ERICSSON

ENM File Lookup Service (FLS) Interwork Description

Interwork Description

1/155 19-CNA 403 3301 Uen BJ

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1 File Lookup Service (FLS) Interwork Description

FLS stores information about the files which are present in the Ericsson Network Manager (ENM) file system. Using the FLS (REST), external applications running outside ENM can query and get the file location details and other metadata.

Metadata is registered with the FLS for the following file types:

- Performance Management files:
  - All type of Performance Management ROP files collected from the nodes (Statistical files and Event files).
  - Event Based Statistics files (EBS-M, EBS-L, and EBS-N).
  - GSM Event Based Application files.
- Uplink Spectrum File Collection (ULFC) files.

2 Prerequisites

The user must have:

— A fully deployed ENM system.

— A connection to an ENM system.

— A valid username and password to access the ENM system. For password policy, the password must be changed at first access.

— User authentication through North Bound Interface (NBI).

2.1 Authorization

— The predefined role PM_NBI_Operator is required to perform HTTP GET on FLS service.

— The Administrator.

2.2 Authentication

To establish a valid connection with the NBI interface, see the section: *Establish a User Session Over REST and Curl examples for identity and Access Management* of *ENM Identity and Access Management Programmers Guide*, Reference [1].

3 FLS REST Interface

Basic Representational State Transfer (REST) Concepts

All services are accessible through the standard HTTP interface. The interface is designed following RESTful principles. These principles include:

— REST resources can be addressed using URIs. Standard HTTP GET method can be used to manipulate these resources unless otherwise indicated.

— Error reporting is through standard HTTP response codes and messages.

— Standard RESPONSE form encoding in GET responses with MIME type application/hal+json.

Base URL

The RESTful services are accessible from **https://<customer-domain>/file/v1/files**

Note: The exact root context is subject to change.

Filtering FLS Queries

FLS supports advance filtering using the Feed Item Query Language (FIQL).

4 Querying Metadata from FLS

FLS NBI facilitates external applications to fetch metadata for the supported files through standard REST.

See Section Examples of FLS Request and Response on page 23 for examples of some FLS REST requests with their responses.

REST call to get meta-data:

```
https://<customer-domain>/file/v1/files?filter=dataType==<data_type>
```

Keywords Used in Figures:

- **Cycle** represents a complete FLS flow as shown in Figure 1 and Figure 2, required to query metadata for files from the FLS. NBIs must query metadata from FLS in a periodic cycle in order to receive the latest data.
- **First Cycle** represents the first time an FLS query is used to retrieve metadata for files.
- **Next Cycle** represents the next FLS query required to retrieve metadata for next ROP.
- **Previous Cycle** represents the previous FLS query containing ROP metadata including the last received FLS id.

4.1 REST Call to Get Metadata of the Requested Files Using FLS id

NBI can use this REST call to get metadata from the FLS with filter parameter such as “id” (see Filter Parameters on page 8 for details).

Maximum 10,000 records return in a single response. The external applications should query again to fetch remaining entries.

The following diagram describes the flow to query metadata from the FLS using the FLS id as the query filter parameter:

