNIA Software IP Review Process should normally be executed concurrently with the SNIA Membership Vote to adopt the software package as SNIA Software and on the same software package that is being submitted for SNIA Membership Vote. Any exceptions to this situation shall be proposed to the TC with as much advance notice as possible and approved by the TC. The process steps below assume the normal case where the Final SNIA Software IP Review Process piggy-backs on the SNIA Software

Approval Process and addresses only the incremental additions of the Final SNIA Software IP Review Process.

- 1) Any results of the Call for IP Disclosure (MEMBER statements regarding possible Essential Claims) should be forwarded to the Chair of the TWG no later than seven (7) days after the Call for IP Disclosure period ends. These results are also to be made available on the SNIA web site.
- 2) The TWG, in consultation with the TCMD, the TC, and at the TC's discretion SNIA Legal Counsel, shall determine what, if any, actions should be taken based upon the results of the IP Review.

11.4.4 SNIA Software Approval Process

Completion of the SNIA Software Approval Process is required in order to adopt and release completed SNIA Software.

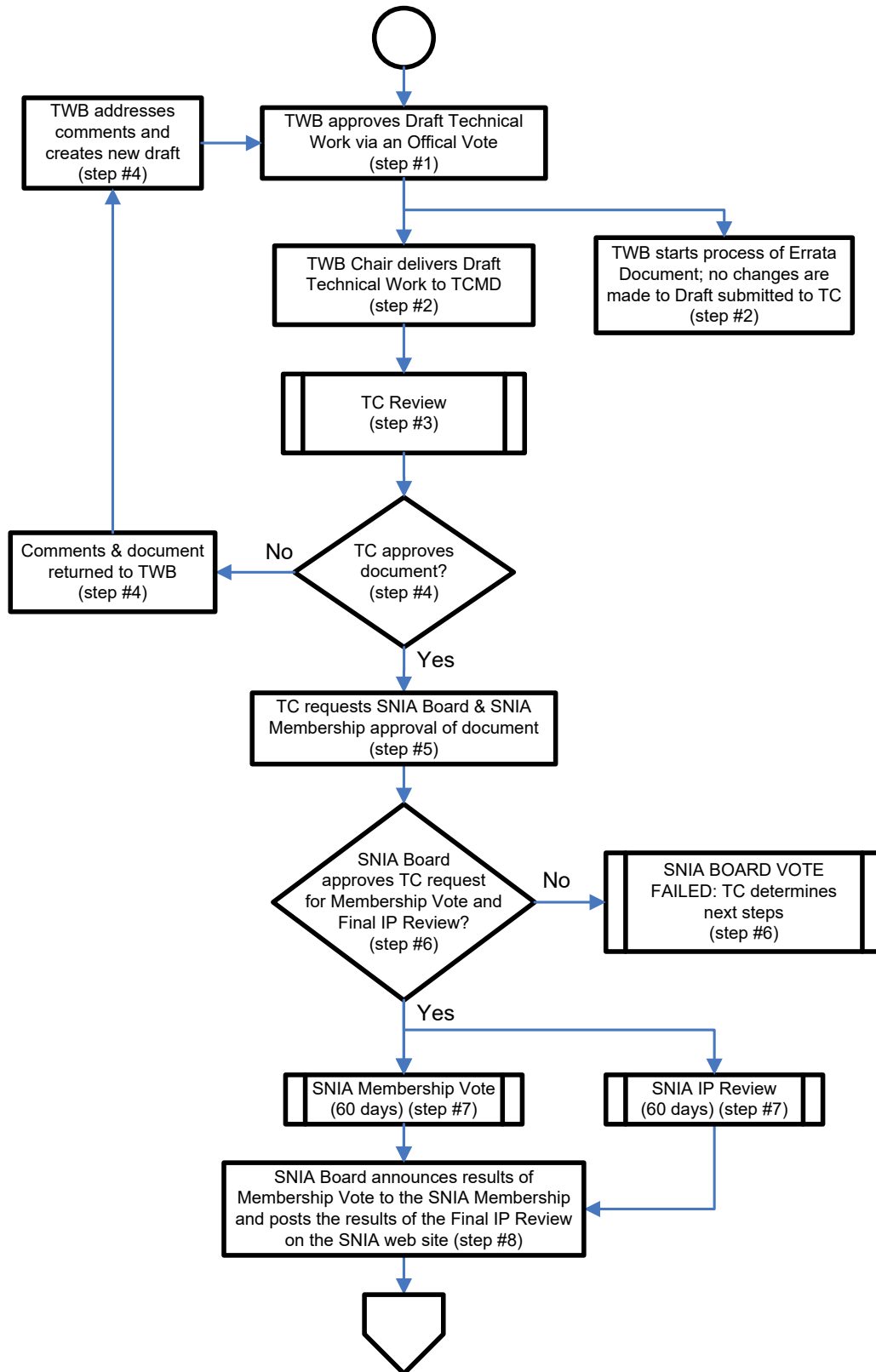
Because of the lengthy and formal nature of the SNIA Software Approval Process, it should normally be the case that a draft of the material being moved by the TWG into the SNIA Software Approval Process has been previously exposed to the MEMBERS for technical review via the Software Release Process (section 11.4.1) and that the results of this review have been incorporated into the document being moved into the SNIA Software Approval Process.

