How yEd Graphics is Used in PERA

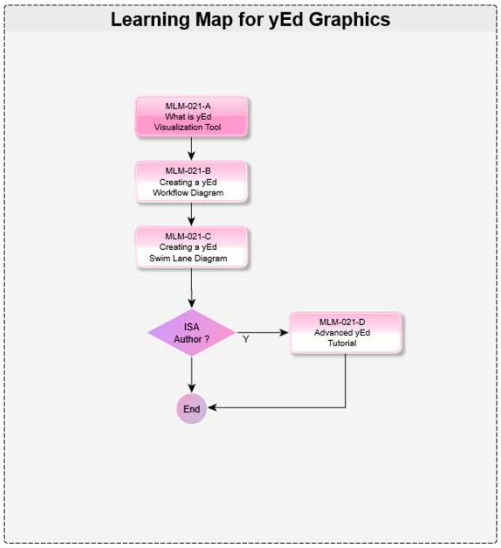
Micro Learning Module

MLM-021-B

Industry	– All
Principal Role	– All
Professional Role	– All
Enterprise Phase	– All

Turn on your audio and click start to begin video

START



This module describes how the yEd graphics application may be used to create various PERA diagrams.

It is intended for authors of MLMs, course materials, and standards.

yEd is a Java diagramming program developed at Stanford University and distributed by yWorks.

Click the START button when you are ready to advance to the next slide.

Typical yEd Diagrams used in PERA

The following yEd diagrams may be created:

1. MLM Learning Maps
2. Lifecycle Diagrams
3. Swim Lane Diagrams
4. Org. Charts, & other Taxonomies
5. BPMN Workflow Diagrams
6. UML Class Diagrams
7. Fishbone Diagrams
8. Entity Relationship Diagrams
9. Network Topology Drawings
10. Failure Mode and Effects Analysis Diagrams

The first 5 of these are particularly important as they define human aspects of the PERA Model.

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The following are some diagrams that we may produce using yEd.

1. MLM Learning Maps
2. Lifecycle Diagrams
3. Swimlane Diagrams
4. Organization Charts and Other Taxonomies
5. BPMN Workflows
6. UML Class Diagrams
7. Fishbone Diagrams
8. Entity Relationship Diagrams
9. Network Topology Drawings
10. Failure Mode and Effects Analysis Diagrams

The first 5 of these are used to define human and organizational aspects of the PERA Model.

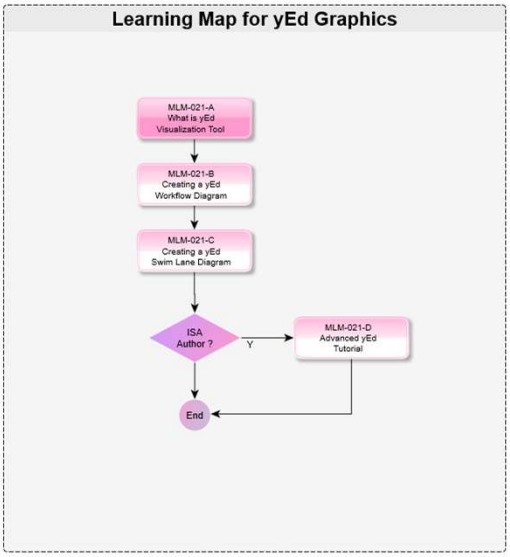
Some of the remaining 5 have traditionally been done in PERA using tools like MS Visio or CISCO network tools; however, GraphML may provide an efficient way to transfer graphics to other AI graphic tools.

yEd Example – Learning Maps

- These may be simple (like this Learning Map for yEd Graphics),

  OR

- Complex Learning maps for professionals such as Control Engineers or CISOs.



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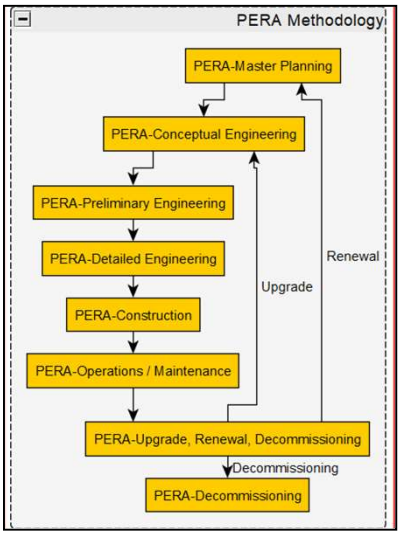
These may be simple (like this Learning Map for yEd Graphics), or Complex Learning maps for professionals such as Control Engineers or CISOs (Cybersecurity Information Security Officers).

yEd Example - Lifecycle Diagram

- This graphic of PERA Lifecycle Phases was created automatically from an Excel® spreadsheet.
- Once created, this lifecycle diagram was easily rearranged as a circle using the yEd “Drag & Drop” interface.
- The data may also be visualized in different formats, including custom ones that are then saved for future use.



