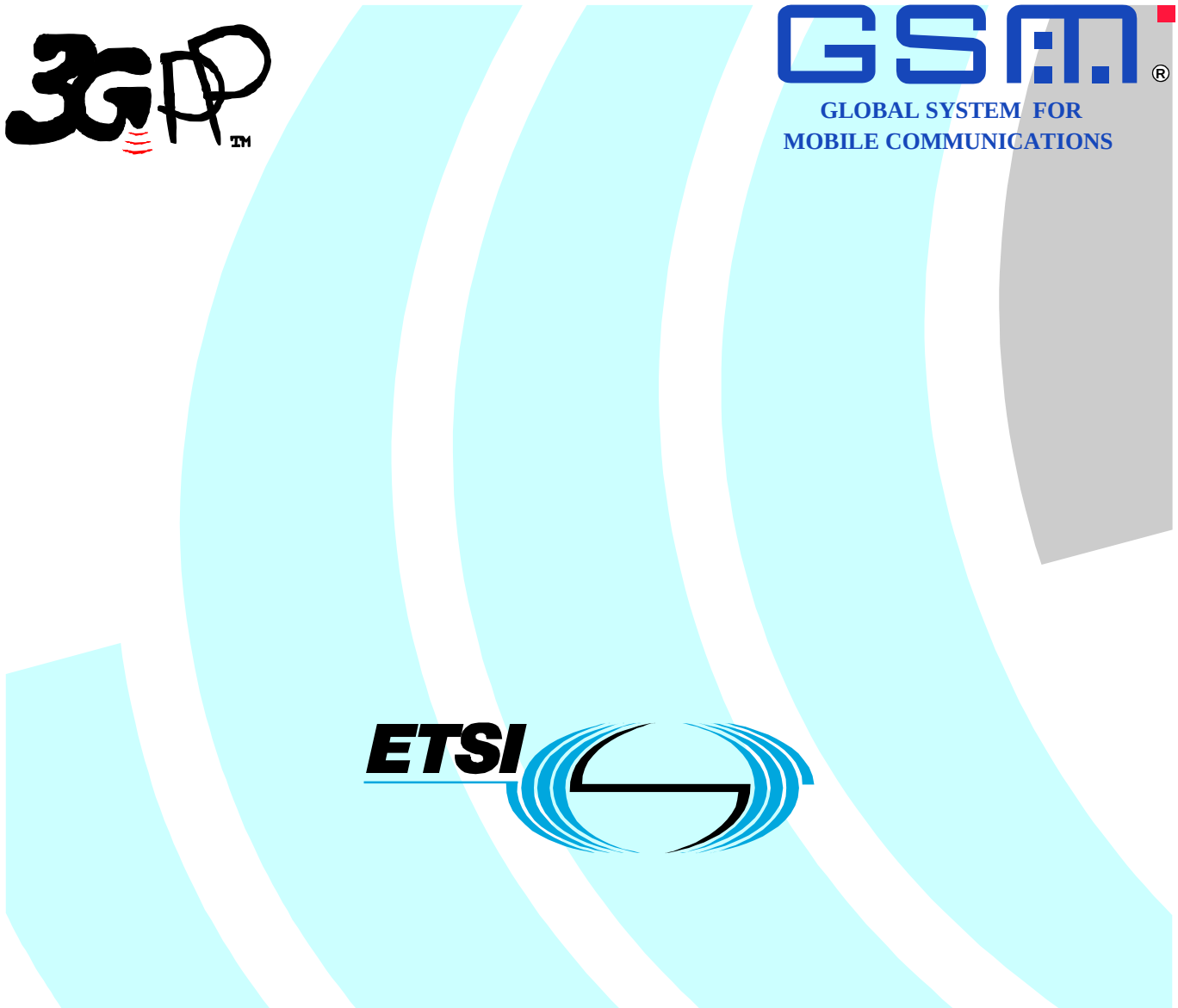
# ETSI TS 132 312 V6.1.0 (2004-12)

*Technical Specification*

**Digital cellular telecommunications system (Phase 2+);**
**Universal Mobile Telecommunications System (UMTS);**
**Telecommunication management;**
**Generic Integration Reference Point (IRP) management;**
**Information Service (IS)**
**(3GPP TS 32.312 version 6.1.0 Release 6)**



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# Foreword

This Technical Specification (TS) has been produced by ETSI 3rd Generation Partnership Project (3GPP).