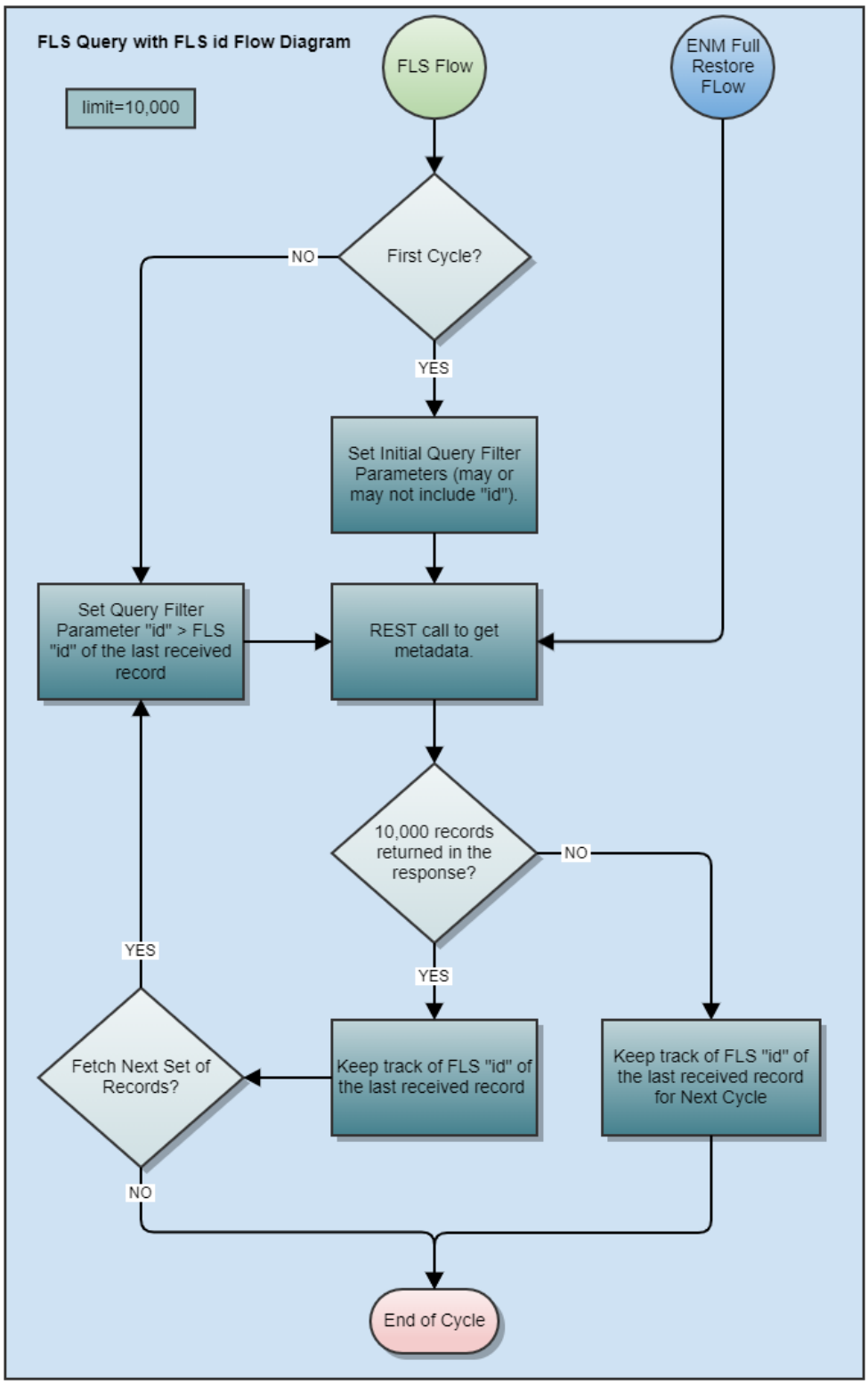

Figure 1 FLS Query with FLS id Flow Diagram

4.2 REST Call to Monitor ENM Full Restore Scenario

As part of ENM FULL Restore Procedure, when the steps as per section *Synchronize the FLS Database* of ENM Backup and Restore System Administrator Guide , Reference [4], are executed, the FLS database is cleared and 'FLS id' is reset to 0.

NBI applications that query FLS after a full restore must query on the FLS id >= 1.

External applications must check for the latest FLS id periodically to identify an ENM Full Restore procedure. An ENM Full Restore is identified when the value of the latest FLS id is less than the previous received FLS id.

The following is an example of a rest call which can be used to get the latest FLS id for the requested data type:

```
https://<customer-domain>/file/v1/files?filter=dataType==<data_type>&select=id &
limit=1&offset=0&orderBy=id%20desc
```

This flow is used to determine if an ENM Full Restore has occurred:

