PhysicsLab Human Dictionary

Public dictionary with user-friendly language.

Glossary

CodeSee Concepts

Atlas

- **Meaning (plain English):** Graph view of components and relationships.
- **Real-life analogy:** City map showing places and roads between them.
- **In PhysicsLab:** Core visual map used by CodeSee.
- **Example:** Open CodeSee to inspect how packs and systems connect.
- **Common confusion (what it's NOT):** Not only a static picture; it reflects runtime-linked context.

Badge

- **Meaning (plain English):** Compact status indicator.
- **Real-life analogy:** Tiny notification dot on a mobile app icon.
- **In PhysicsLab:** Small symbol/count shown on a node in CodeSee.
- **Example:** A node shows a badge when pulses, spans, or checks are active.
- **Common confusion (what it's NOT):** Not the full detail panel; use inspector/diagnostics for full context.

Diff Mode

- **Meaning (plain English):** Compare two states.
- **Real-life analogy:** "Track changes" view between two document versions.
- **In PhysicsLab:** Snapshot comparison mode for node/edge changes.
- **Example:** Compare current graph with a saved snapshot to see added/removed nodes.
- **Common confusion (what it's NOT):** Not a live replay timeline.

Lens

- **Meaning (plain English):** Predefined filtering/view mode.
- **Real-life analogy:** Camera mode presets (portrait, night, panorama).
- **In PhysicsLab:** Atlas, Platform, Content, Bus, Extensibility lenses.
- **Example:** Switch to Bus lens to focus on message flow entities.
- **Common confusion (what it's NOT):** Not a single-node detail popup.

Pulse

- **Meaning (plain English):** Animated activity signal.
- **Real-life analogy:** A heartbeat monitor spike indicating fresh activity.
- **In PhysicsLab:** Edge-following event pulse in the CodeSee graph.
- **Example:** A pulse animates across an edge after an event is emitted.
- **Common confusion (what it's NOT):** Not persistent state; pulses are transient activity hints.

Snapshot

- **Meaning (plain English):** Saved point-in-time view.
- **Real-life analogy:** A photo taken at a specific moment.
- **In PhysicsLab:** Stored graph state used for review and diff.
- **Example:** Save snapshot before a change, then compare in Diff Mode.
- **Common confusion (what it's NOT):** Not an ongoing recording stream.

Trail Mode

- **Meaning (plain English):** Lightweight path hint mode.
- **Real-life analogy:** Faint footprints showing where someone passed.
- **In PhysicsLab:** Shows touched areas without full sequence detail.
- **Example:** After quick interaction, trail hints remain without full trace details.
- **Common confusion (what it's NOT):** Not full causality reconstruction.

Runtime and Messaging

Bus

- **Meaning (plain English):** Message transport channel.
- **Real-life analogy:** A postal network that routes letters to the right addresses.
- **In PhysicsLab:** `runtime_bus` routes events and commands.
- **Example:** UI sends a request and receives a status reply through bus topics.
- **Common confusion (what it's NOT):** Not a direct function call stack.

Span

- **Meaning (plain English):** Traced operation interval.
- **Real-life analogy:** Stopwatch timing for one specific task.
- **In PhysicsLab:** Used for runtime activity overlays and diagnostics.
- **Example:** A span starts when an action begins and ends when processing completes.
- **Common confusion (what it's NOT):** Not the same as a single log line.

Topic

- **Meaning (plain English):** Named stream of messages.
- **Real-life analogy:** A radio frequency that listeners tune into.
- **In PhysicsLab:** Event channels consumed by UI and systems.
- **Example:** Inventory updates are published on a specific topic watched by screens.
- **Common confusion (what it's NOT):** Not global shared state by itself.

Storage and Layout

Repo vs Store

- **Meaning (plain English):** Source vs installed/runtime copy.

- **Real-life analogy:** Warehouse master inventory vs shelf-ready items in a store.
- **In PhysicsLab:** `*_repo` is source content, `*_store` is active copied state.
- **Example:** Packs are authored in repo then materialized into store for runtime use.
- **Common confusion (what it's NOT):** Not two separate product types; it is lifecycle stage.

Layout State

- **Meaning (plain English):** Persisted panel positions/sizes.
- **Real-life analogy:** Saving your desk setup so it reopens the same way tomorrow.
- **In PhysicsLab:** Restores CodeSee dock/floating panel layout.
- **Example:** Lens palette reopens docked where you left it.
- **Common confusion (what it's NOT):** Not content data; only UI placement/settings.

Registry

- **Meaning (plain English):** Indexed metadata for discoverability.
- **Real-life analogy:** A library catalog that points to books and their categories.
- **In PhysicsLab:** Tracks packs/plugins/components for quick lookup.
- **Example:** Discovery screens read registry entries to populate install/manage lists.
- **Common confusion (what it's NOT):** Not the full payload storage for every item.

Workspaces and Runs

Workspace

- **Meaning (plain English):** Isolated project environment.
- **Real-life analogy:** A dedicated project room with its own materials and notes.
- **In PhysicsLab:** Holds selected packs, content, and run history.
- **Example:** Switching workspace changes active content and configuration scope.
- **Common confusion (what it's NOT):** Not only a UI profile; it includes runtime context.

