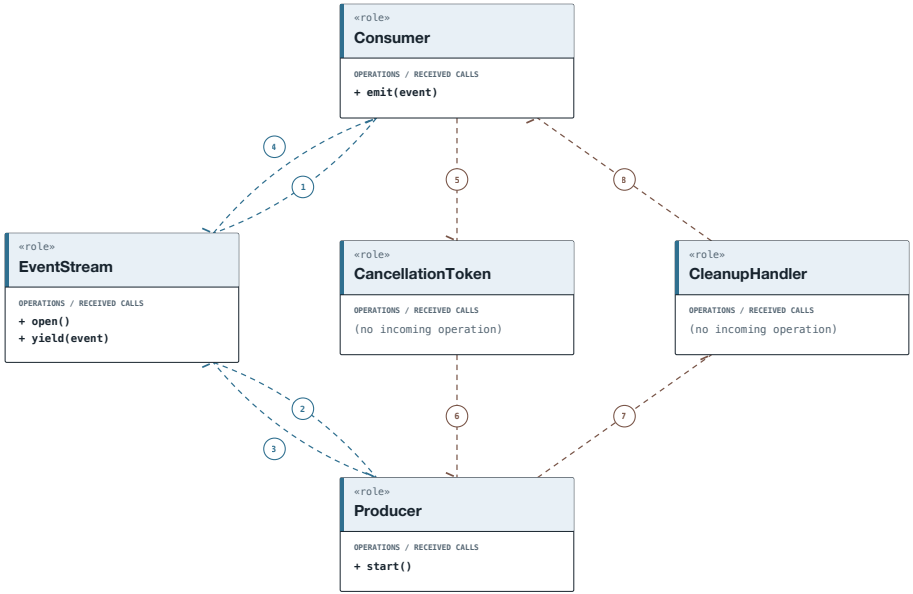
# P05 Asynchronous-generator loop

**Primitive / UML CLASS VIEW / ANALYTICAL MODEL**

Expose incremental execution events.

**UML CLASS VIEW**

dashed arrow: call dependency · brown: return/failure · analytical, not an observed trace




**POINTCUT / PATTERN INTERFACE**

| | |
|---|---|
| CONTEXT | A consumer observes an agent run incrementally. |
| TRIGGER | The runtime emits a semantic event or streamed token. |
| STRUCTURE | Async yield/resume, cancellation, and cleanup ownership. |
| EFFECT | Consumers receive ordered events and early exit releases runtime resources. |

**CONTRACT / REQUIRED BEHAVIOR**

| | |
|---|---|
| REQUIRES | The producer exposes an async iterator or equivalent streaming boundary. |
| ENSURES | Each emitted event has a stable type and sequence context. |
| INVARIANT | Cancellation and producer failure do not leave unreleased work. |
| VIOLATION | Abandoned consumers trigger cancellation or documented cleanup. |

**RELATIONSHIPS / ANALYTICAL CALLS**

number · caller → callee · message

1 Consumer → EventStream open()
2 EventStream → Producer start()
3 Producer → EventStream yield(event)
4 EventStream → Consumer emit(event)
5 Consumer ↩ CancellationToken cancel()
6 CancellationToken ↩ Producer cancel()
7 Producer ↩ CleanupHandler release(next)
8 CleanupHandler ↩ Consumer closed()

**VARIATION / TEST / NEGATIVE CONTROL**

| | |
|---|---|
| VARIATION | Stream event schema, backpressure, buffering, and consumer adapters. |
| TEST_OBLIGATION | Test event order, consumer cancellation, producer exception, and cleanup. |
| NEGATIVE_CONTROL | A synchronous list returned at the end is not the streaming pointcut. |