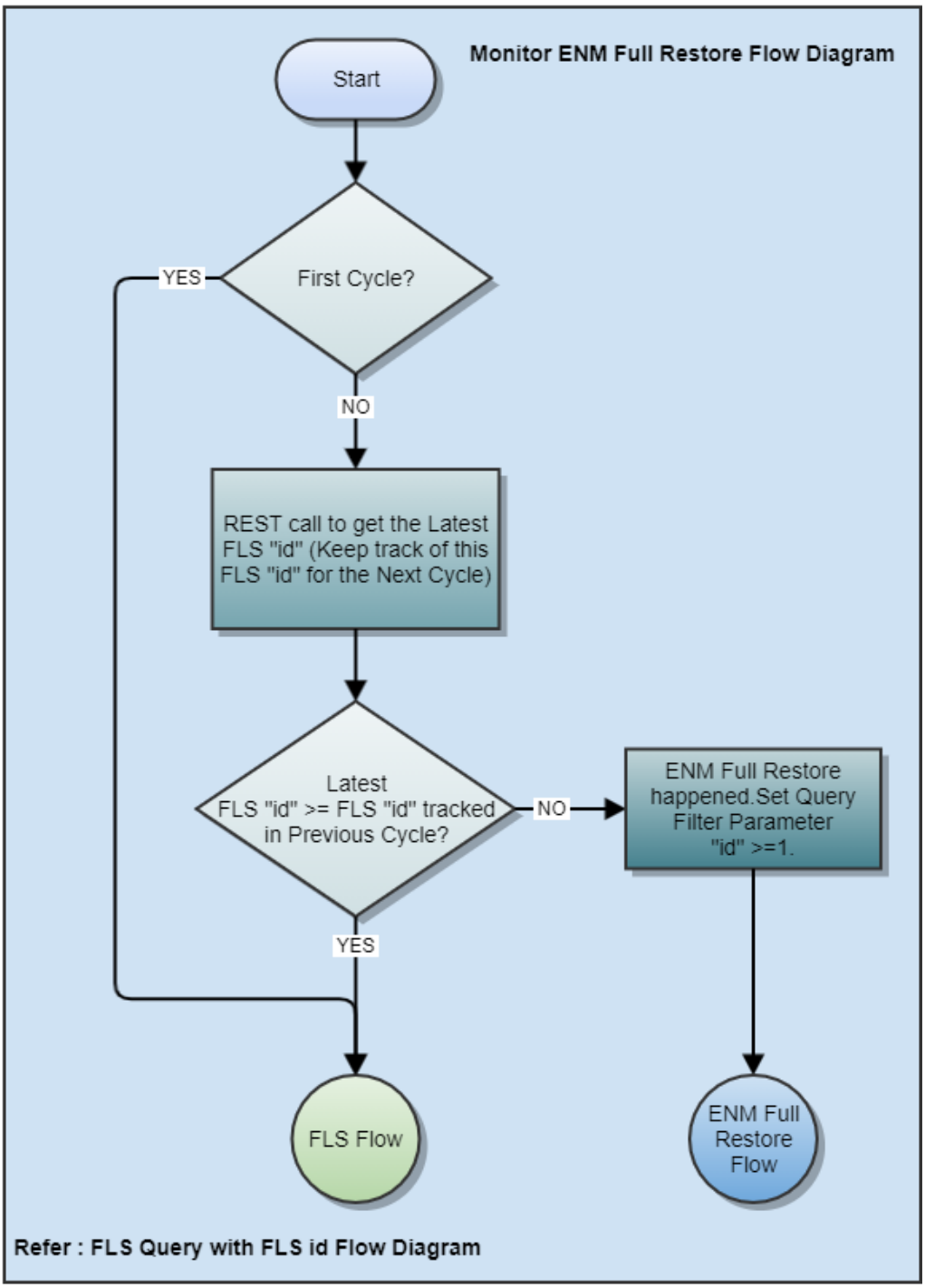

Figure 2 Monitor ENM Full Restore Flow Diagram

5 Filter Parameters

FLS supports the following fields to filter the response:

Table 1 Filter Parameters Applicable to PM Files Metadata

Field Name	Type	Description	Mandatory/Optional
id	long	The unique identifier or token of the file. Maximum value of an id is 9223372036854775807.	Optional
nodeName	string	FDN of the network element from where the file is collected. It contains the complete distinguished name from the root element. **Note:** For RTT file entries, nodeName parameter contains the corresponding pseudonymized IMSI/ IMEI value.	Optional
fileLocation	string	The absolute path of where the file is located in the ENM File system with file name. For example: "/ericsson/pmic1/XML/SubNetwork=LTE_NW,MeContext=LTE01/A20160517.2315-2330_SubNetwork=LTE_NW,MeContext=LTE03_statsfile.xml"	Optional
fileCreationTimeInOss	date	The time when the file is created in the ENM File System (Linux time stamp). Consumers can use this attribute to get the metadata which are older than the retention period. Possible Formats: — yyyy-MM-dd'T'HH:mm:ss (without Time zone) — yyyy-MM-dd'T'HH:mm:ss(-|+)HHmm (with Time zone) **Note:** The records return with ENM server time zone.	Optional
nodeType	string	Type of node, as specified in the neType column of the ENM Supported Network Elements, 3/1029-aom 901 151 Uen, [Reference 2], where the PM column states 'yes'.	Optional

Field Name	Type	Description	Mandatory/Optional
dataType	string	Type of data. Possible values: 1. PM_STATISTICAL 2. PM_STATISTICAL_RAW 3. PM_STATISTICAL_1MIN 4. PM_STATISTICAL_5MIN 5. PM_STATISTICAL_30MIN 6. PM_STATISTICAL_1HOUR 7. PM_STATISTICAL_12HOUR 8. PM_STATISTICAL_24HOUR 9. PM_CELLTRACE 10. PM_CELLTRACE_DU 11. PM_CELLTRACE_CUCP 12. PM_CELLTRACE_CUUP 13. PM_CTUM 14. PM_EBM 15. PM_UETRACE 16. PM_UETRACE_DU 17. PM_UETRACE_CUCP 18. PM_UETRACE_CUUP 19. PM_EBSM_3GPP 20. PM_EBSL 21. PM_EBSN_DU 22. PM_EBSN_CUCP 23. PM_EBSN_CUUP 24. PM_UETR 25. PM_CTR 26. PM_GPEH 27. PM_BSC_CTR 28. PM_BSC_CTR_RAW 29. PM_BSC_CER 30. PM_BSC_CER_RAW 31. PM_BSC_RIR 32. PM_BSC_RIR_RAW 33. PM_BSC_BAR 34. PM_BSC_BAR_RAW 35. PM_BSC_MRR 36. PM_BSC_MRR_RAW 37. PM_MTR 38. PM_MTR_RAW 39. PM_BSC_PERFORMANCE_EVENT 40. PM_BSC_PERFORMANCE_EVENT_RAW	Mandatory