The steps in the SNIA Software Approval process are:

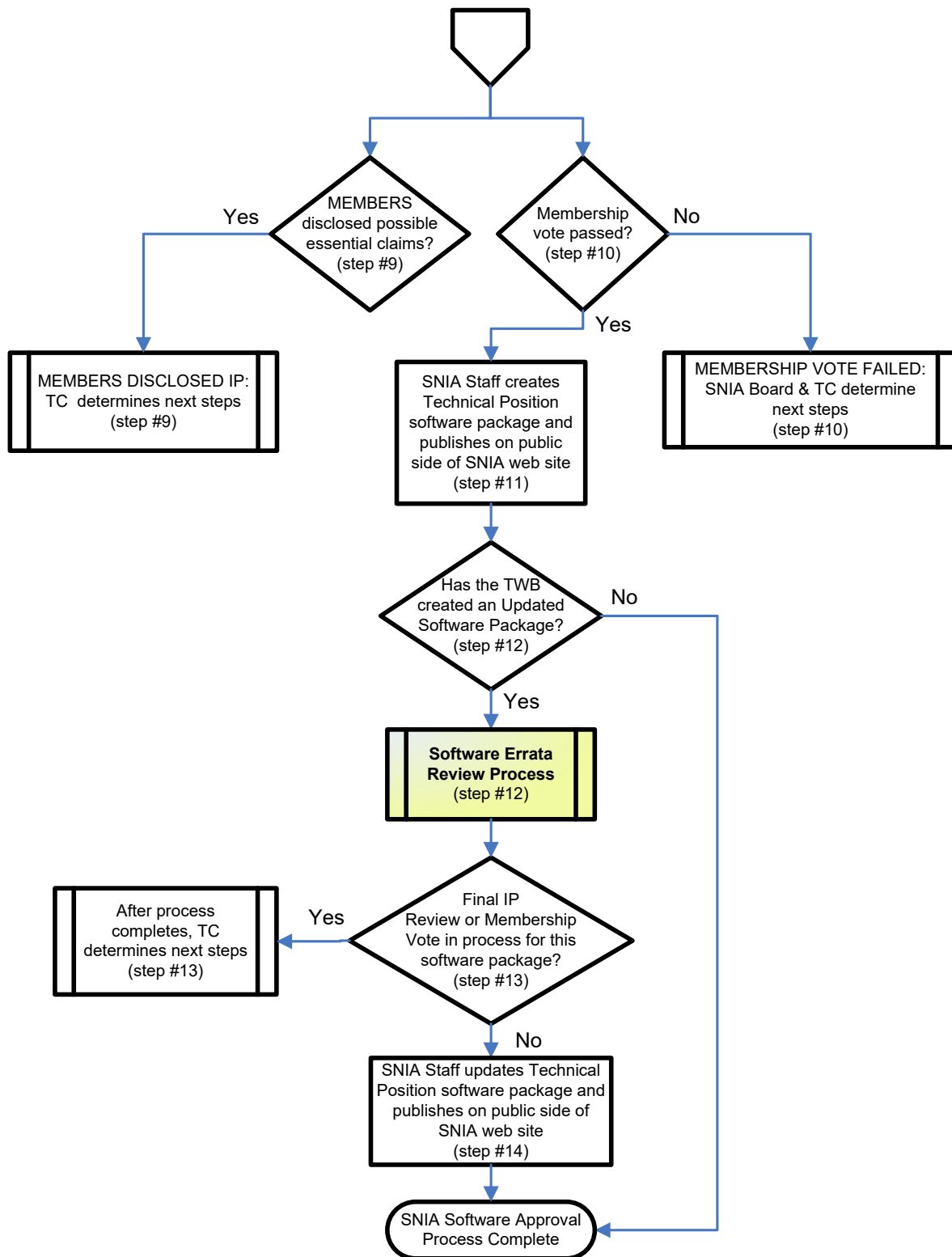
- 1) The developing TWG shall approve publication of the draft Technical Work (software package) by an Official Vote (section 6.5.1). The developing TWG then starts the process of creating an updated Software Package for the Technical Work submitted.
- 2) The Chair of the developing TWG shall inform the TCMD of the results of the vote and supply a copy of the Technical Work.
- 3) The TCMD will schedule a vote of the TC to approve the release of the Technical Work.
- 4) If the TC did not approve the release of the Technical Work, then the Technical Work and TC comments shall be returned to the developing TWG, otherwise the process continues with the next step.
- 5) The TC shall request a SNIA Board motion to approve the draft Technical Work for presentation to the MEMBERS for approval as SNIA Software and for a concurrent Final SNIA Software IP Review Process (section 11.4.3.2).
- 6) If the SNIA Board approves the release of the Technical Work, then the process continues with the next step. Otherwise, the SNIA Board vote failed and the TC will determine the next steps.
- 7) Upon SNIA Board approval, the draft Technical Work will be made available to the MEMBERS for approval as SNIA Software and for a concurrent Final SNIA Software IP Review Process (section 11.4.3.2), which is a 60-day process.

