Development Process

Revision 1.0

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Purpose and Scope

This document describes the Development Process for the Eclipse Foundation. In particular, it describes how the Membership at Large, the Board of Directors, other constituents of the Ecosystem, and the Eclipse Management Organization (EMO) lead, influence, and collaborate with Development Teams to achieve our vision for the Eclipse Platform. As described in the Purposes article of the Bylaws, the Eclipse technology is a vendor-neutral, open development platform supplying frameworks and exemplary, extensible tools (the "Eclipse Platform"). Eclipse Platform tools are exemplary in that they verify the utility of the Eclipse frameworks, illustrate the appropriate use of those frameworks, and support the development and maintenance of the Eclipse Platform itself; Eclipse Platform tools are extensible in that their functionality is accessible via documented programmatic interfaces. The purpose of the Eclipse Foundation is to advance the creation, evolution, promotion, and support of the Eclipse Platform and to cultivate both an open source community and an ecosystem of complimentary products, capabilities, and services.

While this document does impose requirements and constraints on the operation of Development Teams, the Development Process does not describe the internal operation of those teams, which is governed by the Project Charter.

This document has 4 sections:
1. Terminology and Structure, describing the structures and relationships used in developing the Eclipse Platform,
2. Roadmap Process, describing what the Roadmap is, and how it is evolved, maintained, and publicized,
3. Project Lifecycle, describing Project creation and development,
4. Use cases, describing several key scenarios.

The appendix includes a Glossary of all of the terms used in the document.

As specified in the Bylaws, the EMO is responsible for maintaining this document; the Board must approve revisions in accordance with the Bylaws. The EMO is further responsible for ensuring that all plans, documents and reports produced in accordance with this Development Process be made available to the Membership at Large via an appropriate mechanism in a timely, effective manner.

1. Terminology and Structure

The Development of the Eclipse Platform is organized into a set of **Top Level Projects**, each of which may contain one or more **Projects**. Each Project coordinates work on one or more **Subsystems**. Each Top Level Project has a **Charter** and is managed by a **Project Management Committee (PMC)**. The Charter describes the purpose, scope, and operational rules for the Top Level Project. The Board approves these Charters as part of the Top Level Project approval. The EMO recruits a **PMC Lead** who forms the PMC. PMCs are expected to ensure that

- All Projects operate effectively by providing leadership to guide the Project's overall direction and by removing obstacles, solving problems, and resolving conflicts.
- All Project plans, technical documents and reports are publicly available
- All Projects operate using open source rules of engagement: meritocracy, transparency, and open participation. These principles work together. Anyone can participate in a Project. This open interaction, from answering questions to reporting bugs to making code contributions to creating designs, enables everyone to recognize and utilize the contributions.

The EMO establishes three councils to facilitate Development: a **Requirements Council**, an **Architecture Council** and a **Planning Council**. The EMO appoints a **Requirements Council Chair**, an **Architecture Council Chair** and a **Planning Council Chair**. Each Strategic Developer and Each Strategic Consumer appoint a **Requirements Council Representative**. Each PMC appoints an **Architecture Council Representative** and a **Planning Council Representative**. The EMO can optionally appoint additional individuals to the Architecture Council or the Planning Council, as it deems appropriate. All Strategic Consumers (as a group) are entitled to one representative on the Architecture Council and one representative on the Planning Council; these representatives are selected by a vote of all Strategic Consumers. If a Strategic Developer is not leading a PMC and none of its employees have been appointed to the Architecture Council, then that Strategic Developer may designate a representative to the Architecture Council; if a Strategic Developer is not leading a PMC and none of its employees have been appointed to the Planning Council, then that Strategic Developer may designate a representative to the Planning Council. Any Strategic Consumer with 8 or more developers working full-time on Eclipse Projects and not leading a PMC may designate one representative to the Architecture Council if none of its employees have been appointed to that council, and may designate one representative to the Planning Council if none of its employees have been appointed to that council; such representatives may remain on their respective councils as long as the Strategic Consumer continues to provide 8 or more developers working full-time on Eclipse Projects.