Field Name	Type	Description	Mandatory/Optional
		41. PM_BSC_PERFORMANCE_EVENT_STATISTICS 42. PM_BSC_PERFORMANCE_EVENT_MONITOR 43. PM_BSC_PERFORMANCE_CTRL 44. PM_BSC_RTT (1)(2)(3)(4)(5)(6)	
fileType	string	The format of the file. Possible values: — xml — gz — txt — asn1	Optional
startRopTimeInOss	date	Represents the start ROP time of the file in ENM server time zone. Possible Formats: — yyyy-MM-dd'T'HH:mm:ss (without Time zone) — yyyy-MM-dd'T'HH:mm:ss(-|+)HHmm (with Time zone) **Note:** The records return with ENM server time zone.	Optional
endRopTimeInOss	date	Represents the end ROP time of the file in ENM server time zone. Possible Formats: — yyyy-MM-dd'T'HH:mm:ss (without Time zone) — yyyy-MM-dd'T'HH:mm:ss(-|+)HHmm (with Time zone) **Note:** The records return with ENM server time zone.	Optional
fileSize	long	The size of the file is in bytes.	Optional
limit	integer	By default, there are 10,000 records fetched (based on availability) per query if limit is not specified. This option can be used to limit the result set of metadata to less than 10,000.	Optional
offset	integer	The offset is used to determine the position of	Optional

Field Name	Type	Description	Mandatory/Optional
		the first record to be returned in the result. **Example:** If there are 10 records, where limit = 5 and offset = 0 it will return records 1 to 5. Similarly, if limit = 5 and offset = 5 it returns records 6 to 10 skipping the first 5 records. See example in Retrieve Metadata Using Limit and Offset on page 25	(Mandatory when "**limit**" is given.)
orderBy	string	Orders the result sets in ascending (**asc**) or descending (**desc**) order based on fields. If not provided, default field is id and order is ascending. **Example:** http://<hostname>/file/v1/files/?select=id,nodeName&filter=dataType=="PM*"&orderBy=fileCreationTimeInOss desc	Optional

(1) PM_STATISTICAL_RAW data type is for the raw ASN1 (3GPP non-compliant) files collected from AXE nodes.

The 3GPP ASN1 files generated by Performance Management Initiation and Collection (PMIC) for AXE nodes have data type PM_STATISTICAL.

(2) PM_CELLTRACE_DU, PM_CELLTRACE_CUCP, and PM_CELLTRACE_CUUP data types are used to obtain Celltrace data for gNodeB Baseband Radio Node network elements only.

PM_CELLTRACE data type is used for all other supported network elements.

To obtain results for all Celltrace files, regardless of neType or network element type, use the wildcard PM_CELLTRACE*.

Example: https://<customer-domain>/file/v1/files?filter=dataType==PM_CELLTRACE*

Description: Get all PM Cell Trace files metadata.

(3) PM_UETRACE_DU, PM_UETRACE_CUCP, and PM_UETRACE_CUUP data types are used to obtain UE Trace data for gNodeB Baseband Radio Node network elements only. PM_UETRACE data type is used for all other supported network elements. To obtain results for all UE Trace events, regardless of neType or network element type, use the wildcard PM_UETRACE*.

Example: https://<customer-domain>/file/v1/files?filter=dataType==PM_UETRACE*.
Description: Get all PM UE Trace files.

(4) PM_EBSN_DU, PM_EBSN_CUCP, and PM_EBSN_CUUP data types are used to obtain EBSN data for gNodeB Baseband Radio Node network elements only.

To obtain results for all EBSN, regardless of neType or network element type, use the wildcard PM_EBSN*.

Example: https://<customer-domain>/file/v1/files?filter=dataType==PM_EBSN*.

Description: Get all PM EBSN files.

(5) PM_STATISTICAL data type refers to 15MIN statistical files.

(6) All the data types which contain "_RAW" in their name are taken directly from the nodes. Whereas the data types which does not contain "_RAW" are the processed ones.

For the following network element types, the 24h ROP statistical files are stored with **PM_STATISTICAL** data type for backward compatibility reason:

- CISCO-ASR-900
- CISCO-ASR-9000
- Router6274
- Router6672
- Router6675
- Router6273
- Router6x71
- FRONTHAUL-6020
- FRONTHAUL-6080
- Fronthaul-6392
- MINI-LINK-6351
- MINI-LINK-6352
- MINI-LINK-PT2020
- Switch-6391
- JUNIPER-MX
- JUNIPER-PTX
- JUNIPER-SRX
- JUNIPER-vMX
- JUNIPER-vSRX
- MINI-LINK TN
- MINI-LINK LH
- MINI-LINK CN210
- MINI-LINK CN510R1
- MINI-LINK CN510R2
- MINI-LINK CN810R1
- MINI-LINK CN810R2

- MINI-LINK 6691
- MINI-LINK 6692
- MINI-LINK 6693
- MINI-LINK 6694
- MINI-LINK 6291
- MINI-LINK 6651
- MINI-LINK 6654
- MINI-LINK 6655
- MINI-LINK 6366
- MINI-LINK 6251
- MINI-LINK 6252
- MINI-LINK 6262

Table 2 Filter Parameters Applicable to Uplink Spectrum Analyser (ULSA) Files Metadata

Field Name	Type	Description	Mandatory/Optional
id	long	The unique identifier or token of the file. Maximum value of an id is 9223372036854775807.	Optional
nodeName	string	FDN of the network element from where the file is collected. It contains the complete distinguished name from the root element.	Optional
fileLocation	string	The absolute path of where the file is located in the ENM File system with file name. **Example:** /ericsson/ul_spectrum_files/csv/SubNetwork=Europe,SubNetwork=Ireland,SubNetwork=ERBS-SUBNW-1,MeContext=ieatnetsimv7038-14_LTE41ERBS00035,ManagedElement=1,1,B,20200519.120500ULSA_SPECTRUM.csv.gz	Optional
fileCreationTimeInOss	date	The time when the file is created in the ENM File System (Linux time stamp). Consumers can use this attribute to get	Optional