- 8) Upon completion of the above step, the TCMD shall work with the SNIA Secretary to ensure that the SNIA Board announces the results of the SNIA Membership Vote to the SNIA Membership. The TCMD should also work with the SNIA Secretary to post the results of the Final SNIA Software IP Review on the public-facing Standards web pages and on the internal-facing Standards web pages.
- 9) If MEMBERS disclosed possible essential claims, then the TC will determine the next steps. Processing still continues with the following step.
- 10) If the SNIA Membership Vote passed, then the process continues with the next step. Otherwise, the SNIA Membership Vote failed, and the SNIA Board and the TC shall determine the next steps.
- 11) The SNIA Staff shall publish the Technical Work (software package) as SNIA Software on the public side of the SNIA web site.
- 12) If the developing TWG has not identified Software Errata and developed an updated Software Package, then the SNIA Software Approval Process is complete, otherwise the Software Errata Review Process (section 11.4.5) is performed and processing is continued with the next step.
- 13) If a SNIA Membership Vote or Call for IP Disclosure was started as a result of the Software Errata Review Process (section 11.4.5), then the TC will determine the next steps. Otherwise, processing is continued with the next step.
- 14) The SNIA Staff shall publish the corrected SNIA Software (software package).

SNIA Software Approval Process



SNIA Software Approval Process (continued)



11.4.5 Software Errata Review Process

The Software Errata Review Process specifies the approval process for addressing problems in the software package (bugs) found while the Software Package is undergoing final approval or after final approval as SNIA Software.

11.4.5.1 Software Errata Rationale

Final approval of a Software Package as SNIA Software takes a significant amount of time during which problems (bugs) in the content of the Software Package may be discovered. It is also necessary that the material undergoing approval be stable.

Therefore, the developing TWG shall establish a copy (or copies) of the software package in which problems are corrected. When problems are discovered, the TWG should analyze, prioritize, and categorize the necessary changes for inclusion either in an updated Software Package or in a future version of the Software Package. The former case is for Software Errata, and is addressed in this section; the latter case is addressed as a distinct, new version of the Software Package that shall undergo the full approval and release processes for SNIA Software.

In general, it is desired that the Software Package, as submitted, complete the approval process and that changes to correct problems be limited in scope and impact, with more substantial changes being deferred to a future version of the Software Package and undergo full approval as part of that package. In unusual circumstances, the Software Package may be withdrawn from approval consideration and resubmitted at a later date.