The present document may refer to technical specifications or reports using their 3GPP identities, UMTS identities or GSM identities. These should be interpreted as being references to the corresponding ETSI deliverables.

The cross reference between GSM, UMTS, 3GPP and ETSI identities can be found under http://webapp.etsi.org/key/queryform.asp .

# Contents

# Foreword

This Technical Specification (TS) has been produced by the 3rd Generation Partnership Project (3GPP).

The contents of the present document are subject to continuing work within the TSG and may change following formal TSG approval. Should the TSG modify the contents of the present document, it will be re-released by the TSG with an identifying change of release date and an increase in version number as follows:

Version x.y.z

where:

- x the first digit:
  - 1 presented to TSG for information;
  - 2 presented to TSG for approval;
  - 3 or greater indicates TSG approved document under change control.
- y the second digit is incremented for all changes of substance, i.e. technical enhancements, corrections, updates, etc.
- z the third digit is incremented when editorial only changes have been incorporated in the document.

# Introduction

The present document is part of a TS-family covering the 3rd Generation Partnership Project; Technical Specification Group Services and System Aspects; Telecommunication management; as identified below:

32.311: "Generic Integration Reference Point (IRP) management: Requirements".

**32.312: "Generic Integration Reference Point (IRP) management: Information Service (IS)".**

32.313: "Generic Integration Reference Point (IRP) management: Common Object Request Broker Architecture (CORBA) Solution Set (SS)".

32.314: 'Generic Integration Reference Point (IRP) management: Common Management Information Protocol (CMIP) Solution Set (SS)".

The Itf-N interface is built up by a number of Integration Reference Points (IRPs) and a related Name Convention, which realise the functional capabilities over this interface. The basic structure of the IRPs is defined in 3GPP TS 32.101 [1] and 3GPP TS 32.102 [2].

All IRPs support a set of generic features. Those features allow to retrieve IRP profile and IRP supported versions. The present document contains the specification of those generic features.

# 1 Scope

The purpose of the present document is to define a common service supported by all IRPs such as AlarmIRP.
The present document is the "Information Service" part. It defines, for the purpose of supporting the common service, the information observable and controllable by management system's client (i.e., IRPManager) via the Itf-N. It also specifies the semantics of and the interactions used to carry this information.

With this common service supported by all IRPs, an IRPManager can retrieve the profile of operations and notifications supported by a given IRP name-contained by an IRPAgent. An IRPManager can also retrieve the IRPVersions supported by a given IRP.

# 2 References

The following documents contain provisions which, through reference in this text, constitute provisions of the present document.

- References are either specific (identified by date of publication, edition number, version number, etc.) or non-specific.
- For a specific reference, subsequent revisions do not apply.
- For a non-specific reference, the latest version applies. In the case of a reference to a 3GPP document (including a GSM document), a non-specific reference implicitly refers to the latest version of that document *in the same Release as the present document*.

[1] 3GPP TS 32.101: "Telecommunication management; Principles and high level requirements".

[2] 3GPP TS 32.102: "Telecommunication management; Architecture".

[3] 3GPP TS 32.301: "Telecommunication management; Configuration Management (CM); Notification Integration Reference Point (IRP): Requirements".

[4] 3GPP TS 32.622: "Telecommunication management; Configuration Management (CM); Generic network resources Integration Reference Point (IRP): Network Resource Model (NRM)".

[5] 3GPP TS 32.311: "Telecommunication management; Generic Integration Reference Point (IRP) management; Requirements".

