



IEEE  
Computational  
Intelligence  
Society

# XES Standard

**Felix Mannhardt, Eric Verbeek**

# Standardization Process

1. Find Sponsor: July 13<sup>th</sup>, 2014
  - Webinar on XES: June 20<sup>th</sup>, 2014



# Standardization Process

1. Find Sponsor: July 13<sup>th</sup>, 2014 ✓
2. Initiating the Project
  - Sponsor submits PAR: February 11<sup>th</sup>, 2015
  - IEEE SA accepts PAR: March 26<sup>th</sup>, 2015



# Active Project



The screenshot shows the IEEE Standards Association website for project P1849. The browser address bar is highlighted with a blue box containing the URL: <https://standards.ieee.org/develop/project/1849.html>. The page title is "IEEE PROJECT P1849 - Standard for XES - eXtensible Event Stream - For Achieving Interoperability in Event Logs and Event Streams". The status is "Active Project". The page includes a "RELATED MATERIALS" section with a link to "Approved PAR" dated "March 26, 2015". A "Standards Help" section mentions "IEEE-SA Standards Development Services are proven to expedite the process by 40%". The "Working Group" is "XES WG - eXtensible Event Stream Working Group", the "Sponsor" is "CIS/SC - Standards Committee", and the "Society" is "CIS - IEEE Computational Intelligence Society". A "Get Involved In The Development Of This Standard" section includes contact information for Michael Kinross and links for "Learn More About Standards Participation" and "Become a Member and Ballot on this Standard". The footer contains copyright information for 2015 IEEE and a "Feedback" button.

IEEE SA - P1849 - Standard ... x +  
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IEEE PROJECT  
P1849 - Standard for XES - eXtensible Event Stream - For Achieving Interoperability in Event Logs and Event Streams

RELATED MATERIALS  
[Approved PAR](#) + 1  
March 26, 2015

STATUS:  
Active Project

Standards Help  
IEEE-SA Standards Development Services are proven to expedite the process by 40%. [Click here to learn more!](#)

Working Group: [XES WG - eXtensible Event Stream Working Group](#)  
Sponsor: [CIS/SC - Standards Committee](#)  
Society: [CIS - IEEE Computational Intelligence Society](#)  
July 13, 2014

Get Involved In The Development Of This Standard

Contact the IEEE-SA Liaison  
Simply click here to voice your interest. [Michael Kinross](#)

Learn More About Standards Participation  
Anyone can participate, there are a variety of programs and services to facilitate the involvement of industry and the public. [More](#)

Become a Member and Ballot on this Standard  
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Feedback

# Project Scope

- Defines a grammar for event logs and event streams
- Includes two XML Schema's
  - XES event log/stream
  - Extension of such a log/stream
- Includes basic extensions