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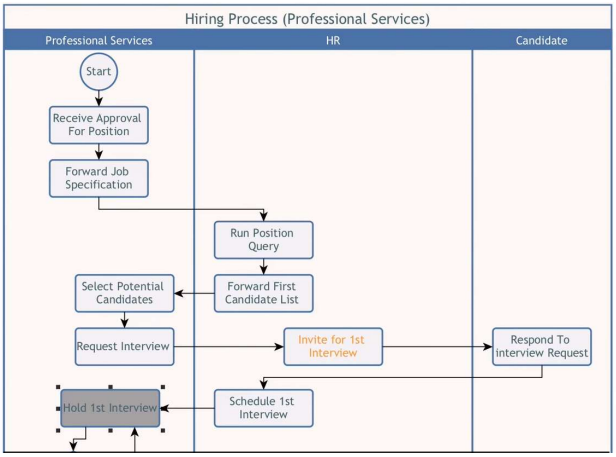
This graphic of PERA Lifecycle Phases was created automatically from an Excel® spreadsheet.

Once created, this lifecycle diagram was easily rearranged as a circle using the yEd “Drag & Drag” interface.

The data can also be visualized in various formats, including custom ones that are saved for future use.

yEd Example - Swimlane Diagrams

Swimlane Diagram from YouTube Course



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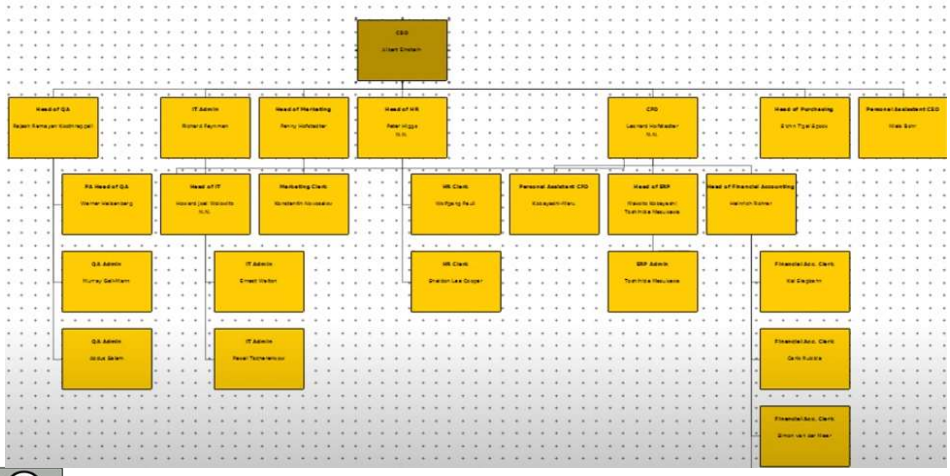
This is an automatically-generated Vertical Swim Lane Diagram.

It may be changed to a horizontal layout with a single click.

yEd Example - Organization Chart

Spreadsheets and other hierarchical data structures can be imported and automatically displayed



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Another simple, but useful template, produces Organization Charts from spreadsheet data.

Once created, Blocks and their connections may be manually rearranged with yEd's "click and drag" interface.

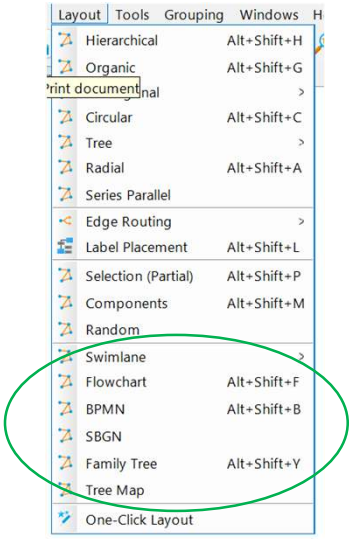
Of course, other packages such as MS Visio can create an Organization Chart from a spreadsheet; however, yEd is free and easier to use.