Field Name	Type	Description	Mandatory/Optional
		the metadata which are older than the retention period. **Possible Formats:** — yyyy-MM-dd'T'HH:mm:ss (without Time zone) — yyyy-MM-dd'T'HH:mm:ss(-|+)HHmm (with Time zone) **Note:** The records return with ENM server time zone.	
nodeType	string	Type of node (neType). Possible values: — ERBS — RadioNode — RBS	Optional
dataType	string	Type of data. Possible values: — ULSA	Mandatory
sampleTime	date	The measurement time reported by the node inside the file. — yyyy-MM-dd'T'HH:mm:ss (without Time zone) — yyyy-MM-dd'T'HH:mm:ss(-| +)HHmm (with Time zone) **Note:** The records return with ENM server time zone.	Optional
radioUnit	string	Represents the radio unit Identifier. **Example:** http://<customer-domain>/file/v1/files/?filter=dataType==ULSA;radioUnit==1	Optional
rfPort	string	Represents the RF port Identifier. **Example:** http://<customer-domain>/file/v1/files/?filter=dataType==ULSA;rfPort==A	Optional

6 Filter Operations

FLS supports the operators in the following table:

Table 3 Filter Operations Operator

Operator	Description	Allowed Filter Parameters	Query Example
==	Equal To	id, dataType, nodeName, fileLocation, fileCreationTimeInOss, nodeType, fileType, startRopTimeInOss, endRopTimeInOss, fileSize	`https://<customer-domain>/file/v1/files?filter=dataType==PM_*;nodeType==ERBS` Description: Get all PM files metadata where nodeType is ERBS.
!=	Not Equal To	id, dataType, nodeName, fileLocation, fileCreationTimeInOss, nodeType, fileType, startRopTimeInOss, endRopTimeInOss, fileSize	`https://<customer-domain>/file/v1/files?filter=dataType==PM_*;nodeType!=ERBS` Description: Get all PM files metadata where nodeType is NOT ERBS.
=gt=	Greater Than	id, startRopTimeInOss, endRopTimeInOss, fileSize, fileCreationTimeInOss	`https://<customer-domain>/file/v1/files?filter=dataType==PM_*;id=gt=2000` Description: Get all PM files metadata where id is greater than 2000.
=ge=	Greater Than or Equal To	id, startRopTimeInOss, endRopTimeInOss, fileSize, fileCreationTimeInOss	https://<customer-domain>/file/v1/files?filter=dataType==PM_*;id=ge=2000 Description: Get all PM files metadata where id is greater than or equal to 2000.
=lt=	Less Than	id, startRopTimeInOss, endRopTimeInOss, fileSize, fileCreationTimeInOss	`https://<customer-domain>/file/v1/files?filter=dataType==PM_*;id=lt=2000` Description: Get all PM files metadata where id is less than 2000.
=le=	Less Than or Equal	id, startRopTimeInOss, endRopTimeInOss, fileSize,	`https://<customer-domain>/file/v1/files?filter=dataType==PM_*;id=le=2000` Description: Get all PM files metadata where id is less than or equal to 2000.

Operator	Description	Allowed Filter Parameters	Query Example
		fileCreationTimeInOss	
=in=	All in set	id, dataType, fileCreationTimeInOss, startRopTimeInOss, endRopTimeInOss, nodeName, fileLocation, nodeType, fileType, fileSize	`https://<customer-domain>/file/v1/files?filter=dataType==PM_*;nodeType=in=(ERBS,MGW)` Description: Get all PM files metadata for ERBS and MGW nodeType.(1)

(1) Values must be provided in parenthesis.

7 Composite Operator and Support for Wildcard

FLS supports the composite operators in the following table:

Table 4 Composite Operator

Operator	Description	Example
;	AND	`https://<customer-domain>/file/v1/files?filter=dataType==PM_*;id=gt=3;id=lt=1000` Description: Get all PM files metadata where id is greater than 3 and less than 1000.
,	OR	`https://<customer-domain>/file/v1/files?filter=dataType==PM_*;(fileType==xml,fileType==txt)` Description: Get all PM files metadata where fileType is xml or txt.(1)

== combined with*
!= combined with*
	Wildcard Search	`https://<customer-domain>/file/v1/files?filter=dataType==PM_*;fileLocation==*LTE*`
		Description: Get all PM files metadata where fileLocation includes *LTE*.
		`https://<customer-domain>/file/v1/files?filter=dataType==PM_*;fileLocation!=*LTE*`
		Description: Get all PM files metadata where fileLocation does not include *LTE*.

(1) 'OR' conditions must be surrounded by parenthesis.

8 Select Parameters

`Select Parameters` is used in the FLS request to determine the parameters that return in the response.