# 3 Definitions and abbreviations

## 3.1 Definitions

For the purposes of the present document, the terms and definitions given in 3GPP TS 32.101 [1], 3GPP TS 32.102 [2], 3GPP TS 32.301 [3] and the following apply:

**IRP:** see 3GPP TS 32.102 [2].

**IRPAgent:** see 3GPP TS 32.102 [2].

**IRPManager:** see 3GPP TS 32.102 [2].

**IRP document version number string (or "IRPVersion"):** see 3GPP TS 32.311 [5].

**Itf-N:** see 3GPP TS 32.102 [2].

## 3.2 Abbreviations

For the purposes of the present document, the following abbreviations apply:

| | |
|---|---|
| CM | Configuration Management |
| DN | Distinguished Name |
| EM | Element Manager |
| IOC | Information Object Class |
| IRP | Integration Reference Point |
| IS | Information Service |
| ITU-T | International Telecommunication Union Telecommunication standardisation sector |
| NE | Network Element |
| NM | Network Manager |
| NR | Network Resource |
| NRM | Network Resource Model |
| OMG | Object Management Group |
| SS | Solution Set |
| UML | Unified Modelling Language (OMG) |

# 4 System overview

## 4.1 System context

Figure 1 and figure 2 identify System contexts for this service in terms of implementations called IRPAgent and IRPManager.

"IRPManager" depicts a process that interacts with IRPAgent for the purpose of receiving network Notifications via this IRP. IRPAgent detects network events. IRPAgent sends IRPManagers notifications carrying the events. Examples of IRPManagers can be a process running supporting network Notification logging device or supporting network Notification viewing devices (such as a local craft terminal) or a process running within a Network Manager (NM) as shown in figure 1 and figure 2. IRPAgent implements and supports this IRP. IRPAgent can run within one Element Manager (EM) with one or more NEs (see figure 1) or run within one NE (see figure 2). In the former case, the interfaces (represented by a thick dotted line) between the EM and the NEs are not subject of this IRP. Whether EM and NE share the same hardware system is not relevant to this IRP either. By observing the interaction across the IRP, one cannot deduce if EM and NE are integrated in a single system or if they run in separate systems.

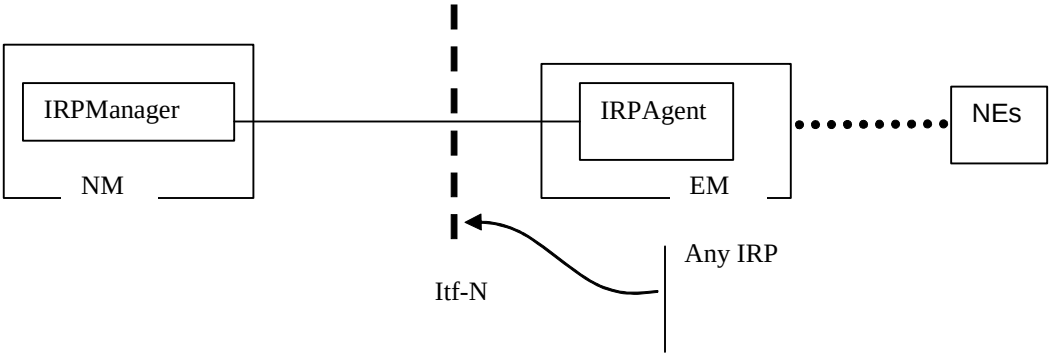



**Figure 1: System Context A**

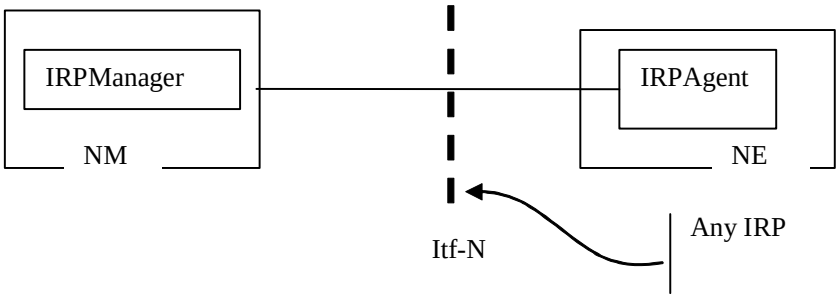



**Figure 2: System Context B**

# 5 Information Object Classes (IOCs)

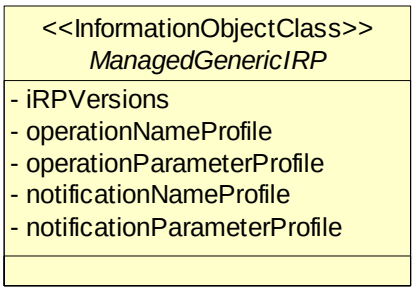
## 5.1 Information entities imported and local labels

