



## FAIR Accelerator Control System „Naming Guideline“

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### Abstract

This document describes and explains the principles of naming software components for the FAIR accelerator control system. It documents a common base of naming aspects for the FAIR accelerator's control system software and references other Guidelines or Detailed Specifications of components to use.

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## 1. Purpose and Classification of the Document

The purpose of this document is to specify the development guideline as a directive for developing control system software for FAIR. Adherence to this guideline will improve product quality and maintainability of the FAIR accelerator control system.

The development guidelines complement the technical guidelines and detailed specifications for the FAIR control system in providing general rules and regulations for control system development.

Whenever regulations and requirements are specified in the General Specifications, Technical Guidelines, Common Specifications or Detailed Specifications of the Control System they are only referenced in this document. The related documents are listed in Appendix II.

No legal or contractual conditions are treated in this document. All related information is given in the General Specifications for FAIR II.

### 1.1. Responsibilities

The responsibilities with respect to changes and modifications of the present document are entirely in the hands of the Controls Department of the GSI Helmholtz Centre for Heavy Ion Research GmbH (GSI) Darmstadt.

For initial information please contact the administration of the Controls Department.

Further information on the organigram, names of responsible persons and task leaders, as well as the agreed document release and approval procedure is summarized in the organizational note 'Controls Project for FAIR'.

## 2. Scope

The Naming Guideline holds for all software components of the FAIR accelerator control system. Especially, it does not cover the intrinsic aspects of the FAIR Nomenclature System [3] which addresses the problem of unique equipment names. It also does not cover the intrinsic aspects of the FAIR component database.

This document does not cover software development methodology [1]. This document does not cover functional aspects of any application or service component [4]. This document does not cover device-modeling or equipment-software's functional aspects [6].

### 3. Namespaces

The usage of unique component identifiers is demanded by several subsystems of the accelerator control system, e.g. to identify an alarm source [2], to identify a component taking part in the configuration service [5], to identify a network hostname, to identify a file-system pathname, to identify an operation console, to identify a software process, etc. The uniqueness of those identifiers cannot be enforced but must be guaranteed by each subsystem itself. This guideline does not specify how instances of these components are localized at runtime.

In order to integrate those identifiers and to comply with existing standards we use the URN (Uniform Resource Names, see [8]) scheme of the URI (Uniform Resource Identifier, see [7]) standard to identify control system specific components which are not standard URIs:

```
urn:<NID>:<NSS>
```

where <NID> is the namespace identifier and <NSS> is the namespace-specific string. The <NID> might be complemented by sub-namespaces. As a namespace identifier which determines the syntactic interpretation of the namespace-specific string (NSS) we determine “cs” (a namespace identifier which is currently neither officially registered nor unofficially used).

Therefore, non-standard URIs of the control system must begin with

```
urn:cs:<SUB-NAMESPACE>
```

which is followed by the specific identifier. The sub-namespace is defined in the following chapter.

The usage of the URN prefix `urn:cs:<SUB-NAMESPACE>` is not required in contexts where the specific identifiers are sufficient, e.g. as parameter of API calls.

#### 3.1. Standard

Whenever possible, a standard URI scheme (see [9] for an overview) must be used to identify a resource, e.g. use the file scheme to identify a file system entry

```
file:[//host]/path
```

#### 3.2. Sub-Namespaces

Already defined sub-namespaces of the control system are defined in this chapter. More detailed specifications of the control system components and their interoperation might require additional sub-namespaces in the future which are not yet covered by this guideline. The specification of those namespaces will then be added to this document.

##### 3.2.1. Alarm Source

To identify a system-wide unique alarm name, use

```
urn:cs:alarm:<ALARM-ID>
```

The alarm-identification <ALARM-ID> is defined in [2].

### 3.2.2. Software Component

To identify a system-wide unique name of a software component (executable), use

`urn:cs:software:<NAME>`

The outline of the unique software name <NAME> is to be defined.

### 3.2.3. Process Name

To identify a system-wide unique process use

`urn:cs:process:<PROCESS-ID>`

The outline of the unique process identification <PROCESS-ID> is to be defined.

### 3.2.4. Device Nomenclature

To identify an device instance of the accelerator control system use

`urn:cs:nomen:<NOMENCLATURE>`

The device nomenclature <NOMENCLATURE> is defined in [3].

### 3.2.5. Hardware Components

To identify a hardware component of the accelerator control system use

`urn:cs:cid:<COMPONENT-ID>`

The hardware component id <COMPONENT-ID> is to be defined.

## I. Attached Documents

List of abbreviations for controls (Abbreviations\_Controls.pdf).

## II. Related Documentation

- [1] F-CS-C-01e, FAIR Common Specification "Accelerator Control System"
- [2] F-DS-C-09e, FAIR Detailed Specification "Alarm System"
- [3] F-TG-C-05e, FAIR Technical Guideline "System for Nomenclatures"
- [4] F-DS-C-04e, FAIR Detailed Specification "User Applications"
- [5] F-DS-C-30e, FAIR Detailed Specification "Extended System Services"
- [6] F-DG-C-01e, FAIR Development Guideline "FESA Development Guideline"
- [7] RFC 3986 / STD 66 (2005) – the current generic URI syntax specification
- [8] RFC 2141 – the current URN syntax specification
- [9] URI scheme - [http://en.wikipedia.org/wiki/URI\\_scheme](http://en.wikipedia.org/wiki/URI_scheme)

## III. Document Information

### III.1. Document History

Version	Date	Description	Author	Review / Approval
0.1	27. Aug. 2012	Draft Version	R.Huhmann	
1.0	31. Aug. 2012	Initial Version	R.Huhmann	CCT