There will always be more requirements than resources to satisfy them:

- Requirements that advance the Eclipse Foundation towards the achievement of its Purposes

- Requirements that advance specific Projects

- Requirements that satisfy the needs of the Membership at Large

- Requirements that grow the Ecosystem

The Requirements Council reviews and categorizes all of these incoming requirements – from all residents of the Ecosystem – and proposes a coherent set of **Themes and Priorities** that will drive the Roadmap.

The Architecture Council is responsible for development, articulation and maintenance of the Eclipse Platform Architecture. This Council is responsible for providing an explicit description of the architecture and syndicating this description among the Development Teams, thereby protecting the architecture from inadvertent corruption. The Architecture Council is also responsible for plotting the evolution of the Architecture in response to the Purposes and Roadmap, which is captured in an **Architecture Plan**. Policies established by the Architecture Council are limited to the domain of architecture, e.g. the identification of immutable interfaces; while the Architecture Council may provide input to the Platform Release planning process, it is generally not involved in strategy.

The Planning Council is responsible for establishing a coordinated **Platform Release Plan** that supports the Roadmap, producing and maintaining a Platform Release Plan that balances the many competing requirements. The Platform Release Plan enumerates the themes and priorities of the release, and contains each **Project Plan**. The Planning Council discharges its responsibility via collaborative evaluation, prioritization, and compromise.

Each Project has a **Development Team**, led by a **Project Lead** (a member of the Development Team appointed by the PMC). The Development Team is composed of **Developers** and **Committers**. Developers are individuals who contribute code, fixes, tests, documentation, or other work that is part of the Project. Committers have write access to the source code repository for the associated Project and are expected to influence the Project's development. When a Project is created, its Project Lead nominates an initial set of Committers for approval by the EMO. Developers who make frequent and valuable contributions to a Project can be promoted to Committer. The breadth of a Committer's influence corresponds to the breadth of their contribution. A Development Team's Developers and Committers may come from many organizations.

PMC Lead, Project Lead, Architecture Representative, and Planning Representative are roles; an individual may take on more than one of these roles simultaneously.

Strategic Developers are required to lead at least one Project, and encouraged to lead a PMC. However, the EMO may approve any qualified individual to lead a PMC, and PMCs may approve any qualified individual to lead a Project.