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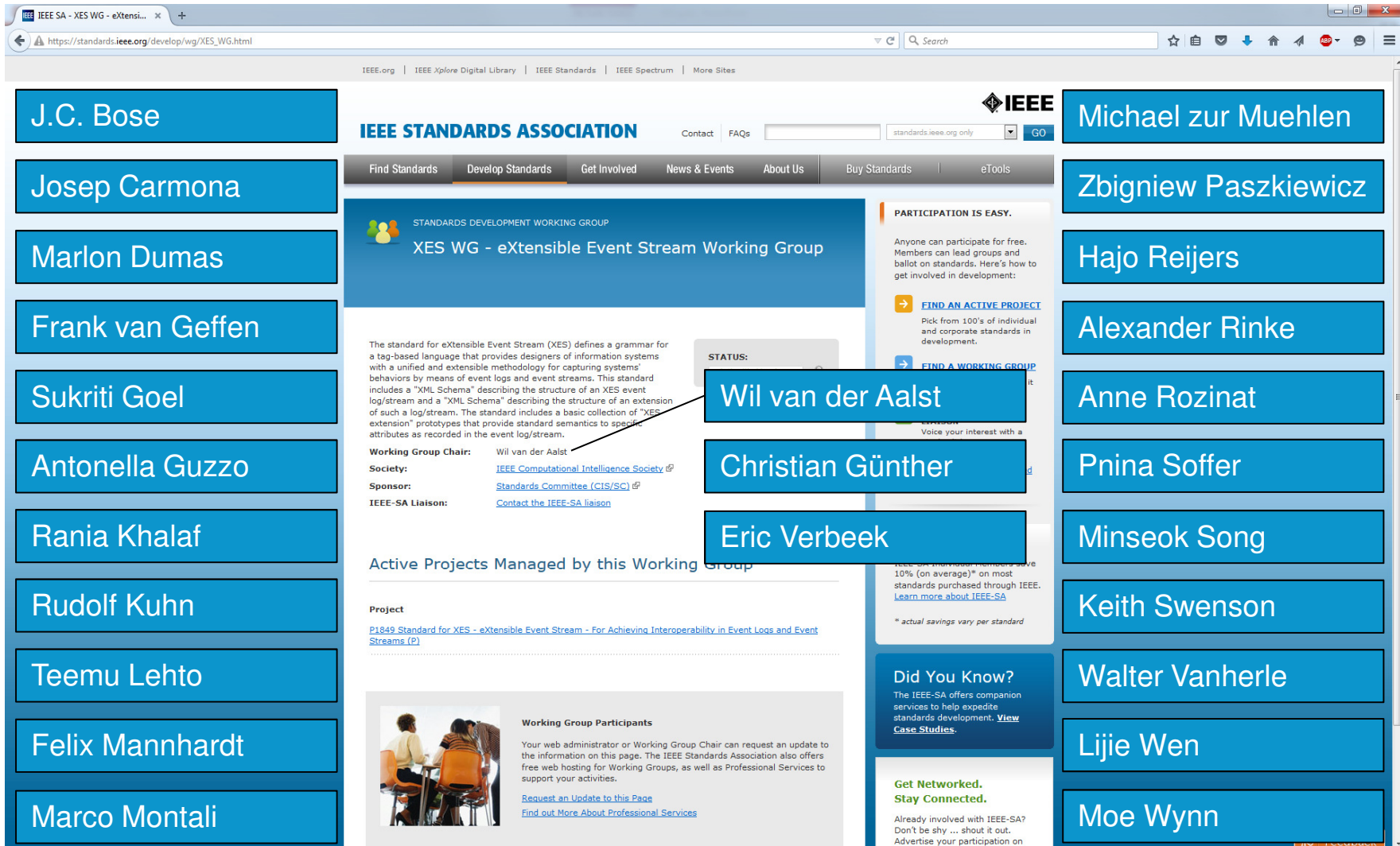


# Standardization Process

1. Find Sponsor: July 13<sup>th</sup>, 2014 ✓
2. Initiating the Project ✓
3. Working Group Operations
  - Form Working Group: August 22<sup>nd</sup>, 2015



# Working Group



IEEE SA - XES WG - eXtensi... x +

https://standards.ieee.org/develop/wg/XES\_WG.html

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STANDARDS DEVELOPMENT WORKING GROUP  
**XES WG - eXtensible Event Stream Working Group**

**PARTICIPATION IS EASY.**  
Anyone can participate for free. Members can lead groups and ballot on standards. Here's how to get involved in development:  
→ **FIND AN ACTIVE PROJECT**  
Pick from 100's of individual and corporate standards in development.  
→ **FIND A WORKING GROUP**  
Voice your interest with a

The standard for eXtensible Event Stream (XES) defines a grammar for a tag-based language that provides designers of information systems with a unified and extensible methodology for capturing systems' behaviors by means of event logs and event streams. This standard includes a "XML Schema" describing the structure of an XES event log/stream and a "XML Schema" describing the structure of an extension of such a log/stream. The standard includes a basic collection of "XES extension" prototypes that provide standard semantics to specific attributes as recorded in the event log/stream.