In addition, other hierarchical data can be imported including other GraphML documents or XML data structures.

yEd May be Used With Many Other Standard Templates

- Logic Flowchart Diagrams
- BPMN Workflow Diagrams
- UML Class Diagrams
- Fishbone Diagrams
- Entity Relationship Diagrams
- Network Topology Diagrams
- Failure Mode and Effects Analysis
- Mind Mapping

- Custom Diagrams can also be saved
- A Library of >50 User-defined Diagrams is available.



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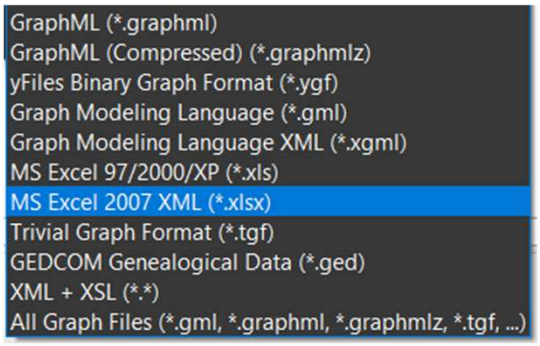
Many other templates are available that can be useful for Automation and Control Systems, including:

- Logic Flowchart Diagrams
- BPMN Workflow Diagrams
- UML Class Diagrams
- Fishbone Cause and Effect Diagrams
- Entity Relationship Diagrams
- Network Topology Diagrams
- Failure Mode and Effects Analysis
- Mind Maps

Additionally, users can create and store custom templates, as well as draw from a library of more than 50 User-defined Diagrams.

yEd Import Options

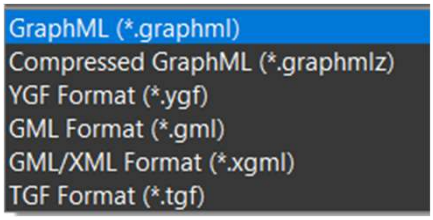
yEd quickly generates graphics from Tabular data in many formats including:



yEd quickly generates Visualizations from Tabular data input in more than a dozen formats, shown here, including XML and MS Excel.

yEd Exports in Many Formats

yEd export formats include:



yEd exports in more than a dozen formats, shown here, including GML/XML and TGF Format.

Suggestions for Getting Started with yEd

- Download yEd for Windows, IOS, or Linux (all are free)
- Search YouTube, e.g., "Basic Editing with yEd"
- See MLM-012-C "Create a PERA Learning Map" using Excel.
- Create Diagrams using Excel for:
  - Life Cycles
  - Definitions and Ontologies
  - Roles: Skills, Experience, Responsible Role
  - Key Aspects of Cybersecurity
- Enjoy!

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Create Diagrams using Excel for:
Life Cycles
Definitions and Ontologies
Roles: Skills, Experience, Responsible Role
Key Aspects of Cybersecurity
Enjoy!

More Reading

Related MLMs

- See MLM-021-A What is yEd Graphics
- See MLM-021-G Why use yEd in PERA

References:

- Watch yEd Video Introduction in 90 seconds
- See "Basic Editing with yEd" on YouTube

Please click here to share your comments on this learning module with the author.

Thank you for taking the time to view this Micro Learning Module.
You may wish to follow these links to view a video introduction to yEd and learn how to use its editor.

Definitions

Business Process Modelling Notation (BPMN™) is a graphical markup notation (language) for describing business processes. BPMN 2.0 is the de facto industrial standard for Business Process Modelling (BPM). It uses an XML-based syntax.

UML Diagrams are based on the Unified Modeling Language (**UML**), which provides a visualization technique to represent a system, along with its main actors, roles, actions, and artifacts (documents and figures).

GraphML - Standardized format for exchanging graphical data and structure.

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UML Diagram is based on the Unified Modeling Language (UML) and is one visualization technique to represent a system, along with its main actors, roles, actions, and artifacts (documents and figures).

GraphML - Standardized format for exchanging graphical data and structure.

Author

Gary has more than 40 years of experience with enterprise integration and optimization projects, including PERA master planning and project management.

As one of the initial authors of the PERA Handbook of Master Planning, he has used PERA Enterprise Architecture and Master Planning methodologies throughout his career including control and information systems for oil production, pipelines, refining and marine loading, petrochemicals, coal, gas, and oil-fired power plants, polyethylene, ammonia, explosives, paint, pulp and paper, food and beverage, and pharmaceuticals. LNG facilities included world-scale arctic, European, and US Gulf coast complexes.

infrastructure facilities included Fire, Police, and Emergency Response systems for major US cities, as well as emissions reporting and trading systems for more than 100 US Power Plants,

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