| Label reference | Local label |
|---|---|
| 3GPP TS 32.622 [4], information object class, GenericIRP | GenericIRP |

## 5.2 Class Diagram

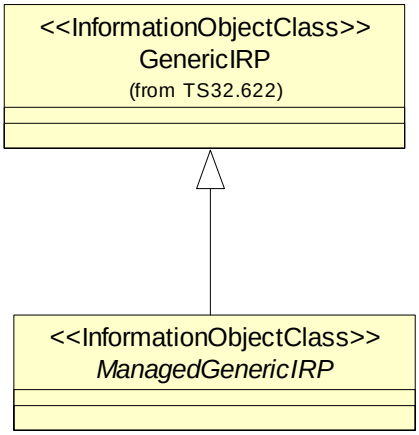
### 5.2.1 Attributes and relationships

This clause depicts the set of IOCs that encapsulate information relevant for this service. This clause provides the overview of all information object classes in UML. Subsequent clauses provide more detailed specification of various aspects of these information object classes.




### 5.2.2 Inheritance

This clause depicts the inheritance relationships that exist between information object classes.



# 5.3 Information object classes definition

## 5.3.1 ManagedGenericIRP

### 5.3.1.1 Definition

This information object represents a generic IRP which supports generic management capabilities. It inherits from IOC GenericIRP.

### 5.3.1.2 Attributes

| Attribute name | Visibility | Support Qualifier | Read Qualifier | Write Qualifier |
|---|---|---|---|---|
| iRPVersions | - | M | - | - |
| operationNameProfile | - | O | - | - |
| operationParameterProfile | - | O | - | - |
| notificationNameProfile | - | O | - | - |
| notificationParameterProfile | - | O | - | - |

# 5.4 Information relationships definition

None

# 5.5 Information attributes definition

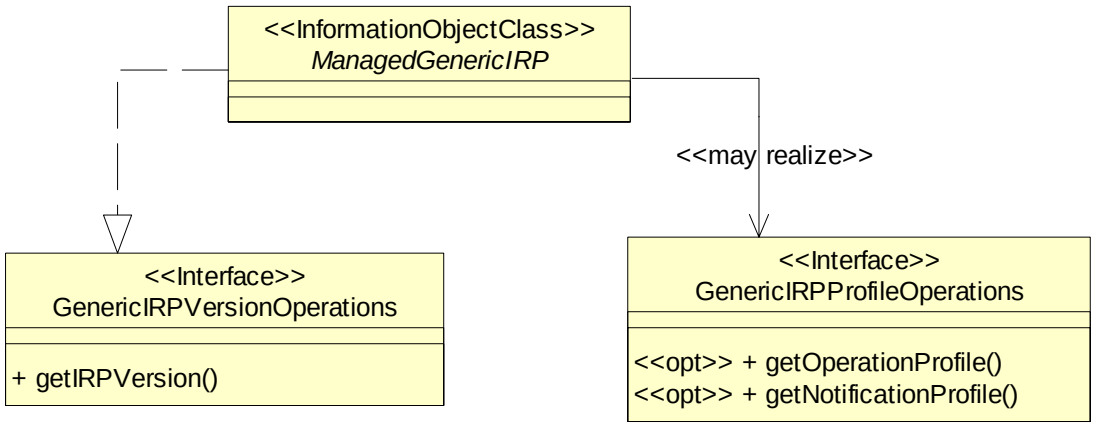
This clause defines the semantics of the Attributes used in Information Object Classes.