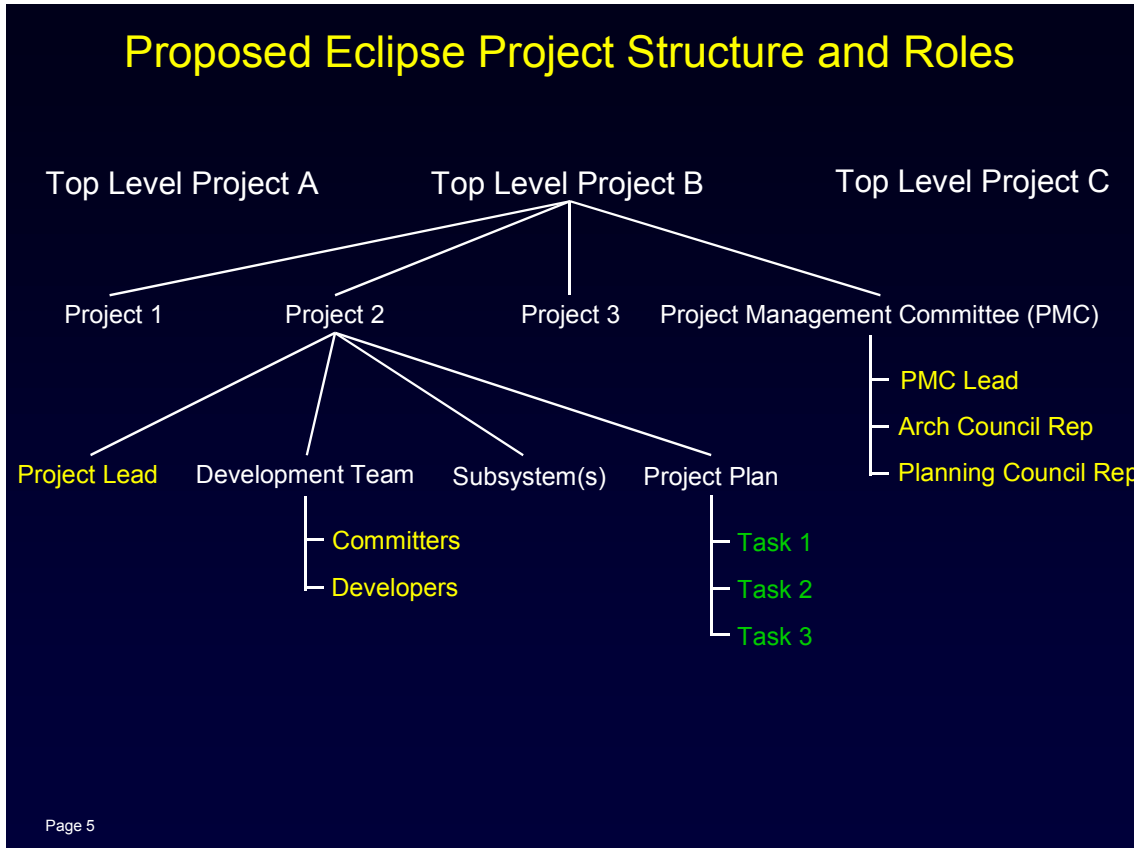Figure 1 depicts the relationships described above.

Proposed Eclipse Project Structure and Roles

Top Level Project A   Top Level Project B   Top Level Project C

Project 1   Project 2   Project 3   Project Management Committee (PMC)

PMC Lead
Arch Council Rep
Planning Council Rep

Project Lead   Development Team   Subsystem(s)   Project Plan

Committers
Developers

Task 1
Task 2
Task 3

Figure 1. Eclipse Project Structure and Roles

2. Roadmap Process

This section defines the contents of the Roadmap, and the process by which the Roadmap is created, updated, publicized, and executed.

The Roadmap process includes the following steps:

1. The Purposes are established in the Bylaws. The Membership at Large approves updates to the Purposes.

2. The EMO proposes an initial Roadmap or Roadmap update consistent with the Purposes.

3. The Board of Directors approves the Roadmap.

4. With the support of EMO project management, Development Teams work to the Roadmap.

Creating or updating the Roadmap begins with the Requirements Council proposing a set of Themes and Priorities that realize the Purposes and that respond to requirements elicited from the Strategic Developers, Strategic Consumers, Add-in Providers, and other constituents of the Ecosystem. After review by the Board of Directors, these Themes and Priorities are provided as input to the Architecture Council and the Planning Council. The EMO ensures that the Planning Council and the Development teams have access to all requirements. Updates to the Purposes are likely to require updates to the Roadmap and its associated themes and priorities; proposed Roadmap updates may also be motivated by new technologies or opportunities.

The process of producing or updating the Roadmap is expected to be iterative. An initial set of Themes and Priorities may be infeasible to implement in the desired timeframe; subsequent consideration may reveal new implementation alternatives or critical requirements that alter the team's perspective on priorities. The EMO orchestrates interaction among and within the three Councils to drive the Roadmap to convergence.

Whether the Roadmap is being initially proposed or incrementally updated, the following plans are collaboratively produced:

- The Architecture Council produces an Architecture Plan that describes the architecture changes required to achieve these themes and priorities, or required to maintain long-term architectural viability.

- The Planning Council produces a Platform Release Plan that defines a sequence of Releases in terms of their constituent Project Plans. The Platform Release Plan describes the themes and priorities that focus these Releases, and orchestrates the dependencies among Project Plans.

