

LaTeX Formulas & Diagrams (Gantt Charts, ERDs & Flowcharts)

1. Quick Overview

The Engineering Excellence Hub is a demo Confluence space built to showcase the LaTeX Formulas & Diagrams app by Clovity. It demonstrates how software engineering teams can embed live, editable diagrams and mathematical formulas directly inside Confluence pages - without screenshots or external tools.

- 3 macros are demonstrated across 3 dedicated pages.
- Each page is focused on a real software engineering topic.
- Customers can explore the space to see exactly how the app enhances technical documentation.

2. How to Reach the Demo Space

Follow these steps to open the Engineering Excellence Hub demo space.

1. Open your browser and sign in to Confluence.
2. Open one of the two instances listed below.
3. From the top navigation, click Spaces and search for Engineering Excellence Hub.
4. Open the space. The home page and all 3 demo pages are available in the sidebar.
5. Open each page to view the embedded macros rendered live.

Instance	URL	Space Key
Cloud	https://clovity-demos.atlassian.net/	EEH

3. Space & Page Summary

The table below lists every page created inside the Engineering Excellence Hub space, along with the macro used and its purpose.

No.	Page Name	Macro Used	Diagram / Formula Type	Purpose
1	Engineering Excellence Hub Overview	None (landing page)		Intro and navigation hub for the demo space.
2	Sprint Planning & Release Workflow	Clovity UML	Gantt Chart	Visualizes a 2-week sprint cycle with ceremonies and handoffs.
3	Microservices Architecture & Data Flow	Clovity UML (x2)	ERD + Flowchart	ERD maps service data ownership; flowchart shows API request routing.
4	SLA Targets & Performance Formulas	Clovity LaTeX Block + Clovity LaTeX Inline	Display Math + Inline Math	Shows availability formula, error budget, and latency target.

4. Macro Summary

This app provides three macros. All three are demonstrated in the Engineering Excellence Hub space.

Macro Name	Type	Used On Page	What It Renders
Clovity UML	Diagram (Mermaid syntax)	Sprint Planning & Architecture	Gantt charts, ERDs, flowcharts, sequence diagrams
Clovity LaTeX Block	Display (block) math	SLA Targets & Performance Formulas	Full-line centered equations ideal for formulas
Clovity LaTeX Inline	Inline math	SLA Targets & Performance Formulas	Math symbols embedded within a sentence of text

5. Page-by-Page Macro Setup Guide

This section explains exactly which macro was added to each page and what code or formula was entered inside it.

Page 2 Sprint Planning & Release Workflow

Macro used: Clovity UML

Placement: Below the heading "Sprint Lifecycle Diagram"

Diagram type: Gantt Chart

Code entered inside the macro:

```
gantt
    title Sprint 2-Week Cycle
    dateFormat YYYY-MM-DD
    section Planning
        Backlog Grooming      :a1, 2025-01-01, 1d
        Sprint Planning       :a2, after a1, 1d
    section Development
        Feature Development   :b1, after a2, 6d
        Code Review           :b2, after b1, 1d
    section QA & Release
        QA Testing            :c1, after b2, 2d
        Staging Deploy        :c2, after c1, 1d
        Production Release    :c3, after c2, 1d
```

i This renders a color-coded Gantt chart showing the full 2-week sprint timeline with three swim lanes: Planning, Development, and QA & Release.

Page 3 Microservices Architecture & Data Flow

Macro used: Clovity UML

Placement: Below the heading "Service Dependency Map"

Diagram type: ERD (Entity Relationship Diagram)

Code entered inside the macro:

```
erDiagram
    USER { int id string name string email }
    ORDER { int id int user_id string status date created_at }
    PRODUCT { int id string name float price }
    PAYMENT { int id int order_id string method float amount }
    USER ||--o{ ORDER : places
    ORDER ||--||{ PRODUCT : contains
    ORDER ||--|| PAYMENT : has
```

i This renders a clean ERD showing four core services (User, Order, Product, Payment) and their relationships, demonstrating how the app handles system architecture documentation.