## 5.5.1 Definitions and legal values

| Attribute Name | Definition | Legal Values |
|---|---|---|
| iRPVersions | This attribute contains a set of IRPVersions. The set contains at least one element. | See definition "IRP document version number string" in clause 3.1. |
| operationNameProfile | This attribute contains a set of elements.<br>The n-th element of this set contains the set of operation names supported for the IRPVersion identified in the n-th element of iRPVersions attribute. | |
| notificationNameProfile | This attribute contains a set of elements.<br>The n-th element of this set contains the set of notification names supported for the IRPVersion identified in the n-th element of iRPVersions attribute. | |
| operationParameterProfile | This attribute contains a set of elements.<br>The n-th element of this set contains the set of set of notification parameters supported by the operations identified in the n-th element of operationNameProfile attribute.<br>The set of operation parameters are placed in the set in the same order as the order followed by the operation names in their set. | |
| notificationParameterProfile | This attribute contains a set of elements.<br>The n-th element of this set contains the set of set of notification parameters supported by the notifications identified in the n-th element of notificationNameProfile attribute.<br>The set of notification parameters are placed in the set in the same order as the order followed by the notification names in their set. | |

# 6 Interface Definition

## 6.1 Class diagram representing interfaces




## 6.2 Generic rules

- **Rule 1:** each operation with at least one input parameter supports a pre-condition valid_input_parameter which indicates that all input parameters shall be valid with regards to their information type. Additionally, each such operation supports an exception operation_failed_invalid_input_parameter which is raised when pre-condition valid_input_parameter is false. The exception has the same entry and exit state.
- **Rule 2:** Each operation with at least one optional input parameter supports a set of pre-conditions supported_optional_input_parameter_xxx where "xxx" is the name of the optional input parameter and the pre-condition indicates that the operation supports the named optional input parameter. Additionally, each such operation supports an exception operation_failed_unsupported_optional_input_parameter_xxx which is raised when (a) the pre-condition supported_optional_input_parameter_xxx is false and (b) the named optional input parameter is carrying information. The exception has the same entry and exit state.
- **Rule 3:** each operation shall support a generic exception operation_failed_internal_problem which is raised when an internal problem occurs and that the operation cannot be completed. The exception has the same entry and exit state.

## 6.3 genericIRPVersionOperations Interface (M)

### 6.3.1 Operation `getIRPVersion` (M)

#### 6.3.1.1 Definition

IRPManager wishes to find out the IRP SS versions supported by an IRP. The IRP shall respond with a set of supported IRP SS version(s). The list of returned IRP versions is such that the IRPManager can use any of these versions without having to specify an IRPVersion to the IRPAgent.

#### 6.3.1.2 Input parameters

None

#### 6.3.1.3 Output parameters

| Parameter Name | Qualifier | Matching Information | Comment |
|---|---|---|---|
| versionNumberSet | M | ManagedGenericIRP.iRPVersions | It indicates one or more SS version numbers (IRPVersion, as defined by "IRP document version number string" in clause 3.1) supported by the IRP. |
| status | M | ENUM (Operation succeeded, Operation failed) | If operation_failed_internal_problem status = OperationFailed. |

#### 6.3.1.4 Pre-condition

None specific.

#### 6.3.1.5 Post-condition

None specific.

#### 6.3.1.6 Exceptions

None specific.

## 6.4 genericIRPProfileOperations Interface (O)

### 6.4.1 Operation getOperationProfile (O)

#### 6.4.1.1 Definition

IRPManager invokes this operation to query the detailed profile of an IRP (supported operations and supported parameters) for a specific supported version. The notification profile will provide details about notifications that are specifically defined by this IRP.