- Each Project Lead with their Development Team produces a Project Plan containing an enumeration of Tasks to be completed for each proposed Release.

The Architecture Plan describes

- Changes to architectural interfaces, the impact of these changes, and the order in which these changes should be implemented

- New Subsystems that should be created

- Subsystems that should be combined

- Conformance with industry standards

Each Project Plan meets the following criteria:

- Conforms to the Architecture Plan

- Consistent with the priorities and themes of the Roadmap

- Accommodates cross-project dependencies

- Addresses requirements critical to the Ecosystem and/or the Membership at Large

- Advances the Project in functionality, quality, performance

A proposed Roadmap or Roadmap update is disseminated to the Membership at Large for comment and feedback in advance of its adoption. Prior to any Board vote to approve a Roadmap or Roadmap update, every Member has the right to communicate concerns and objections to the Board.

If acceptable, the Board approves the Roadmap.

Each Development Team is responsible for

- Producing high quality Subsystems

- Achieving their Project Plan

Maintaining consistency with the Architecture

- Providing publicly available status

A Project Lead is expected to work to the Project Plan, and ensure that all plans, technical documents and reports are publicly available. A Project Lead can incrementally revise their Project Plan to deliver additional Tasks provided:

- The approved Roadmap is not put in jeopardy

- The work is consistent with the Project Plan criteria (described above)

3. Project Lifecycle

To ensure transparency and predictability, each Project sequences through a series of **Phases**, with well-defined **Phase Transition Reviews**:

- a Proposal Phase that is initiated by a Declaration and culminates in a Creation Review,
- a Validation phase that culminates in a Checkpoint review, and
- an Implementation phase that culminates in a Release review.

Figure 2 provides a graphical depiction of the Project Lifecycle.

The EMO appoints a **Review Lead** for each Review. A Project's PMC Lead takes an active role in its reviews (and may be the Review Lead). The Membership at Large is notified of reviews beforehand; every Member has the right to participate in any review in order to better understand the state of the Project and offer constructive feedback.
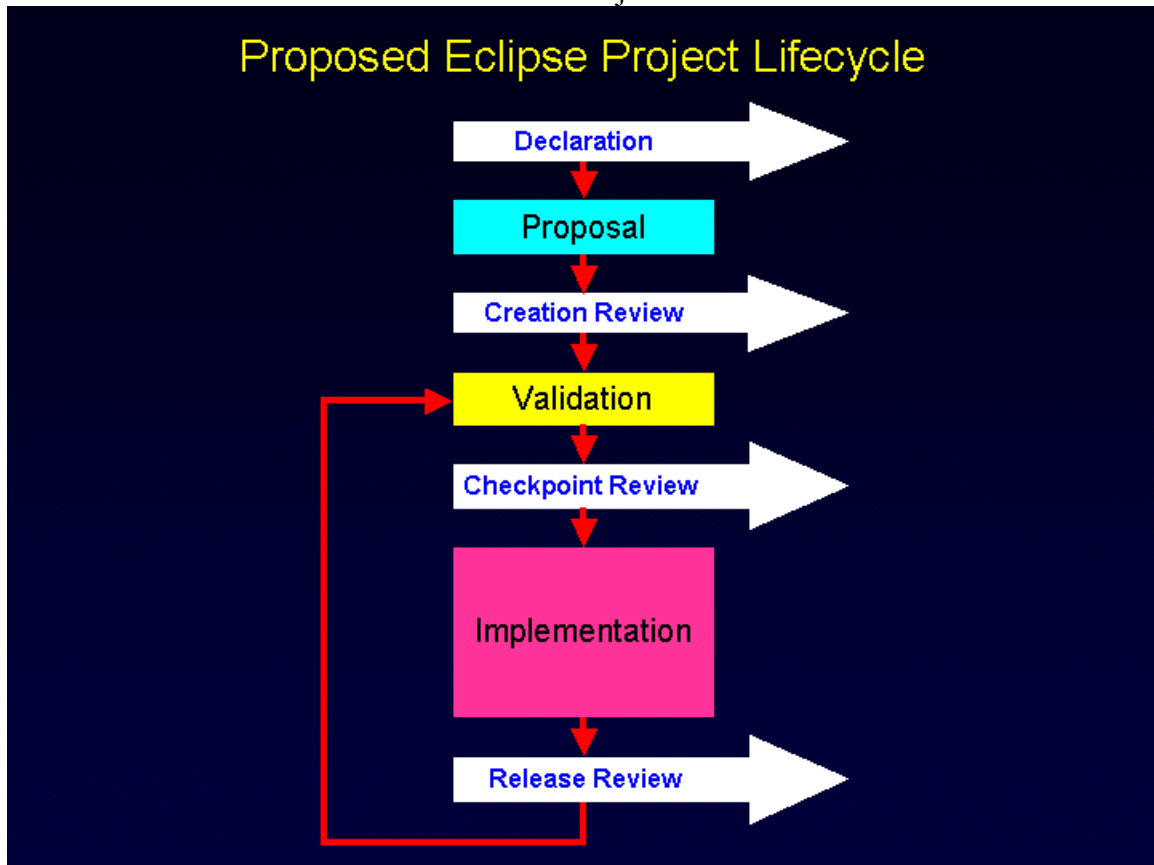