Similarly, after a Software Package has been approved as SNIA Software, problems (bugs) may be found. The same process and considerations apply as in the case of Software Errata found during final approval, and the same process for addressing these problems shall be followed. When changes are made to SNIA Software as Software Errata, the result is SNIA Software.

Software Errata are not intended to be used (and shall not be used) to circumvent either the rights of SNIA Members in the approval process or the intent of the SNIA IP Policy regarding disclosure of Essential Claims. To ensure this, decisions as to which changes may be made as Software Errata versus which changes should undergo a full release and approval process should be made with care and, when in doubt, biased toward sending changes through the full release and approval processes. These judgments are made by the TC, informed by the developing TWG.

SNIA does not and cannot provide corrections to SNIA Software in a sufficiently real-time manner to enable vendors to address critical customer problems through corrections provided in SNIA Software. Instead, this is a vendor responsibility. The typical path for the situation of a critical customer problem is that the vendor (or vendors) work with the customer to address the immediate customer situation (including correcting problems in a SNIA Software Package) and then, as members of the developing TWG, provide the problem report and correction to the TWG for consideration as Software Errata or in a future version of the Software Package.

11.4.5.2 Software Errata Review

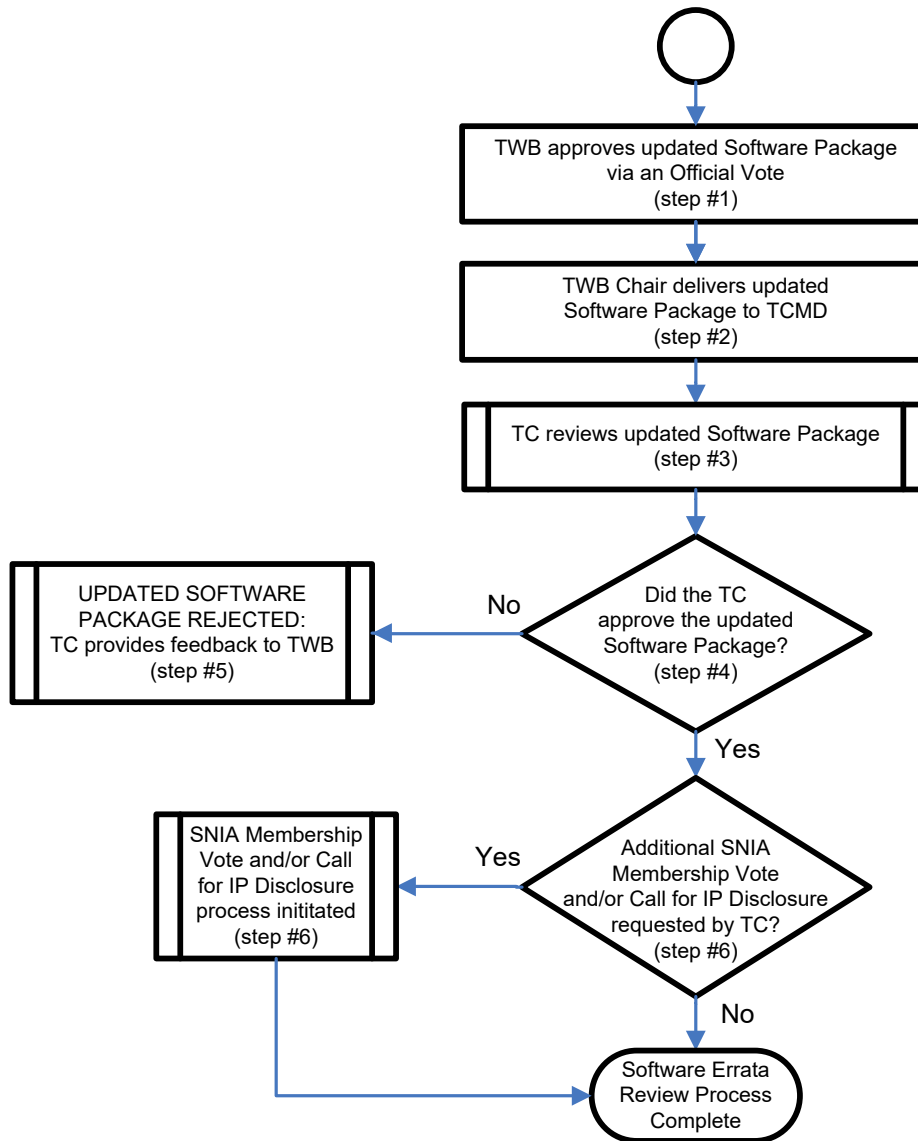
The Software Errata Review Process below defines how Software Errata are reviewed, approved, and released as an updated Software Package. This process takes place during and/or subsequent to the SNIA Software Approval Process defined previously.