**STATUS:**

**Working Group Chair:** Wil van der Aalst  
**Society:** [IEEE Computational Intelligence Society](#)  
**Sponsor:** [Standards Committee \(CIS/SC\)](#)  
**IEEE-SA Liaison:** [Contact the IEEE-SA liaison](#)

**Active Projects Managed by this Working Group**

**Project**  
[P1849 Standard for XES - eXtensible Event Stream - For Achieving Interoperability in Event Logs and Event Streams \(P\)](#)

**Working Group Participants**  
Your web administrator or Working Group Chair can request an update to the information on this page. The IEEE Standards Association also offers free web hosting for Working Groups, as well as Professional Services to support your activities.  
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Frank van Geffen  
Sukriti Goel  
Antonella Guzzo  
Rania Khalaf  
Rudolf Kuhn  
Teemu Lehto  
Felix Mannhardt  
Marco Montali  
Michael zur Muehlen  
Zbigniew Paszkiewicz  
Hajo Reijers  
Alexander Rinke  
Anne Rozinat  
Pnina Soffer  
Minseok Song  
Keith Swenson  
Walter Vanherle  
Lijie Wen  
Moe Wynn  
Wil van der Aalst  
Christian Günther  
Eric Verbeek



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3. Working Group Operations
  - Form Working Group: August 22<sup>nd</sup>, 2015 ✓
  - Policies & Procedures: In progress



# Policies & Procedures

- Formal document
  - Submitted, waiting for approval from sponsor
- Chair, Vice Chair, Secretary, no Treasurer
  - Wil van der Aalst, Christian Günther, Eric Verbeek
- Chair appoints other officers
- Membership is open
- Two-thirds majority

# Standardization Process

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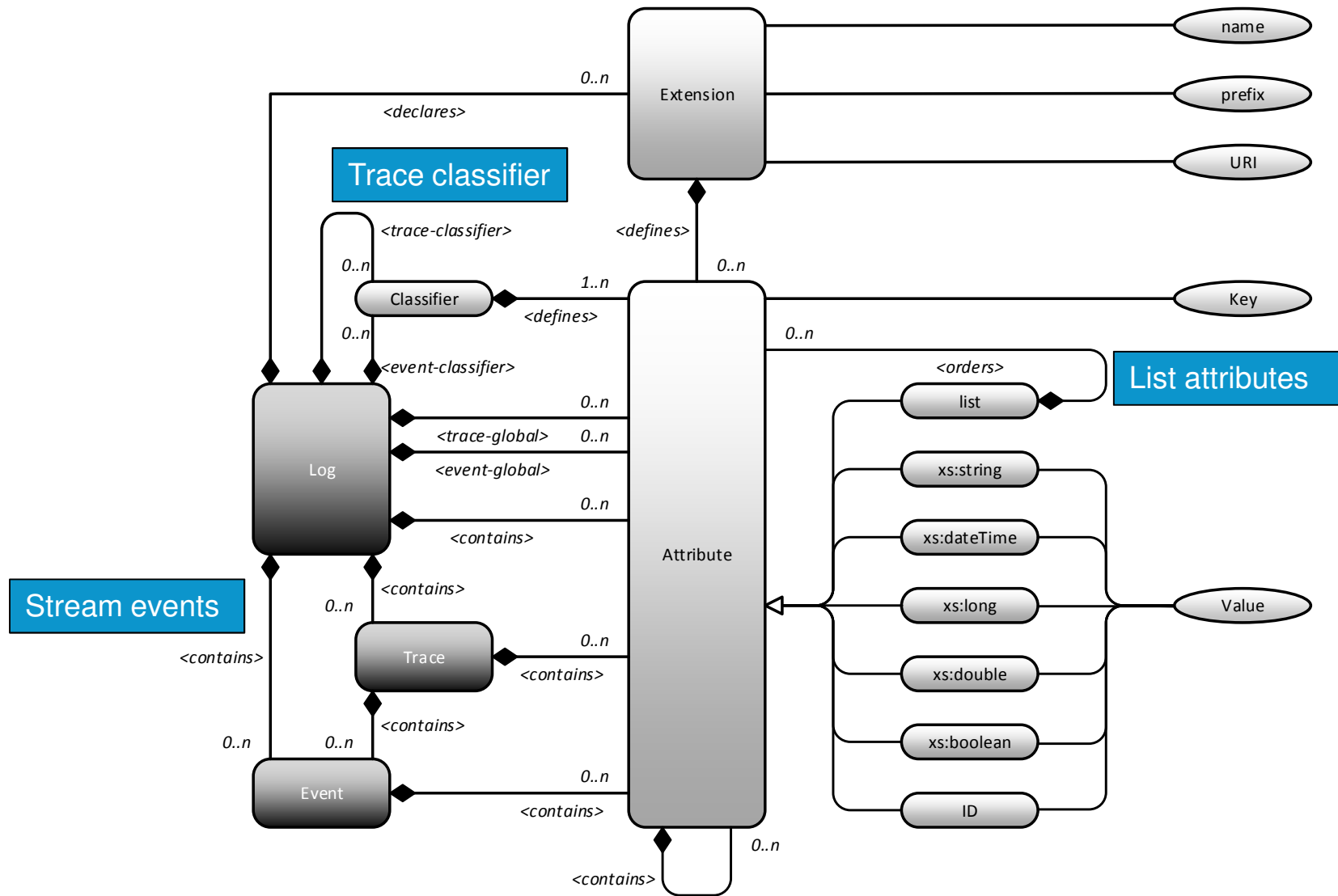
# Standardization Process