Figure 2. Project Lifecycle

Following is a description of the Phases and transitions between Phases.

Proposal Phase

The **Proposal Phase** is initiated by a **Declaration**. This simply requires an individual to declare their interest in and rationale for establishing a Project. The Declaration provides a statement of the Project parameters in general terms. The EMO makes the Declaration available to the Membership at Large.

During the Proposal Phase, the initiating individual works with the appropriate PMC (or for Top Level Projects, the EMO) and interested parties to produce a **Project Proposal**. The following actions are representative of what takes place in the Proposal Phase.

- Define Project name, goal, and description

- Choose a top-level project home

- Define the Project's scope in terms of explicit inclusions and explicit exclusions

- Identify all new intellectual property that may be added to the Eclipse Platform during the Project

- Engage the Membership at Large and the Ecosystem to solicit additional Project participation (candidate Leads, Committers, and Developers) and ways the Project can be leveraged.

For a proposed new Top Level Project, additional steps must be taken, including:

- Write a Project Charter

- Recruit a PMC Lead

The EMO may define additional Project creation guidelines to help direct Project proposals.

The Proposal Phase culminates with a **Creation Review**. Prior to this review, the Proposal is disseminated to the Membership at Large for comment and feedback. During this review, the Proposal is presented and discussed. This review provides an opportunity for Members to identify any intellectual property they may have that may be infringed/misappropriated by the Project without a license to that intellectual property.

If a new Top Level Project is being proposed and the EMO is satisfied with its Creation Review, the EMO asks the Board to approve the Project, its proposed Charter, and it's proposed PMC Lead. Prior to any Board vote to approve a new Top Level Project Proposal, every Member has the right to communicate concerns and objections to the Board. The Board may approve a Top Level Project that is consistent with the Purposes and not in conflict with the Roadmap. If the proposed Top Level Project is inconsistent with the Purposes, then the Board may either reject the proposal or propose an extension of the Purposes to the Membership at Large.

If a new Project is being proposed and the PMC is satisfied with its Creation Review and its proposed Project Lead, the PMC asks the EMO to approve the Project. The EMO may approve a Project that is consistent with the Top Level Project's Charter. If the proposed Project is inconsistent with the Top Level Project's Charter, then the EMO may either reject the Proposal or propose an extension of the Charter to the Board, which would then determine whether or not to approve the extension. The EMO may not approve any Project that is inconsistent with the Purposes. If any Member believes that the EMO has acting incorrectly in approving or rejecting a proposed Project, that Member may appeal to the Board to review the EMO's decision.