For SNIA Software, the developing TWG is responsible for analyzing, categorizing, and prioritizing problem reports and the corrections required. The result of these activities is a sequence of Software Package updates, each of which shall be approved through the Software Errata Review Process.

The steps in the Software Errata Review Process are:

- 1) The developing TWG shall approve, by an Official Vote (section 6.5.1), the updated Software Package for submission to the TC as Software Errata. The developing TWG may then immediately begin work on the next updated Software Package.
- 2) The Chair of the developing TWG shall inform the TCMD of the results of the vote, and supply a copy of the updated Software Package, including a description of each problem corrected and the nature of each correction. Means that allow the easy identification of the specific changes made to the contents of the package should be provided.
- 3) The TC reviews the updated Software Package. For each change, the TC considers the potential that the Errata item would change a SNIA Member's support as well as the possibility that Essential Claims may be created. The TC also considers whether the changes require a SNIA Membership Vote and/or Call for IP Disclosure.
- 4) The TC shall complete its review of the updated Software Package and provide its conclusions to the TWG within 3 weeks of receiving the updated Software Package. The TC should strive to expedite these reviews whenever possible.
- 5) If the TC does not approve the updated Software Package, the TC communicates its decisions and recommendations to the developing TWG and determines the next steps.
- 6) If the TC determined that an additional SNIA Membership Vote and/or Call for IP Disclosure is needed, then the SNIA Membership Vote and/or Call for IP Disclosure process is initiated. In any event, the SNIA Board is notified of the outcome of the Software Errata Review Process.

Software Errata Review Process



11.5 Tests and Test Specifications

When a TWG creates SNIA Software, the TWG is encouraged to include a test suite for the software in the software package.

When a TWG creates SNIA Software, the TWG is encouraged to include a test specification for the software in the software package.

12 Development and Release of Other Software Technical Work

Policies and procedures for other software Technical Work are not yet defined, and other software Work Items are not allowed at this time.

13 Development and Release of Other SNIA-Branded Work

13.1 Scope

This section addresses SNIA branded work developed by a TWB within the scope of its charter for release (inside or outside of SNIA) and which is NOT addressed elsewhere in this document. Examples include:

- Podcasts
- Slide presentations
- Webcasts / BrightTALK presentations
- Education and/or Training presentations
- User Guides
- Conference papers
- Dictionary terms to be submitted
- FAQs
- Example code
- Scripts
- Feedback, comments, recommendations to external bodies

13.2 General Guidelines

These guidelines, while not complete or comprehensive, provide the direction that SNIA branded work shall take.

- Material shall be vendor neutral.
- Material shall represent a consensus of the storage industry as represented by SNIA.
- Material shall be written as the voice of SNIA and the TWB.
- Material shall be technology agnostic, i.e., explain the benefits of the subject technology and position the subject technology relative to alternative technologies, all while fairly comparing technology and not deprecating any technology.
- Material shall be technically accurate.

13.3 Approval and Release Process

A TWB develops this class of work through its normal procedures.

Prior to release outside of SNIA, the work is required to be reviewed (section 13.4) and approved (section 13.5) by the TWB.

13.4 Review Process

Each work shall undergo review independent of other work. For scheduling purpose, at least 2 review cycles should be planned in order to accommodate the opportunity for changes. The number of review cycles that may be required is not fixed.

A review cycle shall take one of the following forms.

13.4.1 In-Meeting Review

The TWB conducts a review of the material during any regular or special meeting and either approves the material as presented or requests changes. Comments are expected to be discussed and a resolution plan developed.

