

# ILDG FC Interface Service (0.3)

ILDG MWWG

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The purpose of this document is to describe the ILDG file catalogue (FC) interface web service. Currently, only operations needed to map logical file names (LFN) to resource locators (SURL) are defined. Additional operations will be defined at a later stage.

The FC-WS is a service which provides a standardised interface to the file catalogues that are used in the various regional grids. Since some of these file catalogues require authentication, a credential delegation mechanism is needed. As an authentication mechanism is likely to introduce an overhead, support for bulk operations has been included in the interface.

The aim is to have a single implementation of this service which could be used by different regional grids.

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## 1 Delegation service

For ILDG *GridSite Delegation Interface* revision 2.0.0 [1] has been chosen as implementation of a credential delegation mechanism. While this implementation is part of the gLite middleware, it does not require the use of other gLite middleware components and can also be used, e.g., within a GT4 based setup.

The delegation interface foresees the possibility to store several delegated credentials for the same user (identified by its DN) at the same time, which would typically differ

in the used VOMS attributes. The different delegated credentials are identified by the key pair (DN,delegationID).

For ILDG we (currently) do not foresee to use this feature and expect implementations to fix delegationID to the value ildg.

## 2 WSDL documentation

### 2.1 Operations

#### 2.1.1 Operation getURL

This method can be used to retrieve the SURLs associated with one or more LFNs in a file catalogue. A list of LFNs is submitted and, for each LFN, a result is returned which consists of a list of SURLs and an access status code.

**Input:** getURLRequest

delegationID	Delegation identifier (fixed to 'XXX')
lfnList	List of ILDG-compliant logical file names

```
<wsdl:message name="getURLRequest">
  <wsdl:part name="delegationID" type="xsd:string"/>
  <wsdl:part name="lfnList" type="impl:TArrayOfString"/>
</wsdl:message>

<complexType name="TArrayOfString">
  <complexContent>
    <restriction base="xsd:Array">
      <attribute ref="xsd:arrayType" wsdl:arrayType="xsd:string[]" />
    </restriction>
  </complexContent>
</complexType>
```

**Output:** getURLResponse

resultList	List of results
numberOfResults	Number of results returned
queryTime	Time at which query was executed on server side

lfn	Logical file name
numberOfSURL	Number of SURLs
surlList	List of SURLs

surl	SURL
accessCode	File access code (see section 2.2)

```

<wsdl:message name="getURLResponse">
  <wsdl:part name="getURLReturn" type="impl:TGetURL"/>
</wsdl:message>

<complexType name="TGetURL">
  <sequence>
    <element name="resultList" nillable="true" type="impl:TArrayOfSURLInfo"/>
    <element name="numberOfResults" type="xsd:int"/>
    <element name="queryTime" type="xsd:dateTime"/>
  </sequence>
</complexType>

<complexType name="TArrayOfSURLInfo">
  <sequence>
    <element name="result" maxOccurs="unbounded" nillable="true" type="impl:TSURLInfo"/>
  </sequence>
</complexType>

<complexType name="TSURLInfo">
  <sequence>
    <element name="lfn" type="xsd:string"/>
    <element name="numberOfSURL" type="xsd:int"/>
    <element name="surlList" maxOccurs="unbounded" nillable="true" type="impl:TSURL"/>
  </sequence>
</complexType>

<complexType name="TSURL">
  <sequence>
    <element name="surl" type="xsd:string"/>
    <element name="accessCode" type="impl:TAccessCode"/>
  </sequence>
</complexType>

<simpleType name="TAccessCode">
  <xsd:restriction base="xsd:NMTOKEN">
    <xsd:enumeration value="ACE_ALLOW"/>
    <xsd:enumeration value="ACE_DENY"/>
    <xsd:enumeration value="ACE_UNKNOWN"/>
  </xsd:restriction>
</simpleType>

```

**Fault:** getURLFault

FC_FAILURE	Unqualified failure
FC_INVALID_REQUEST	Bad arguments
FC_NO_CREDENTIALS	No credentials delegated to interface service (only returned if FC requires authentication)

```
<wsdl:message name="getURLFault">
  <wsdl:part name="getURLFault" type="impl:TGetURLFault"/>
</wsdl:message>
```

```
<simpleType name="TGetURLFault">
  <xsd:restriction base="xsd:NMTOKEN">
    <xsd:enumeration value="FC_FAILURE"/>
    <xsd:enumeration value="FC_INVALID_REQUEST"/>
    <xsd:enumeration value="FC_NO_CREDENTIALS"/>
  </xsd:restriction>
</simpleType>
```

### 2.1.2 Operation getFCinfo

Fetch information about interface service.

**Input:** Operation requires no input arguments.

**Output:** getFCinfoResponse

groupName	Name of the collaboration operating the regional grid
groupURL	URL pointing to the web-page of this collaboration
interfaceVersion	Version of the WSDL used by the FC-webservice
fcRequiresAuthN	Return true if file catalogue requires authentication and false otherwise

```
<wsdl:message name="getFCinfoResponse">
  <wsdl:part name="getFCinfoReturn" type="impl:TFCinfo"/>
</wsdl:message>
```

```

<complexType name="TFCinfo">
  <sequence>
    <element name="groupName" type="xsd:string"/>
    <element name="groupURL" type="xsd:string"/>
    <element name="interfaceVersion" type="xsd:string"/>
    <element name="fcRequiresAuthN" type="xsd:boolean"/>
  </sequence>
</complexType>

```

## 2.2 Access Codes

The access code describes any of the following file access status:

ACE_ALLOW	Access allowed
ACE_DENY	Access denied
ACE_UNKNOWN	It is not known whether access is allowed or denied

## 2.3 Interface to file catalogue

The query to the file catalogue is performed by a external program, which is specific to the regional grids.

Usage: `fcQueryExe [-p path_to_proxy] lfn [lfn ...]`

The option `-p` would not be used if the file catalogue does not require authentication.

The program will return a list of strings seperated by newlines. Each string matches the expression `key=value`, where `key` could have the values: `L` (LFN), `S` (SURL), `A` (access code).

The allowed values in case of `key` equal to `A` (access code) are 0 (unknown), 1 (allow), 2 (deny).

## 2.4 Interface service configuration

The following configuration variables are foreseen:

**fcQueryExe** Executable which performs the query to the file catalogue.

**fcRequiresAuthN** Flag which defines whether file catalogue requires authentication (1=yes, 0=no).

## References

[1] [http://www.gridsite.org/wiki/Delegation\\_protocol](http://www.gridsite.org/wiki/Delegation_protocol)