Table 5 Select Fields

Field Name	Type	Description	Mandatory/Optional
select	string	Parameters to specify filter parameters in response records. Following fields are displayed by default if select is not provided in the query: — id — dataType — fileLocation — fileCreationTimeInOss(1)(2)	Optional

(1) Filter parameters specified in Select Parameters are separated by comma.

(2) Filter Operations, Composite Operators, and Wildcard do not apply to select parameters.

8.1 Retrieve Metadata for Files Returning Default Filter Parameters

> The following query returns default metadata (id, dataType, fileLocation, and fileCreationTimeInOss) for PM_STATISTICAL, when 'select' parameter is not provided.

Request

```
https:// < customer-domain >/file/v1/files/?filter=dataType==PM_STATISTICAL
```

Response

```
{
"files": [
{
"id": 923538,
"dataType": "PM_STATISTICAL",
"fileLocation": "/ericsson/pmic2/XML/MeContext=CORE79FrontHaul608002,ManagedElem →
ent=1/A20200908.0615+0100-0630+0100_MeContext=CORE79FrontHaul608002,ManagedEleme →
nt=1_statsfile.xml.gz",
"fileCreationTimeInOss": "2020-09-08T06:35:00+0100"
},
{
"id": 923539,
"dataType": "PM_STATISTICAL",
```

```
"fileLocation": "/ericsson/pmic2/XML/MeContext=CORE86FrontHaul602002,ManagedElem →
ent=1/A20200908.0615+0100-0630+0100_MeContext=CORE86FrontHaul602002,ManagedEleme →
nt=1_statsfile.xml.gz",
"fileCreationTimeInOss": "2020-09-08T06:35:00+0100"
}
]
}
```


8.2 Retrieve Metadata for Files Returning Specified Filter Parameters

> The following query returns specified metadata (id, dataType, nodeName, and fileLocation) for PM_STATISTICAL.

Request

```
https://< customer-domain >/file/v1/files? filter=dataType==PM_STATISTICAL&selec →
t=id,dataType,nodeName,fileLocation
```

Response


```
{
"files": [
{
"id": 867224311,
"nodeName": "SubNetwork=Europe,SubNetwork=Ireland,MeContext=NR102gNodeBRadio0001 →
0,ManagedElement=NR102gNodeBRadio00010",
"dataType": "PM_STATISTICAL",
"fileLocation": "/ericsson/pmic1/XML/SubNetwork=Europe,SubNetwork=Ireland,MeCont →
ext=NR102gNodeBRadio00010,ManagedElement=NR102gNodeBRadio00010/A20200721.1000+01 →
00-1015+0100_SubNetwork=Europe,SubNetwork=Ireland,MeContext=NR102gNodeBRadio0001 →
0,ManagedElement=NR102gNodeBRadio00010_statsfile.xml.gz"
},
{
"id": 867224312,
"nodeName": "SubNetwork=Europe,SubNetwork=Ireland,SubNetwork=ERBS-SUBNW-1,MeCont →
ext=ieatnetsimv7038-78_LTE182ERBS00047",
"dataType": "PM_STATISTICAL",
"fileLocation": "/ericsson/pmic1/XML/SubNetwork=Europe,SubNetwork=Ireland,SubNet →
work=ERBS-SUBNW-1,MeContext=ieatnetsimv7038-78_LTE182ERBS00047/A20200721.1000+01 →
00-1015+0100_SubNetwork=Europe,SubNetwork=Ireland,SubNetwork=ERBS-SUBNW-1,MeCont →
ext=ieatnetsimv7038-78_LTE182ERBS00047_statsfile.xml.gz"
}
]
}
```

9 Execution of FLS North Bound Interface (NBI) Requests

9.1 REST API

REST API

GET Endpoint:

```
https://<customer-domain>/file/v1/files?filter="filterconditions"&select={fieldN
ame1, ...fieldNameN}&limit="number of records to fetch"&offset="offset value"&or
derBy={fieldName1 asc/desc, ... fieldNameN asc/desc}
```

Example 1

REST query to get metadata (id, dataType, nodeName, and fileLocation) for PM_STATISTICAL files having response in ascending order by id.

Request

```
https://<customer-domain>/file/v1/files?filter=dataType==PM_STATISTICAL;fileType
==gz;startRopTimeInOss==2020-07-21T10:00:00&select=id,dataType,nodeName,fileLoca
tion&orderBy=id%20asc
```

