Events

ARTIS keeps track of the current time and distinguishes between past and future, the past is deterministic and only the future may have random events. Events are either planned or unplanned.

All events have a known time down. There are past, current and future events:

- past events are deterministic; they have a past time down and a known and past time up
- current events have a past time down and an unknown time up or a known and future time up
- future events have a future time down and an unknown time up or a known and future time up

Current and future events must have a known time up or a known downtime mode with exponential downtime distribution. In practice, when an unplanned event occurs it may not be immediately clear what its root cause has been. In that case, ARTIS requires the input of a preliminary estimate of the event's time up, until the root cause has been identified and the event's data can be provided.

Planned events must have both a known component and a known downtime mode. Examples of planned events are turnarounds and regulatory inspections.

Examples of unplanned events are sand production, CO_2 corrosion, heat exchanger tube fouling and a compressor lube oil external seal leak.

Event

component: component

downtime mode: MI

type: planned

from: 01 Apr 2020 08:00 until 01 May 2020 08:00

bypass capacity: 0 (%)

reference: somewhere

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Table

	component	down time mode	event type	time down	time up	bypass capacity (%)	reference
○	component	HGPI	planned	01 Apr 2017 08:00	15 Apr 2017 08:00	0	dokuwiki
●	component	MI	planned	01 Apr 2020 08:00	01 May 2020 08:00	0	somewhere

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For Live application, the planned events may represent packages in the maintenance management database, inspections in the wells' database, project tie-ins and other planned downtime.

The event reference may take the form of a hyperlink like dokuwiki , with single quotes, for example for referring to the event's documentation.

For any given item, component and mode, its events must not overlap in time.

Condition-based maintenance classifies as unplanned downtime and can be modelled in the same way as breakdown events, possibly with shorter repair times to reflect the reduced mobilisation time and with

increased bypass capacity to reflect possible mitigation. This could be handled in two ways: by defining a new unit with new downtime modes with the shorter repair times and increased bypass capacity or by specifying both time down and time up, assuming that the latter is known, in the events.

Examples of downtime events that do not require maintenance are planned or unplanned inspections, planned project tie-ins, planned or unplanned well testing and offline reservoir monitoring.

Event data, when known, always take precedence over the downtime mode data. For a planned event with unknown time up, any subsequent unplanned events have the event bypass capacity.

Periodic downtime

For any item and downtime mode with a periodic strategy, the last planned event is used as the starting point for the subsequent periodic downtime, provided that the last event has not gone stale yet. That is, future planned events are scheduled to follow the last event at the set interval, provided that the first one will go down in the future.

All subsequent periodic downtime has the downtime mode parameters, not the parameters of the last event.