13.4.2 Electronic Review

An electronic ballot for approval is issued to all Representatives in the TWB for a period of at least 72 hours requesting either approval of the material as presented or a set of requested changes.

If there are substantive comments, they shall be addressed by the author(s) of the work and another review cycle (Electronic or In-Meeting) shall be conducted.

13.5 Decision Process

If, after an Electronic Review, there are no substantive comments and a simple majority of responding TWG Voting Members vote for approval of the work as presented, the work is approved for release outside of SNIA and no further review is necessary.

During an In-Meeting Review, a simple majority of the TWG Voting Members present may approve the material as presented or with specified changes for release outside of SNIA.

14 SNIA Architecture and SNIA Software Intellectual Property Process

14.1 Designation as SNIA Architecture or SNIA Software

SNIA Architecture and SNIA Software are defined by the SNIA Bylaws and the SNIA IP Policy (section 2). To ensure the SNIA IP Policy and its requirements are applied to the Technical Work being done in the TWGs, each Work Item shall be declared, if applicable, as delivering a possible candidate for SNIA Architecture or SNIA Software status.

As part of Updating Program of Work (section 4.2.3), the TC shall determine if a Work Item will be considered as potentially on a SNIA Architecture or SNIA Software path, and if so, the TC shall inform the SNIA Board and, through the SNIA Board, the MEMBERS.

14.2 IP Review

14.2.1 Periodic IP Review

In accordance with the SNIA IP Policy, SNIA shall have periodic Intellectual Property reviews of technical material designated as being *SNIA Work-in-Progress*. It is the objective of the SNIA IP Policy to have such technical material reviewed in order to have any potential intellectual property (Essential Claims) identified at the earliest possible time. The SNIA IP Policy states that these periodic Intellectual Property reviews should take place at least once every 6 months.

Periodic IP Reviews shall be conducted in accordance with the SNIA IP Policy and its requirements. During a Periodic IP Review, the technical material designated as currently being on a SNIA Architecture or SNIA Software path (SNIA Work-in-Progress) shall be made available for IP Review to the MEMBERS. The SNIA Board shall issue a Call for IP Disclosure to start each Periodic IP Review.

The process for handling Periodic IP Reviews for SNIA Architecture and Document Technical Work is addressed in section 10.6.2.2, and the process for handling Periodic IP Reviews for SNIA Software Technical Work is addressed in section 11.4.3.1.

14.2.2 Final IP Review

In accordance to the SNIA IP Policy, technical material that is undergoing final approval as SNIA Architecture or SNIA Software shall also be provided to the MEMBERS for IP Review.

14.2.3 IP Review follow-up

In those cases where IP Reviews yield Essential Claims with which the SNIA technical material may conflict, the developing TWG shall work with the TCMD and the TC on ways to address the situation.

15 SNIA Web Site

15.1 TWG Online Status

Part of a TWG Chair's responsibility shall be to ensure that the SNIA web site contains current information about their TWG. The TWG Chair, with the assistance of the TWG Secretary (if one exists), shall be responsible for making sure that the following are up to date and available on their TWG's section of the SNIA web site:

- TWG's Mission and Charter
- Program of Work and its current status
- Contact information for Chair(s), Secretary and Chairs of Subgroups
- Meeting Agendas
- Meeting Minutes
- Conference Call and Face to Face Meeting Schedule
- Completed Work Items

Contact the TCMD about how to update the SNIA web site.

15.2 Document Sharing

The SNIA Member web site allows documents and portions of each TWG's document folder structure to be shared with other SNIA groups. TWGs are hereby reminded that material not released outside of the TWG shall not be shared with other groups. A general guideline is to share documents and folders only by exception, and with attention to the specific material being shared.

16 Technical Council Managing Director Communication

The TCMD represents all of the TWGs to the TC. Therefore, it is extremely important that the Chairs of all TWGs maintain an open communication channel with the TCMD, keeping the TCMD informed of progress, important issues and any roadblocks.

16.1 Required Notification

The TCMD shall immediately be notified of the following items:

- Un-invited non-SNIA member guest attendance at a TWG meeting (section 7.1.3)
- Guest attendance at a TWG meeting (section 7.7.2)

The TCMD shall be notified within 7 days in regard to the following items:

- New Subgroup Formation
- Creation or deletion of TWG Work Items (section 4.2)
- Completion of all TWG Work Items, leaving the TWG without any Work Items (section 4.2).
- Change in status of Chair or Co-Chairs in a TWG or any of its Subgroups.

