

BPMN Connection Rules & Element Guide

1. Introduction

This guide explains the core connection rules in BPMN (Business Process Model and Notation), alongside a categorized reference of all standard BPMN elements and their purposes.

2. Connection Rules

BPMN connection rules are defined by the BPMN 2.0 Specification ([OMG Spec](#)). These rules enforce how BPMN elements may be connected to preserve valid flow semantics.

Rule 1: Sequence Flows

- **Purpose:** Represent the flow of work or control between activities.
- **Allowed between:**
 - Start Event → Activity / Gateway / End Event
 - Activity → Activity / Gateway / End Event
 - Gateway → Activity / Gateway / End Event
- **Disallowed:**
 - Between Pools
 - From or to Data Objects
- **Reference:** BPMN 2.0 §10.3.2

Rule 2: Message Flows

- **Purpose:** Represent communication between separate participants (usually pools).

- **Allowed between:**
 - Pools / Lanes
 - Events (Start, End, Intermediate)
 - Tasks (User, Send, Receive, Service)
- **Disallowed:**
 - Within the same pool
- **Reference:** BPMN 2.0 §10.4

Rule 3: Associations

- **Purpose:** Link artifacts (e.g., text annotations or data) to flow elements.
- **Allowed between:**
 - Any element ↔ TextAnnotation
 - Data Objects ↔ Activities
- **Reference:** BPMN 2.0 §10.5.1

Rule 4: Conditional Sequence Flows

- **Purpose:** Define branches based on conditions.
- **Allowed:**
 - From gateways or activities
- **Disallowed:**
 - From Start Events
- **Reference:** BPMN 2.0 §10.3.2.2

Rule 5: Default Sequence Flows

- **Purpose:** Designate a fallback path from a gateway.
 - **Allowed on:**
 - ExclusiveGateway, InclusiveGateway, Activity
 - **Reference:** BPMN 2.0 §10.3.2.3
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3. BPMN Elements & Their Purposes

Events

- **Start Event:** Begins a process instance.
- **End Event:** Ends a process instance.
- **Intermediate Event:** Occurs between start and end, may interrupt or wait.
- **Boundary Event:** Attached to a task to react to interruptions.

Activities

- **Task:** A unit of work.
 - Subtypes:
 - **UserTask:** Performed by a human user.
 - **ManualTask:** Performed manually outside the system.
 - **ServiceTask:** Performed by a web service or application.
 - **ScriptTask:** Executed by a script.
 - **SendTask / ReceiveTask:** Sends or receives messages.
- **SubProcess:** Group of tasks.
- **CallActivity:** Calls a reusable subprocess.

Gateways

- **ExclusiveGateway (XOR):** Chooses one outgoing path.
- **InclusiveGateway (OR):** Can choose one or more paths.
- **ParallelGateway (AND):** Executes all outgoing paths in parallel.
- **ComplexGateway:** Based on complex conditions.
- **EventBasedGateway:** Waits for events before routing.

Data

- **DataObject:** Represents data consumed or produced.
- **DataStore:** Persistent storage across processes.
- **DataInput / DataOutput:** Used for subprocesses and calls.

Swimlanes

- **Pool:** Represents a participant in a collaboration.
- **Lane:** Subdivision within a pool for organizing tasks.

Connecting Objects

- **Sequence Flow:** Directs control flow.
- **Message Flow:** Represents messages between pools.
- **Association:** Links information or artifacts.

Artifacts

- **TextAnnotation:** Adds comments.
- **Group:** Visually groups elements (no semantic effect).

4. References

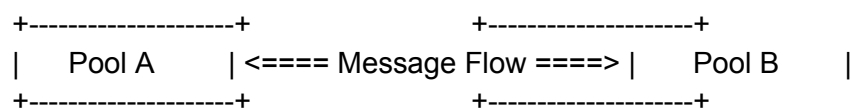
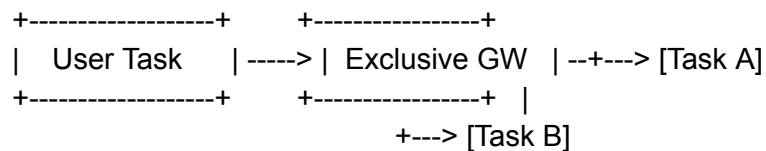
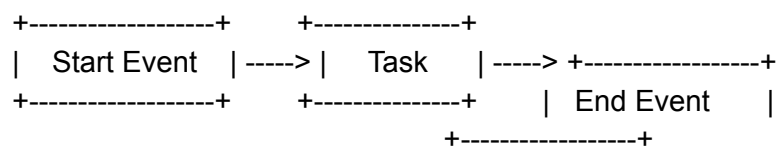
- BPMN 2.0 Specification: <https://www.omg.org/spec/BPMN/2.0>
 - BPMN Quick Guide: [Camunda BPMN Guide](#)
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5. Tips for Modeling

- Use sequence flows to show logic.
 - Use message flows only between participants.
 - Use subprocesses to organize complex work.
 - Always include a Start and End event for clarity.
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6. Visual Cheat Sheet

Here is a simple visual layout of common BPMN elements and their relationships:



Use this as a visual starter. Diagrams can be built with our classroom modeling tool.