Response:

```
{
"files": [
{
"id": 867225115,
"nodeName":"SubNetwork=Europe,SubNetwork=Ireland,SubNetwork=ERBS-SUBNW-1,MeConte
xt=ieatnetsimv7038-81_LTE157ERBS00065",
"dataType": "PM_STATISTICAL",
"fileLocation": "/ericsson/pmic1/XML/SubNetwork=Europe,SubNetwork=Ireland,SubNet
work=ERBS-SUBNW-1,MeContext=ieatnetsimv7038-81_LTE157ERBS00065/A20200721.1000+01
00-1015+0100_SubNetwork=Europe,SubNetwork=Ireland,SubNetwork=ERBS-SUBNW-1,MeCont
ext=ieatnetsimv7038-81_LTE157ERBS00065_statsfile.xml.gz"
},
{
"id": 867225120,
"nodeName":"SubNetwork=Europe,SubNetwork=Ireland,SubNetwork=ERBS-SUBNW-1,MeConte
xt=ieatnetsimv7038-86_LTE217ERBS00028",
"dataType": "PM_STATISTICAL",
"fileLocation": "/ericsson/pmic2/XML/SubNetwork=Europe,SubNetwork=Ireland,SubNet
work=ERBS-SUBNW-1,MeContext=ieatnetsimv7038-86_LTE217ERBS00028/A20200721.1000+01
00-1015+0100_SubNetwork=Europe,SubNetwork=Ireland,SubNetwork=ERBS-SUBNW-1,MeCont
ext=ieatnetsimv7038-86_LTE217ERBS00028_statsfile.xml.gz"
}
]
}
```

Example 2

REST query to get metadata (id, dataType, nodeName, and fileLocation) for ULSA files having response in ascending order by id.

Request

```
https://<customer-domain>file/v1/files?filter=dataType==ULSA&select=id,dataType,
nodeName,fileLocation&orderBy=id%20asc
```

Response

```
{
"files": [
{
"id": 11592974,
"nodeName": "LTE92dg2ERBS00010",
"dataType": "ULSA",
"fileLocation": "/ericsson/ul_spectrum_files/SubNetwork=Europe,SubNetwork=Irelan
d,SubNetwork=NETSimW,ManagedElement=LTE92dg2ERBS00010,1,C,20200724.050047ULSA_SA
MPLE"
},
{
"id": 11592975,
"nodeName": "ieatnetsimv7038-85_LTE214ERBS00025",
"dataType": "ULSA",
"fileLocation": "/ericsson/ul_spectrum_files/SubNetwork=Europe,SubNetwork=Irelan
d,SubNetwork=ERBS-SUBNW-1,MeContext=ieatnetsimv7038-85_LTE214ERBS00025,ManagedEl
ement=1,RRU-1,R,20200724.050046ULSA_SAMPLE"
}
]
}
```

9.2 Curl Command

Curl Command

URL Encoded Examples:

— Curl query to get metadata for all PM files:

```
curl -G --cacert ENM_PKI_Root_CA.pem --request GET --cookie cookie_Administr
ator.txt 'https://<customer-domain>/file/v1/files' --data-urlencode 'filter=
dataType==PM*'
```

— Curl query to get metadata for ULSA files:

```
curl -G --cacert ENM_PKI_Root_CA.pem --request GET --cookie cookie_Administr
ator.txt 'https://<customer-domain>/file/v1/files' --data-urlencode 'filter=
dataType==ULSA'
```

— Curl query to get metadata for all PM files with filter parameter endRopTimeInOss and nodeName:

```
curl -G --cacert ENM_PKI_Root_CA.pem --request GET --cookie cookie_Administr
ator.txt 'https://<customer-domain>/file/v1/files' --data-urlencode filter=d
ataType==PM*;endRopTimeInOss==2017-02-20T16:15:00+0000;nodeName==*_LTE69ERBS
```

```
00142' --data-urlencode 'select=id,nodeName,startRopTimeInOss,endRopTimeInOs →
s'
```

10 Examples of FLS Request and Response

The following are the examples of some FLS REST requests with their responses.

10.1 Retrieve All PM Statistical Files Metadata

Request

```
https://<customer-domain>/file/v1/files?filter=dataType==PM_STATISTICAL
```

Response

```
{
"files": [
{
"id": 154234,
"dataType": "PM_STATISTICAL",
"fileLocation": "/ericsson/pmic1/XML/SubNetwork=LTE_NW,MeContext=LTE01/A20160517 →
 →
.2315-2330_SubNetwork=LTE_NW,MeContext=LTE01_statsfile.xml",
"fileCreationTimeInOss": "2016-05-17T23:35:43-05:00"
},
{
"id": 154235,
"dataType": "PM_STATISTICAL",
"fileLocation": "/ericsson/pmic1/XML/SubNetwork=LTE_NW,MeContext=LTE01/A20160517 →
 →
.2315-2335_SubNetwork=LTE_NW,MeContext=LTE01_statsfile.xml",
"fileCreationTimeInOss": "2016-05-17T23:35:43-05:05"
}]}
```

10.2 Retrieve All ULSA Files Metadata

Request

```
https://<customer-domain>/file/v1/files?filter=dataType==ULSA
```

Response

```
{
"files": [
{
"id": 154234,
"dataType": "ULSA",
"fileLocation": "/ericsson/ul_spectrum_files/MeContext=LTE01dg2ERBS00001,1,20170 →
830.13744ULSA_SAMPLE",
"filecreationTimeInOss": "2017-08-30T13:47:44+0100"
}
]
}
```

10.3 Retrieve Latest id

Request

The following query returns the latest id in FLS for files with `dataType` PM_STATISTICAL.

```
https://<customer-domain>/file/v1/files?filter=dataType==PM_STATISTICAL&select=id&limit=1&offset=0&orderBy=id%20desc
```