17 Technical Work Group Reviews

TWGs are required to show evidence of ongoing merit and relevancy. The TCMD monitors TWGs and arranges for them to be reviewed by the TC when necessary. The TC will regularly review each TWG, typically at least once every 18 months, and may review any TWG at any time. TWG reviews are a normal part of TWG management. The TC may also review any TWG Subgroup.

The purpose of a TWG review is to:

- Verify that the TWG has been following the guidelines of its Charter.
- Verify that all in-progress deliverables are covered by a Work Item in its Program of Work.
- Verify that the TWG has been making progress on its Program of Work.
- Verify that everything in the TWG's Program of Work still has technical merit based upon the current status of the storage industry.
- Verify that the TWG is proceeding in accordance with all applicable policies and procedures.
- Look for ways that the TC may assist the TWG in its efforts.
- Update TC members as to the status and progress of the TWG.

Issues that may motivate a TWG review or be addressed during a regular TWG review include:

- Absence of approved Work Items. Without any approved Work Items, a TWG may be requested to define Work items or may be transitioned to the Dissolved State.
- Failure to meet regularly.
- Lack of participation. A TWG should have Representatives who regularly participate from at least three MEMBERS. Failure to meet this minimum level of participation should be reported to the TCMD by the TWG Chair or Co-Chair.

18 Policies and Guidelines for software development

The following are provided to establish direction and guidance for all software development within SNIA.

18.1 General Policies and Guidelines for all software development

The following guidelines apply to all software development within SNIA.

1. Existing, widely-accepted software licenses should be used; SNIA should avoid creating new software licenses.

18.2 Policies and Guidelines for all software development within TWGs

The following policies and guidelines apply to all software development within TWGs.

1. Adding software to an existing TWG: It should be understood that adding a SNIA Software Work Item to the Program of Work for an existing TWG may have implications for TWG membership, as this action requires that each TWG Member either agree to be bound by the SNIA IP Policy V3.0 or later or discontinue membership in the TWG immediately upon TC approval of the Work Item.
2. Source Code Control: The source code repository and source code control system for software development shall be provided by the TCMD. Specific requirements shall be identified as part of the Work Item proposal, negotiated with the TCMD, and then approved by the TC as part of the Work Item approval. Any exceptions shall be approved by the TC.
3. Proposed new Work Items for software development shall address all necessary personnel resources other than those provided by Representatives, all support needed from SNIA, where and how Builds and Testing will be performed, etc.
4. Proposed new Work Items for software development shall address the criteria and processes for assessing readiness for release of the proposed work.
5. Before a SNIA Software Work Item is approved for release, a post-release maintenance plan shall be approved by the TC.
6. In general, commercially friendly software licenses, such as BSD, are preferred as inbound and outbound licenses.

18.3 Policies and Guidelines for SNIA Software development

The following policies and guidelines apply to the development of SNIA Software.

In this section, the “associated Software TWG” is a TWG that will develop the offered software.

1. SNIA Software may not be developed except within TWGs.
2. The Charter of a TWG with a SNIA Software Work Item shall specify the software license(s) that the TWG is authorized to use as inbound licenses for Contributed Work (as defined in the SNIA IP Policy). This provision in the TWG’s Charter shall

be approved by both the TC and the SNIA Board. Software contributions by CLA Participants shall include one of the software licenses specified in the Charter.

3. The Charter of a TWG with a SNIA Software Work Item shall specify the software license(s) permitted for use as outbound licenses.
4. SNIA Software should not implement a non-SNIA Architecture based interface in preference to one based on SNIA Architecture. (See SNIA P&P)
5. No SNIA entity is allowed to provide or imply that SNIA will provide End User Support for SNIA Software (See SNIA P&P). The TC interprets this to mean that SNIA shall not provide to IT users any problem diagnosis, timely correction of problems, training or education related to SNIA Software. SNIA may accept problem reports from anyone to whom SNIA materials have been released.
6. SNIA may entertain offers of software from SNIA members outside of the context of those MEMBERS working in a TWG with a charter that includes creating SNIA Software. This software may only be accepted by SNIA as a Contribution (as defined by the SNIA IP Policy) accompanied by a SNIA Software Contribution agreement.