Once the Project is approved,

- The Project Infrastructure is established

- The PMC nominates the initial Committers for approval by the EMO

For newly approved Top Level projects, the new PMC Lead also appoints an Architecture Council Representative and a Planning Council Representative.

At this point, the project transitions to the **Validation Phase.**

Validation Phase

During the Validation Phase, high level designs, prototyping, and other exploratory tasks are undertaken to achieve confidence that the Project can be successfully completed. While research-oriented projects may remain in the Validation Phase indefinitely, the responsible PMC must internally review such Projects no less than annually.

The following actions are representative of what takes place in the Validation Phase:

- Review code contributions to select initial code base

- Identify critical use cases

- Produce a high level design

- Investigate and prototype high uncertainty areas to reduce risk

- Acquire the necessary rights to all required intellectual property

- Produce a Project Plan

The Validation Phase culminates in a **Checkpoint Review**. This review is used to confirm that the Project has a plan to achieve its objectives, to verify that all intellectual property rights issues have been resolved, and to ensure the Project is consistent with the

expectations established in the Project Proposal. This review provides a further opportunity for Members to identify any intellectual property they may have that may be infringed/misappropriated by the Project without a license to that intellectual property. If the EMO is satisfied with the Checkpoint Review, the EMO makes the Project Plan public, and the Project moves into the **Implementation Phase**.

Implementation Phase

The majority of a Project's design and implementation work is accomplished during its Implementation Phase. The implementation of each Project is undertaken by its Development Team in coordination with its PMC. Development Team's are expected to provide ongoing status. The EMO provides overall coordination, monitors progress against Project Plan milestones, resolves issues involving dependencies between Projects, and publicizes all plans, documents, reports, and interactions to the Membership at Large.

The Implementation Phase culminates with a **Release Review**. The Release Review is conducted before each major release to verify that the key goals of the release have been accomplished and to verify that all intellectual property rights issues have been resolved. The review is conducted sufficiently before the target release date to allow time to respond to feedback. If the Project plans to follow this release with a successor, the Release Review should be used to air the new Project Plan and verify its consistency with the Purposes and Roadmap; if approved, the EMO will make the new Project Plan public.

If the EMO is satisfied with the Release Review, two things occur. First, the Project will proceed to produce its release. Second, the project transitions to the Validation phase to evaluate objectives for the next release.

4. Use cases

The following section enumerates several use cases and their resolution.

1. Roadmap Failure
If the EMO (with input from the Requirements, Planning, and Architecture Councils) concludes that the approved Roadmap is not achievable, then the Roadmap Process is restarted.

2. Project Creation (Emergent Project)
An individual brings a project idea forward to the appropriate PMC or if unknown, the EMO. This Declaration commences the Project Lifecycle phases. The PMC (or for Top Level Projects, the EMO) works with this individual to produce a satisfactory proposal (Proposal phase). Anyone in the Membership at Large can provide feedback on the proposal during the Creation Review. After approval (by the Board for a compliant Top Level Project Proposal, by the EMO for a compliant Project Proposal) the Project is created. The PMC nominates the Project Lead and the initial Committers for EMO approval, in accordance with the Project's Charter.

2.1. Project Creation (Project Proposal by Strategic Developer).
This is identical to case 2, but here the Declaration is brought forward by a Strategic Developer.

2.1.1. Collision
This is similar to case 2.1, but here a Strategic Developer is offering to take a leadership role in an existing Project. To resolve this apparent conflict, the EMO works with the Strategic Developer and the PMC for the existing Top Level Project to move forward. There are several possible outcomes, including:

a. The Strategic Developer assigns Developers to work on the existing Project. When a new Developer establishes his or her expertise, the existing Committers approve the new Developer as a Committer. Over time the PMC may appoint a new Project Lead in order to reflect the new composition and direction of the Development Team.

b. The existing Project is terminated, and a new Project is established led by the Strategic Developer. This is a traditional Project "reboot" and could occur if the new approach is significantly different that the previous. The various parties involved would determine if it made sense to transition the existing Committers and Developers to the new Project.

