



ACS

ACS Events

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Ubisense Limited
St Andrew's House
St Andrew's Road
Cambridge CB4 1DL
United Kingdom

Tel: +44 (0)1223 535170

WWW: <https://www.ubisense.com>

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Contents

ACS Events	1
ExceptionOccuredEvent	1
ProductIsMissingAttributesEvent	1
AssociationEvent	2
DisassociationEvent	2
ObjectIsLocatedEvent	2
ContainerContainsObjectEvent	3
ProductIsLocatedEvent	3
ProductHasPassedTriggerPointEvent	4
TagIsLocatedEvent	4
Named Events	4

ACS Events

ACS provides several event classes, deriving from `UTCP::AbstractEvent`, which can be used to inform external systems regarding changes. Each ACS event has an associated event generator class, which is responsible for detecting relevant changes and creating the event for each change. Events generated with the concept of NamedEvents use the `NamedEventOccuredGenerator` class. See [Named Events](#).

ExceptionOccuredEvent

The `UTCP::ExceptionOccuredEvent` can be used to report `UABase::Exception` messages to external systems.

EventClass	Object	Cell	Data
ExceptionOccuredEvent	The object associated has name "exception_filter_object"	Site level	UException::Exceptions::RowType

The event generator class is the `UTCP::ExceptionOccuredEventGenerator`. Event targets are such external systems which are associated to the object with name "exception_filter_object".

ProductIsMissingAttributesEvent

The `ACS::ProductIsMissingAttributesEvent` can be used to ask external systems to provide required attributes for product instances.

EventClass	Object	Cell	Data
ProductIsMissingAttributesEvent	There is no object associated to the event	Site level	Product, ProductDataProviderName, KnownMissingParameters

The event generator class is the `ACS::ProductIsMissingAttributesEventGenerator`. The generator can run in two modes:

- It generates events for all products that have no attributes at all, or

- It generates events for products which have the "RequiredParameters" attribute set and some of the attributes listed not set

Event targets are such external systems being able to handle the "ProductIsMissingAttributesEvent" event class.

AssociationEvent

The ACS::AssociationEvent can be used to report the association status of an association zone regarding product to tag association to external systems.

EventClass	Object	Cell	Data
AssociationEvent	The association zone object	Site level	AssociationZone, IgnoredTags, CandidateTags, CandidateProducts, CandidateProductsReliable?, ErrorStatus, AssociationStatus

The event generator class is the ACS::AssociationEventGenerator. Event targets are such external systems which are associated to the association zone object.

DisassociationEvent

The ACS::DisassociationEvent can be used to report information about the disassociation of products and tags to external systems.

EventClass	Object	Cell	Data
DisassociationEvent	The disassociation zone object	Site level	DisassociationZone, Tag, ProductType, ProductName, IsDisassociated?, IsProductInstanceRemoved?, IsSentToDeepSleep?, IsSetToLowActivity?

The event generator class is the ACS::DisassociationEventGenerator. Event targets are such external systems which are associated to the disassociation zone object.

ObjectIsLocatedEvent

The ACS::ObjectIsLocatedEvent can be used to report containment information of ACS::Physicals within static or object spaces to external systems. ObjectIsLocatedEvents are the events used to report the status devices to external systems, for example.

EventClass	Object	Cell	Data
ObjectIsLocatedEvent	The physical object (e.g. the device)	Spatial level	Physical, IsEnable?, LocationTimedOut?, EvaluateObjectSpace?, ObjectSpaceLocations, FormerObjectSpaceLocations, EvaluateStaticSpace?, StaticSpaceLocations, FormerStaticSpaceLocations, EvaluateIdent?, IdentLocations, FormerIdentLocations

The event generator class is the ACS::ObjectIsLocatedEventGenerator. Event targets are such external systems which are associated to the physical object, which is usually the device. The ObjectIsLocatedEventGenerator generates events based on changes of the ACS::CurrentLocations::ObjectIsLocated relations for all spatial cells.

ContainerContainsObjectEvent

The ACS::ContainerContainsObjectEvent can be used to report contained objects within ACS::Space objects (IdentZones, Workspaces, Stations) to external systems.

ContainerContainsObjectEvents are the events used to report the products within spaces to external systems, for example.

EventClass	Object	Cell	Data
ContainerContainsObjectEvent	The space object	Spatial level	Container, ContainedObjects, InsertedObjects, RemovedObjects

The event generator class is the ACS::ContainerContainsObjectEventGenerator. Event targets are such external systems which are associated to the space object. The ContainerContainsObjectEventGenerator generates events based on changes of the ACS::CurrentLocations::ObjectIsLocated relations for all spatial cells.

ProductIsLocatedEvent

The ACS::ProductIsLocatedEvent can be used to report to external systems when an ACS::Product is contained within an ACS::Space. ProductIsLocatedEvents are based upon UTCP::NamedEvents. See [Named Events](#).

EventClass	Object	Cell	Data
ProductIsLocatedEvent	The NamedEvent object	Spatial level	ProductType, ProductName, CurrentSpaces, InsertedSpaces, RemovedSpaces

The event generator class is the `UTCP::NamedEventOccuredGenerator`. To encode or decode the data use the `ACS::ProductIsLocatedCoder` class.

ProductHasPassedTriggerPointEvent

The `ProductHasPassedTriggerPointEvent` can be used to report whenever an `ACS::Product` crosses the position of an `ACS::TriggerPoint` on an `ACS::AssemblyLine`.

EventClass	Object	Cell	Data
ProductHasPassedTriggerPointEvent	The Triggerpoint object	Location cell level	TriggerPointName, ProductType, ProductName, Offset

The event generator class is the `UTCP::NamedEventOccuredGenerator`. To encode or decode the data use the `ACS::ProductHasPassedTriggerPointCoder` class.

TagIsLocatedEvent

The `TagIsLocatedEvent` can be used to report whenever a `ULocationIntegration::Tag` object is located within the extent of an `ACS::IdentPoint`.

EventClass	Object	Cell	Data
TagIsLocatedEvent	The NamedEventobject	Spatial level	IdentPointName, IsLocated, TagId

The event generator class is the `UTCP::NamedEventOccuredGenerator`. To encode or decode the data use the `ACS::TagIsLocatedCoder` class.

Named Events

Named Events represent rules and the fact that the result of the rule evaluation changes. With Named Events, UTCP provides infrastructure to decouple event production from event forwarding to external systems. Instead of external systems being associated directly to objects relevant for event production, such as devices, stations etc., external systems can subscribe for a

Named Event and will be informed when a Named Event occurs. Event producers, like the ACS Location Rules Evaluation Service, can use the RPC interface to assert or retract Named Events. UTCP provides functionality to configure and persistently store Named Event configurations.

The configuration of a Named Event consists of:

- The NamedEvent object, which can further on be used to reference the configuration
- The event name, which identifies the NamedEvent in a human readable way
- The event class, giving a type to the event
- A timeout, which can be used to let unary events be retracted automatically
- An optional description

A Named Event can be associated to an External System, which expresses that the External System shall forward such events.

A configuration interface is available to allow applications to configure Named Events and External Systems. See [ACS Configuration Manual](#) for more information. The application is responsible for evaluating the event rules. Such an evaluation can lead to the fact that a Named Event occurs.

The application can express this by calling an event assertion interface provided by UTCP. This allows data to be added to the event, giving more detail to what actually happened.

Protocol services then get notified that the event has occurred. The events are forwarded to communication end points of the External Systems that are associated to the Named Event and which implement an event handler for the event class. The latter is a prerequisite for the translation of the event data into a telegram format, which can be interpreted by the communication partner.