Specifically, a SNIA Software Contribution agreement is needed when:

- a) A SNIA member (who could also be a member of the associated Software TWG) contributes software that was completely developed independently of the TWG. This software is considered Contributed Work, so the member shall sign the agreement.
 - b) Two or more members of the associated Software TWG contribute co-authored software that was completely developed independently of the TWG. This is considered Contributed Work, so all contributing members shall sign the agreement.
 - c) Two or more SNIA members contribute co-authored software, but at least one of the members is not a member of the associated Software TWG. This is considered Contributed Work, so all contributing members shall sign the agreement.
7. MEMBERS developing and offering software within the context of a TWG with a charter that includes creating SNIA Software are offering Single Work and Joint Work (as defined by the SNIA IP Policy). In this case, the legal necessities and constraints have already been addressed through those MEMBERS joining the TWG and having met all of the pre-requisite obligations.

Specifically, this case applies and NO SNIA Software Contribution Agreement is needed when any of the following occur:

- a) A member of the associated Software TWG contributes software that was completely or partially developed to meet the requirements of the TWG. This software is considered Single Work, so the member does not need to sign the agreement;

- b) A member of the associated Software TWG contributes software that was completely developed independently of the TWG, but modified for the TWG. This software is considered Single Work, so the member does not need to sign the agreement;
- c) A member of the associated Software TWG contributes software that was partially developed independently of the TWG and partially developed to match the requirements of the TWG. This software is considered Single Work so the member does not need to sign the agreement;
- d) Two or more members of the associated Software TWG contribute co-authored software that was completely or partially developed to meet the requirements of the TWG. This software is considered Joint Work, so the members do not need to sign the agreement; or
- e) Two or more members of the associated Software TWG contribute co-authored software that was completely developed independently of the TWG, but modified for the TWG. This software is considered Joint Work, so the members do not need to sign the agreement.

18.4 Policies and Guidelines for Other Software development

Policies and procedures for other software Technical Work are not yet defined, and other software Work Items are not allowed at this time.

19 SNIA Resources for TWGs

SNIA makes certain resources available to TWGs.

19.1 Email Reflectors

Each TWG is provided with an email reflector to conduct TWG business. Each TWG's email reflector is available only to its members.

All TWG email reflectors shall be hosted by SNIA so that they are able to be properly archived and linked to the SNIA web site.

19.2 Web Site Area

Each TWG is provided with its own area in the Members Only section of the SNIA web site (TWG area of the SNIA Member web site). All TWG Chairs are responsible for reviewing their TWG's web site area on a periodic basis for correctness, and for reporting all necessary updates to the TCMD.

19.3 Conference Call Resources

Each TWG is provided with a SNIA Zoom account for its use.

19.4 SNIA Staff Support

Any TWG request for assistance from SNIA Staff should start with the TCMD, tcmd@snia.org.

19.5 Technical Council

The TC maintains an open door policy. TWG Chairs are encouraged to seek advice and guidance from the TC whenever they feel the need. This may include early reviews of Working Drafts and other Technical Work.

19.6 Feedback Portal

SNIA provides a web-based [SNIA Feedback Portal](#) for the purpose of receiving feedback on SNIA specifications and software. The portal includes the necessary intellectual property protections that make it possible for non-SNIA and non-TWG Members to provide feedback while protecting SNIA, the MEMBERS, and SNIA standardization activities.

19.7 Project Repositories

SNIA can provide GitHub project repositories to TWGs, as needed. A TWG may request one or more GitHub project repositories, as needed, through the TCMD. Normally, repositories are accessible only to Representatives. A TWG may request through the TC that a repository be accessible outside of the TWG.

19.8 CLA Project Repository

The TCMD will provide a CLA Project Repository for each CLA Project Work Item. A CLA Project Repository is readable by the world. A CLA Project Repository is writable by the Chair(s) of the TWG responsible for the associated CLA Project Work Item.

19.9 Docker Hub Repository

The TCMD will provide a Docker Hub upon request by a TWG.

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