3. Project Reorganization
A Project may desire to split part of its work off into a new Project. When this occurs, the EMO works with the PMC for the existing Project to establish the new Project Lead. Both of the resulting Projects must produce a publicly available Project Plan for review by the EMO. Unless these plans reveal a conflict with the Roadmap or Purposes, no further action is required.

3.1. Project Migration
Over time, it may become clear that a Project would be better served in another Top Level Project. When this is the case the two involved PMCs together with the EMO collaborate to enable this transition.

3.2. Project Promotion
A project has been established as part of an existing Top Level Project, but has grown to a point where it needs its own PMC. The EMO works with the existing PMC to promote this project to a Top Level Project, creating a charter, and establishes a PMC (See PMC establishment).

4. PMC establishment
The EMO recruits a PMC Lead for Board approval. The PMC Lead appoints other individuals to the PMC as appropriate, and determines the Architecture Council Representative and Planning Council Representative.

5. PMC Lead replacement

If the PMC Lead position is vacant, the EMO is responsible for recruiting a replacement. If the PMC Lead is not doing a satisfactory job, the EMO can replace the PMC Lead with Board approval.

6. Project Lead replacement

If the Project Lead position is vacant, the PMC is responsible for finding a replacement. If the Project Lead is not doing a satisfactory job, the PMC can replace the Project Lead in accordance with the Project's Charter. (For a Top Level Project, see PMC Lead replacement)

7. Grievance handling

The following use cases describe how a Member can escalate a concern to the EMO regarding Projects that they consider to be acting in an inappropriate manner. If necessary, a Member can appeal any EMO decision to the Board.

7.1. Out of Scope

It's alleged that a Project is exceeding its approved scope. The EMO chairs a review and decides whether the Project is out of scope. If the Project is out of scope, the EMO works with the Project's PMC to either bring the work back into scope, or redefine the scope (without sacrificing consistency with the Roadmap and Purposes).

7.2. Inconsistent with Purposes

It's alleged that a Project is inconsistent with the Roadmap and/or Purposes This would normally occur during a Creation Review or Checkpoint Review. The EMO decides whether the Project is consistent with the Roadmap and Purposes. If inconsistent, the Project is not approved.

7.3. Dysfunctional

It's alleged that a Project is not functioning correctly. The EMO and the PMC work together with the Project Lead to get the Project back on track. If the PMC cannot get the Project working effectively, the EMO can terminate the Project.

8. Developer Participation

A Developer would like to become part of a Development Team. The Development Team uses open source rules of engagement, including open participation. The Developer should offer their help to the Development Team, either in a general way or a specific way to Committers on the Project.

9. Developer Promotion (to Committer)

A Developer who has made significant contributions to a project can be promoted to Committer. For this to occur,

    a. Existing Project Committers vote to nominate the Developer using rules established in the Project Charter
    b. The PMC approves the nomination

The approved Committer signs the Committer Agreement established by the EMO. This Agreement records that the Committer will comply with the IP Policy.

10. Developer Appeal

New Committers are voted in by a Project's existing Committers. This principle is guaranteed under Project Charters and must not be violated. If a potential Committer feels that they are not being treated equitably, they can appeal to the Project Lead and the PMC (and if that is not successful, they can escalate to the EMO, and the Board). The Project Lead and the PMC can attempt to resolve or explain the situation; in extreme cases, the Board can reboot a Project (thus resetting the initial set of Committers) or terminate the Project altogether.

11. Committer Termination

A Committer who is inactive or disruptive can have their commit rights removed by the Project's PMC in accordance with the Project's Charter.

Appendix

Glossary

Architecture: An enumeration of the Subsystems and a description of their public Interfaces.

Architecture Council: A group responsible for defining, maintaining and enhancing the Architecture, and ensuring its integrity.

Architecture Council Chair: An individual appointed by the EMO who leads the Architecture Council and conducts its meetings.