Macro 2 Clovity UML (API Request Flowchart)

Placement: Below the heading "API Request Flow" on the same page

Diagram type: Flowchart

Code entered inside the macro:

```
flowchart TD
    A([Client Request]) --> B[API Gateway]
    B --> C[Auth Service]
    C -->|Valid Token| D[Order Service]
    C -->|Invalid Token| E([401 Unauthorized])
    D --> F[Product Service]
    D --> G[Payment Service]
    F --> H[(Product DB)]
    G --> I[(Payment DB)]
    D --> J[(Order DB)]
    G -->|Payment Confirmed| K([200 OK Response to Client])
```

i This renders a top-down flowchart showing how a client request travels through the API Gateway, gets authenticated, and is routed to the Order, Product, and Payment services before returning a response.

Page 4 SLA Targets & Performance Formulas

This page uses all three macro types. Three separate macros were inserted.

Macro 1 Clovity LaTeX Block (Availability Formula)

Placement: Below the heading "System Availability"

$$A = \frac{MTTF}{MTTF + MTTR} \times 100$$

Macro 2 Clovity LaTeX Block (Error Budget Formula)

Placement: Below the heading "Error Budget"

$$\begin{aligned} \text{Error Budget} &= (1 - \text{SLA}) \times T_{\text{period}} \\ &= (1 - 0.999) \times 43200 = 43.2 \text{ minutes/month} \end{aligned}$$

Macro 3 Clovity LaTeX Inline (P95 Latency)

Placement: Embedded inside the P95 latency sentence in the text body

$$p_{95} \leq 200 \text{ ms}$$

6. How to Insert a Macro in Confluence

Follow these steps to add any Clovity macro to a Confluence page.

1. Open the Confluence page in Edit mode (click the pencil icon).
2. Click in the page body at the exact location where the macro should appear.
3. Type / (forward slash) to open the macro picker.
4. Search for the macro name: Clovity UML, Clovity LaTeX Block, or Clovity LaTeX Inline.
5. Click the macro from the search results to insert it.
6. A code or formula editor panel opens paste the diagram code or LaTeX formula.
7. Click Save or Insert to close the editor.
8. Click Publish on the page to save all changes.
9. Switch to View mode to confirm the diagram or formula renders correctly.

i If the macro does not appear in search results, go to Apps > Manage apps in Confluence and confirm that LaTeX Formulas & Diagrams by Clovity is installed and enabled on that instance.

7. Define Macro Types

The app provides three distinct macro types, each designed for a specific use case in technical documentation.

- Clovity UML: Used to render diagrams written in Mermaid syntax. Supports Gantt charts, ERDs, flowcharts, sequence diagrams, and class diagrams.
- Clovity LaTeX Block: Used to render mathematical equations as full-width centered display math. Best for standalone formulas that should stand out from the text.
- Clovity LaTeX Inline: Used to embed math notation directly inside a sentence. The formula renders at the same size and line height as the surrounding text.

8. Macro Usage Scenarios

The table below describes when each macro should be used based on the documentation scenario.

Usage Scenario	Recommended Macro	Example
Document a sprint, release, or project timeline	Clovity UML	Gantt chart showing sprint ceremonies across 2 weeks
Document service or database relationships	Clovity UML	ERD showing User, Order, Product, and Payment entities
Document API request flow or process routing	Clovity UML	Flowchart showing client request routed through API Gateway, Auth, Order, and Payment services
Show SLA, KPI, or performance formulas clearly	Clovity LaTeX Block	Availability formula: $A = \frac{MTTF}{(MTTF + MTTR)} \times 100$
Embed a metric or variable inside running text	Clovity LaTeX Inline	"The P95 latency target is $p95 \leq 200ms$ across all endpoints."