Run

- **Meaning (plain English):** A concrete execution/iteration.
- **Real-life analogy:** One lab experiment attempt with recorded observations.
- **In PhysicsLab:** Timestamped activity session with logs/status.
- **Example:** A run records what happened during one simulation/test cycle.
- **Common confusion (what it's NOT):** Not equivalent to a workspace.

Template

- **Meaning (plain English):** Starting blueprint.
- **Real-life analogy:** A pre-filled form you copy before starting a new case.
- **In PhysicsLab:** Base setup used to create new workspaces quickly.
- **Example:** Create a workspace from a template to pre-load packs and defaults.
- **Common confusion (what it's NOT):** Not immutable; workspaces created from it can diverge.

Workspaces, Runs, Templates

Workspace lifecycle

1. Create workspace from a template.
2. Select packs/content for the workspace.
3. Execute runs.
4. Inspect outcomes in System Health and CodeSee.

Run semantics

- A run is an execution slice with timestamps and status.
- Runs can generate bus events, spans, and diagnostics.
- Failed runs should be traceable through crash and diagnostics flows.

Template semantics

- Templates provide a default pack/content baseline.
- Templates should minimize setup friction for repeated experiments.
- Templates are expected to be deterministic and reproducible.

Operator guidance

- Prefer creating new workspaces for isolated experiments.
- Keep run notes short and tied to objective outcomes.
- Use snapshots/diff in CodeSee to compare behavioral changes over time.

Packs, Repo, Store

Core distinction

- `*_repo`: source-of-truth assets under version control.
- `*_store`: installed/active copies used by runtime systems.

Why both exist

- Repos keep canonical authoring history.
- Stores provide runtime stability and isolation.
- Update/migration flows can refresh store state from repo state safely.

Practical implications

- Editing repo files does not always immediately affect runtime behavior.
- Refresh/reload operations may be required to propagate changes.
- Troubleshooting should verify both source and active store state.

Common pitfalls

- Assuming store content updates automatically after repo edits.
- Mixing manual store edits with managed update flows.
- Comparing outputs from different stores without noting version/template context.

CodeSee: Peek, Inspector, Lens

Peek mode

- **Meaning (plain English):** Quick focus into one part of the graph.
- **Real-life analogy:** Opening a folder to see only what is inside.
- **In PhysicsLab:** Narrows the visible graph to a selected subgraph.
- **Example:** Peek into a pack node to view internal dependencies only.
- **Common confusion (what it's NOT):** Not a permanent graph rewrite.

Inspector

- **Meaning (plain English):** Detailed panel for one selected item.
- **Real-life analogy:** Product details page after clicking a catalog item.
- **In PhysicsLab:** Shows node/edge metadata, status, and related signals.
- **Example:** Open inspector for a node to see active badges and links.
- **Common confusion (what it's NOT):** Not the same as changing lens/filter.

Lens

- **Meaning (plain English):** A predefined way to view/filter information.
- **Real-life analogy:** Camera mode presets (portrait, night, panorama).
- **In PhysicsLab:** Atlas/Platform/Content/Bus/Extensibility viewpoints.
- **Example:** Switch to Bus lens to focus on message flow entities.
- **Common confusion (what it's NOT):** Not a single-node detail popup.

Runtime Bus: Trace, Trail, Messages

Event

- **Meaning (plain English):** Something that happened.
- **Real-life analogy:** A timestamped log line in a delivery center.
- **In PhysicsLab:** Runtime notification emitted on a bus topic.
- **Example:** "inventory.refresh.completed" event after refresh finishes.
- **Common confusion (what it's NOT):** Not always a command request.

Trail mode

- **Meaning (plain English):** Lightweight activity hints.

- **Real-life analogy:** Footprints in sand showing that movement occurred.
- **In PhysicsLab:** Shows touched zones without full timeline details.
- **Example:** A node gets a trail badge after quick interaction.
- **Common confusion (what it's NOT):** Not full causality reconstruction.

Trace mode

- **Meaning (plain English):** Detailed operation timeline.
- **Real-life analogy:** Parcel tracking with each handoff step.
- **In PhysicsLab:** Correlated sequence of spans/events with context.
- **Example:** Follow a request from UI trigger to runtime completion.
- **Common confusion (what it's NOT):** Not only error logs.

Request/Reply

- **Meaning (plain English):** Ask for data and wait for response.
- **Real-life analogy:** Ticket desk query and official answer.
- **In PhysicsLab:** Common pattern for inventory/status API calls.
- **Example:** UI asks runtime for current pack registry summary.
- **Common confusion (what it's NOT):** Not pub/sub broadcast mode.

Pub/Sub

- **Meaning (plain English):** Broadcast updates to any subscribers.
- **Real-life analogy:** Radio station and listeners.
- **In PhysicsLab:** Bus topics distribute events to multiple consumers.
- **Example:** Status updates pushed to both UI and diagnostics collectors.
- **Common confusion (what it's NOT):** Not one-to-one RPC.