1. Find Sponsor: July 13<sup>th</sup>, 2014 ✓
2. Initiating the Project ✓
3. Working Group Operations ⌚
4. Draft Development
  - In progress, Revision 7

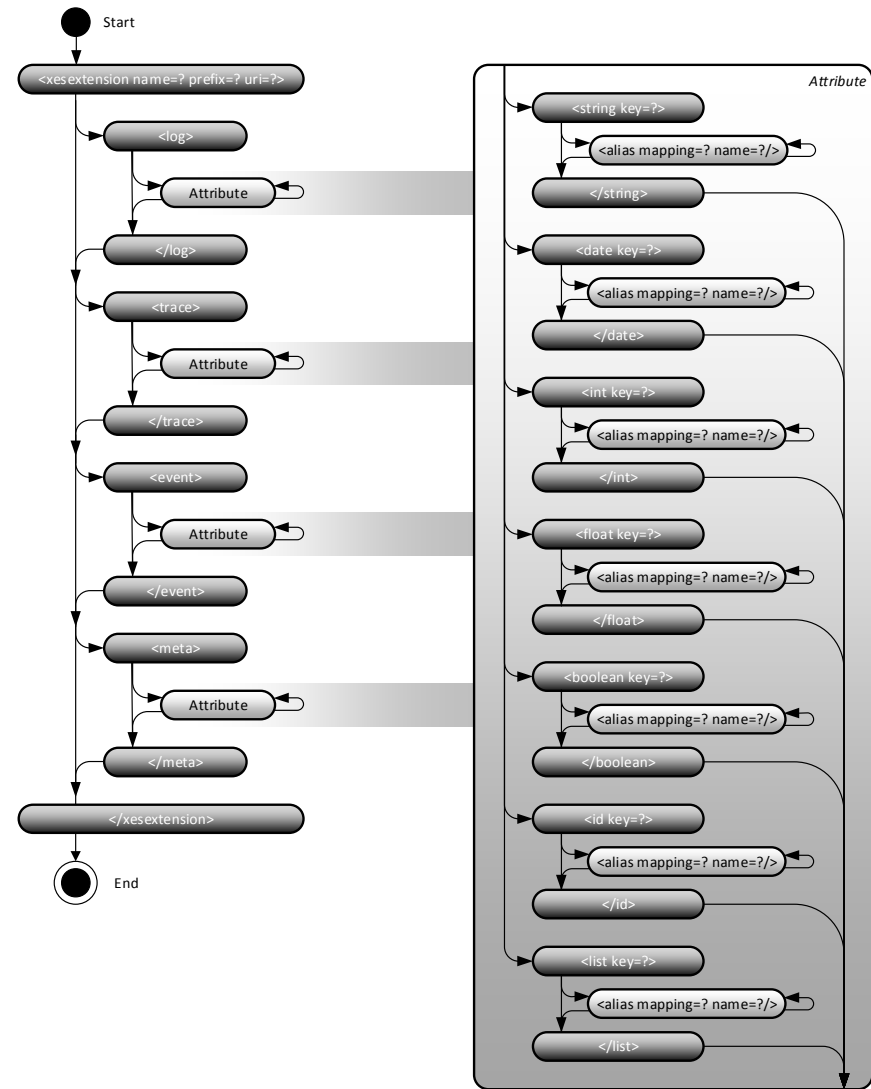
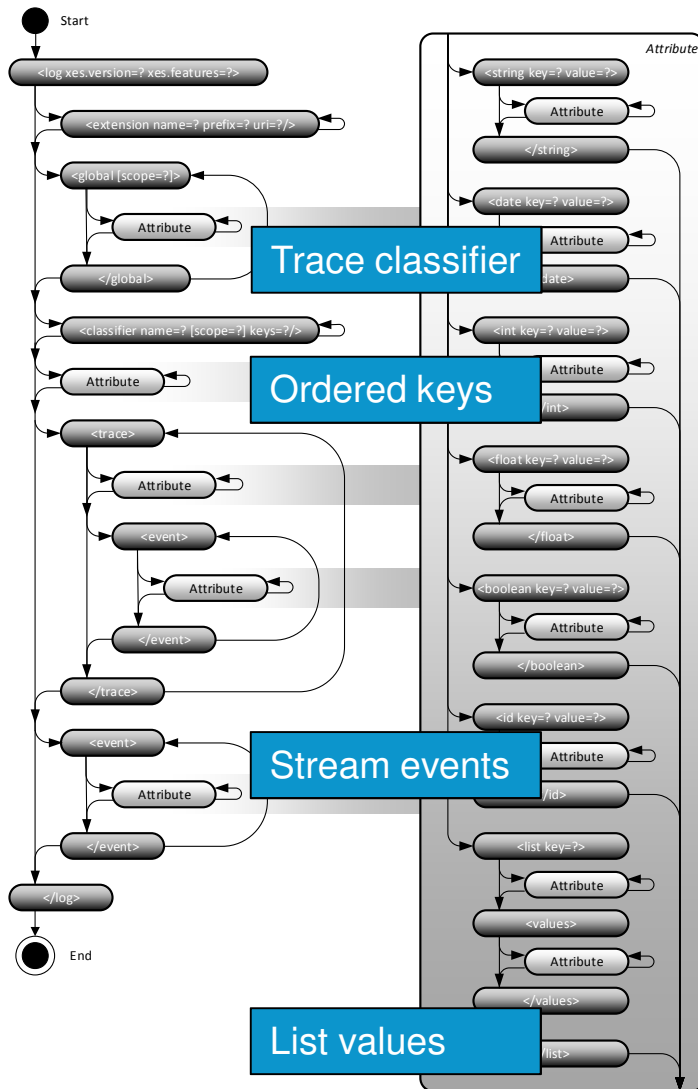
<http://www.win.tue.nl/ieeetfpm/lib/exe/fetch.php?media=shared:downloads:xes-r7.pdf>