Architecture Council Representative: An individual appointed by a PMC to represent its Top Level Project on the Architecture Council, or appointed by a Strategic Developer or Strategic Consumer that qualifies for Architecture Council representation.

Architecture Plan: A document that describes the Architecture's evolution to address the Roadmap's themes and priorities.

Board: The Eclipse Foundation's Board of Directors.

Checkpoint Review: The Phase Transition Review after the Validation Phase. A successful review reflects that the technical uncertainties are now sufficiently resolved, and there is a credible plan in place to deliver (see Project Lifecycle).

Committer: A Developer with write access to the source code repository. This position reflects a track record of high quality contributions.

Creation Review: The Phase Transition Review conducted after the Proposal phase. A successful review enables the Project to be established (see Project Lifecycle).

Declaration: The initial step in establishing a Project (see Project Lifecycle).

Developer: An individual who provides code contributions, fixes, tests, documentation, or other work that is part of the Project.

Development Team: The Developers and Committers who work on a Project.

Eclipse Management Organization (EMO): A professional management team responsible for achieving the Eclipse Foundation Purposes by evolving and executing the Roadmap through coordination and support of the PMCs and Projects.

Implementation Phase: The Project Phase in which the majority of a Project's design and implementation work is accomplished. (See Project Lifecycle).

Project Charter: A document defining the rules by which Project operates.

Project Phase: A step in the Project Lifecycle. The phase starts and ends with successful Project Reviews. (See Project Lifecycle).

Phase Transition Review: A review conducted at the end of a Project Phase to determine if a Project is ready to transition to the next Project Phase.

Planning Council: A group responsible for establishing a coordinated Platform Release Plan.

Planning Council Chair: An individual appointed by the EMO who leads the Planning Council and conducts its meetings.

Planning Council Representative: An individual appointed by a PMC to represent its Top Level Project on the Planning Council, or appointed by a Strategic Developer or Strategic Consumer that qualifies for Planning Council representation.

Platform Release Plan: A document describing the themes and priorities that focus a sequence of Releases, and defines these Releases in terms of their constituent Project Plans.

PMC Lead: An individual responsible for coordinating PMC activities.

Project: An organizational structure comprised of a Project Lead and a Development Team that is responsible for advancing one or more Subsystems

Project Management Committee (PMC): A group responsible for managing a Top Level Project and its constituent Projects

Proposal Phase: The Project Phase during which a new Project's goals and scope are established. (See Project Lifecycle).

Project Lead: An individual responsible for ensuring that his or her Project delivers on their responsibilities

Project Plan: A document enumerating and describing the Tasks to be completed by a Project for a given Release.

Project Proposal: A document that describes Project goals, scope, and context. (See Proposal Phase)

Purposes: The long-term objective of the Eclipse Platform, as described in Article 1 of the Eclipse Foundation Bylaws.

Release: A labeled version of the Platform that achieves the goals established in the Platform Release Plan

Release Review: A Phase Transition Review conducted after the Implementation phase that, if successful, enables the Project to be released (see Project Lifecycle).

Requirements Council: a group that reviews and categorizes incoming requirements, and proposes a coherent set of **Themes and Priorities** that will drive the Roadmap.

Requirements Council Chair: An individual appointed by the EMO who leads the Requirements Council and conducts its meetings.

Requirements Council Representative: an individual appointed by a Strategic Consumer or Strategic Developer to participate in the Requirements Council.

Review Lead: An individual appointed by the EMO to conduct a Phase Transition Review.

Roadmap: A document describing the planned evolution of the Eclipse Platform, comprising an Architecture Plan and a Platform Release Plan.

Subsystem: A well-defined modular component of the Architecture.

Task: A specific work item in a Project Plan.

Top Level Project: A grouping of one or more related Projects, managed by a PMC.

Validation Phase: A Project Phase during which high level designs, prototypes, and other exploratory tasks are undertaken to achieve confidence that the Project can achieve its objectives. (See Project Lifecycle).