#### 6.4.1.2 Input parameters

| Parameter Name | Qualifier | Information Type | Comment |
|---|---|---|---|
| iRPVersion | M | Element of ManagedGenericIRP.iRPVersions. | It contains a version number. |

#### 6.4.1.3 Output parameters

| Parameter Name | Qualifier | Matching Information | Comment |
|---|---|---|---|
| operationNameProfile | M | Elements of ManagedGenericIRP.operationNameProfile corresponding to the iRPVersion parameter. | If this parameter contains no information, it implies that the IRP does not support any operation. |
| operationParameterProfile | M | Elements of ManagedGenericIRP.operationParameterProfile corresponding to the iRPVersion parameter. | |
| status | M | ENUM (Operation succeeded, Operation failed) | If operation_failed_invalid_version status = OperationFailed. |

#### 6.4.1.4 Pre-condition

validIRPVersion.

| Assertion Name | Definition |
|---|---|
| validIRPVersion | The iRPVersion input parameter identifies a supported version contained in attribute iRPVersions of ManagedGenericIRP. |

#### 6.4.1.5 Post-condition

None specific.

#### 6.4.1.6 Exceptions

| Name | Definition |
|---|---|
| Operation_failed_invalid_version | **Condition:** validIRPVersion is false<br>**Returned Information:** The output parameter status<br>**Exit state:** Entry State |

### 6.4.2 Operation getNotificationProfile (O)

#### 6.4.2.1 Definition

IRPManager invokes this operation to query the detailed notification profile of an IRP (supported notifications and supported parameters) for a specific supported version. The notification profile will provide details about notifications that are specifically defined by this IRP. For example, if this IRP is notification IRP R4, then getNotificationProfile will not return any information since no notification are defined in notification IRP R4.

#### 6.4.2.2 Input parameters

| Parameter Name | Qualifier | Information Type | Comment |
|---|---|---|---|
| iRPVersion | M | Element of ManagedGenericIRP.iRPVersion | It contains a version number. |

#### 6.4.2.3 Output parameters

| Parameter Name | Qualifier | Matching Information | Comment |
|---|---|---|---|
| notificationNameProfile | M | Element of ManagedGenericIRP.notificationNameProfile corresponding to the iRPVersion parameter. | If this parameter contains no information, it implies that the IRP does not support any notification. |
| notificationParameterProfile | M | Element of ManagedGenericIRP.notificationParameterProfile corresponding to the iRPVersion parameter. | |
| status | M | ENUM (Operation succeeded, Operation failed) | If operation_failed_invalid_version status = OperationFailed. |

#### 6.4.2.4 Pre-condition

validIRPVersion.

| Assertion Name | Definition |
|---|---|
| validIRPVersion | The iRPVersion input parameter identifies a supported version contained in attribute iRPVersions of ManagedGenericIRP. |

#### 6.4.2.5 Post-condition

None specific.

#### 6.4.2.6 Exceptions

| Name | Definition |
|---|---|
| Operation_failed_invalid_version | **Condition:** validIRPVersion is false<br>**Returned Information:** The output parameter status<br>**Exit state:** Entry State |

# Annex A (informative): Change history

| Change history | | | | | | | |
|---|---|---|---|---|---|---|---|
| **Date** | **TSG #** | **TSG Doc.** | **CR** | **Rev** | **Subject/Comment** | **Old** | **New** |
| Jun 2001 | S_12 | SP-010285 | -- | -- | Approved at TSG SA #12 and placed under Change Control | 2.0.0 | 4.0.0 |
| Mar 2002 | S_15 | -- | -- | -- | Automatic upgrade to Rel-5 (no Rel-5 CR) | 4.0.0 | 5.0.0 |
| Dec 2002 | -- | -- | -- | -- | Cosmetics | 5.0.0 | 5.0.1 |
| Dec 2003 | S_22 | SP-030640 | 002 | -- | Align with 32.102 and 32.311 | 5.0.1 | 5.1.0 |
| Mar 2004 | S_23 | SP-040105 | -- | -- | Automatic upgrade to Rel-6 (no CR) | 5.1.0 | 6.0.0 |
| Dec 2004 | S_26 | SP-040794 | 003 | -- | Update UML diagrams, Add reference to its CORBA/CMIP SSs | 6.0.0 | 6.1.0 |
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# History

| Document history | | |
|---|---|---|
| V6.1.0 | December 2004 | Publication |
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