# Metadata Structure

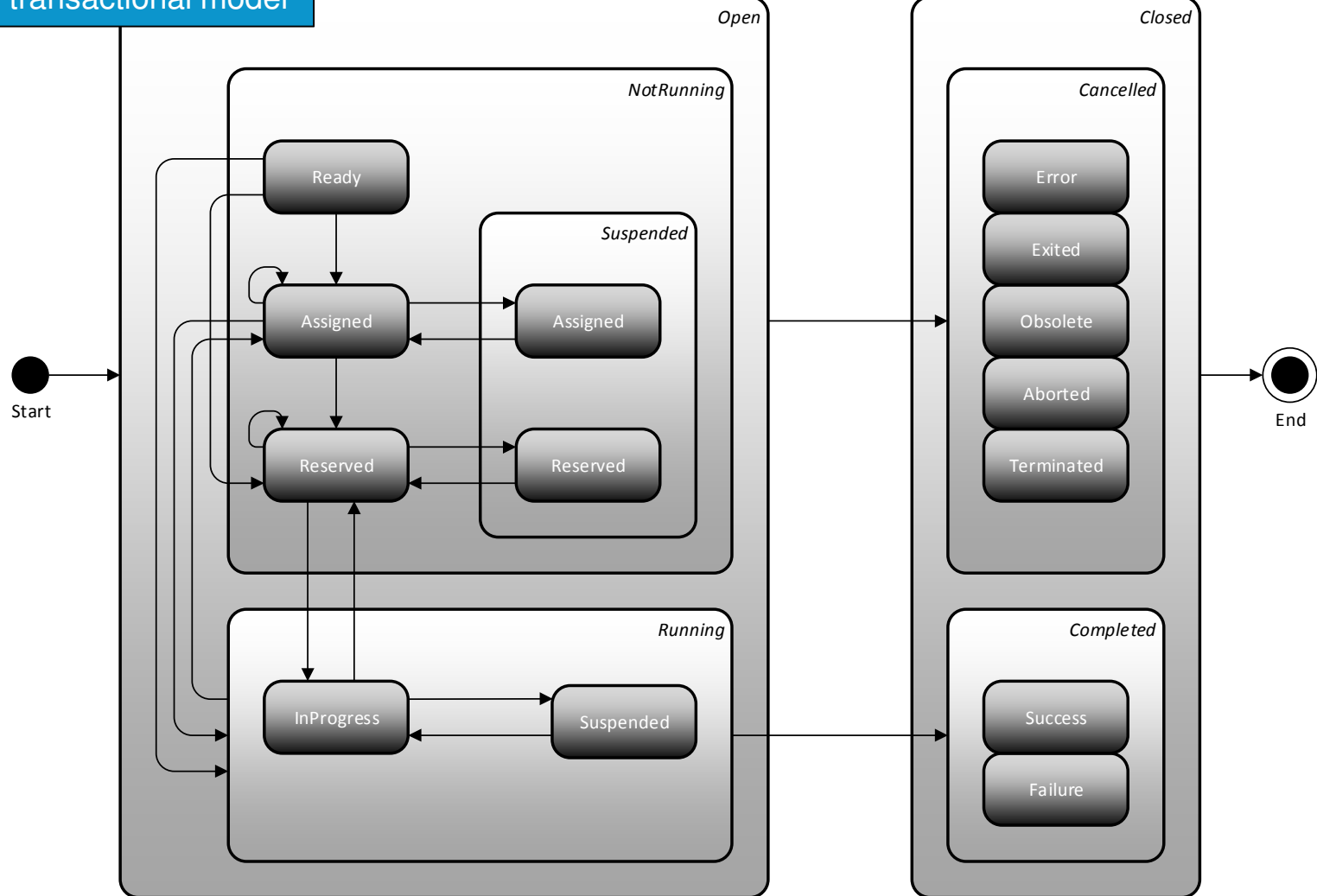


# XML Serialization



# Lifecycle Extension

BPAF transactional model





# Planning

- September 2015
  - October 2015
  - November 2015
  - December 2015
  - ...
  - December 2016
- 1st comment round
  - 2nd comment round
  - Approval round
  - First draft Proposal
  - ...
  - Accepted Proposal



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  - In progress, Revision 7



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2. Initiating the Project ✓
3. Working Group Operations ⌚
4. Draft Development ⌚
5. Sponsor Balloting
  - Expected December 2015
6. Final Approval & Publication
7. Maintaining the Standard



# XES Tools

- AProMore
- Celonis
- Disco
- Lean Document Prod.
- ProM
- minit
- QPR
- RapidProM
- Rialto PI
- YAWL
- Any more?



# XES Extensions

- Concept
- Lifecycle
- Organizational
- Time
- Semantic
- ID
- Cost
- Alignment
- Any more?



- Standard
- Moe Wynn
- Felix Mannhardt
- Any more?

# XES Usage

## Event Logs

- 3TU.Datacentrum
- BPI Challenge logs
- **Any more?**

## Advanced Tools

- Dotted Chart
- Inductive Miner
- Data Aware Miner
- Data Aware Replayer
- **Any more?**



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# XXES

Extensible Event Stream