Response

```
{
"files": [
{
"id": 453887
}
]
}
```

10.4 Retrieve Metadata Using Filter Operations

Request

The following query returns metadata for two records with an id greater than a specified id.

```
https://<customer-domain>/file/v1/files?filter=dataType==PM_STATISTICAL;id=gt=277862&select=id,nodeName,fileLocation&limit=2&offset=0
```

Response

```
{
"files": [
{
"id": 277865,
"nodeName": "SubNetwork=Europe,SubNetwork=Ireland,SubNetwork=RNC11,ManagedElement=RNC11MSRBS-V2199",
"fileLocation": "/ericsson/pmic2/XML/SubNetwork=Europe,SubNetwork=Ireland,SubNetwork=RNC11,ManagedElement=RNC11MSRBS-V2199/A20200325.2330+0000-2345+0000_SubNetwork=Europe,SubNetwork=Ireland,SubNetwork=RNC11,ManagedElement=RNC11MSRBS-V2199_statsfile.xml.gz"
},
{
"id": 277866,
"nodeName": "SubNetwork=Europe,SubNetwork=Ireland,SubNetwork=RNC11,ManagedElement=RNC11MSRBS-V2446",
"fileLocation": "/ericsson/pmic2/XML/SubNetwork=Europe,SubNetwork=Ireland,SubNetwork=RNC11,ManagedElement=RNC11MSRBS-V2446/A20200325.2330+0000-2345+0000_SubNetwork=Europe,SubNetwork=Ireland,SubNetwork=RNC11,ManagedElement=RNC11MSRBS- V2446_statsfile.xml.gz "
}
]
}
```

10.5 Retrieve Metadata Using Wildcard

Request

The following query returns metadata for PM_STATISTICAL file having id greater than 0, nodeName having either 'LTE' or 'gNodeB' and nodeType as 'RadioNode'.

```
https://< customer-domain >/file/v1/files? filter=dataType=in=PM_STATISTICAL;id=gt=0;(nodeName==*LTE*,nodeName==*gNodeB*);nodeType=in=(RadioNode)
```

Response

```
{
"files": [
{
"id": 867224311,
"dataType": "PM_STATISTICAL",
"fileLocation": "/ericsson/pmic1/XML/SubNetwork=Europe,SubNetwork=Ireland,MeContext=NR102gNodeBRadio00010,ManagedElement=NR102gNodeBRadio00010/A20200721.1000+0100-1015+0100_SubNetwork=Europe,SubNetwork=Ireland,MeContext=NR102gNodeBRadio00010,ManagedElement=NR102gNodeBRadio00010_statsfile.xml.gz",
"fileCreationTimeInOss": "2020-07-21T10:26:20+0100"
},
{
"id": 867224315,
"dataType": "PM_STATISTICAL",
"fileLocation": "/ericsson/pmic2/XML/SubNetwork=Europe,SubNetwork=Ireland,SubNetwork=NETSimW,ManagedElement=LTE118dg2ERBS00071/A20200721.1000+0100-1015+0100_SubNetwork=Europe,SubNetwork=Ireland,SubNetwork=NETSimW,ManagedElement=LTE118dg2ERBS00071_statsfile.xml.gz",
"fileCreationTimeInOss": "2020-07-21T10:26:20+0100"
}
]
}
```

10.6 Retrieve Metadata Using Limit and Offset

The `limit` and `offset` parameters are used to retrieve only few records from the result of the query.

Request

```
https://<customer-domain>/file/v1/files?filter=dataType=in=PM_STATISTICAL&limit=5&offset=0&orderBy=id%20asc
```

Description

Result set displays five records starting from first row.

Response

```
{
"files": [
{
"id": 100005,
"dataType": "PM_STATISTICAL",
```

```
"fileLocation": "/ericsson/pmic1/XML/SubNetwork=Europe,SubNetwork=Ireland,MeCont
ext=NR102gNodeBRadio00010,ManagedElement=NR102gNodeBRadio00010/A20200721.1000+01
00-1015+0100_SubNetwork=Europe,SubNetwork=Ireland,MeContext=NR102gNodeBRadio0001
0,ManagedElement=NR102gNodeBRadio00010_statsfile.xml.gz",
"fileCreationTimeInOss": "2020-07-21T10:26:20+0100"
},
{
"id": 100006,
"dataType": "PM_STATISTICAL",
"fileLocation": "/ericsson/pmic1/XML/SubNetwork=Europe,SubNetwork=Ireland,SubNet
work=ERBS-SUBNW-1,MeContext=ieatnetsimv7038-78_LTE182ERBS00047/A20200721.1000+01
00-1015+0100_SubNetwork=Europe,SubNetwork=Ireland,SubNetwork=ERBS-SUBNW-1,MeCont
ext=ieatnetsimv7038-78_LTE182ERBS00047_statsfile.xml.gz",
"fileCreationTimeInOss": "2020-07-21T10:26:20+0100"
},
{
"id": 100007,
"dataType": "PM_STATISTICAL",
"fileLocation": "/ericsson/pmic2/XML/SubNetwork=Europe,SubNetwork=Ireland,SubNet
work=NETSimW,ManagedElement=LTE118dg2ERBS00071/A20200721.1000+0100-1015+0100_Sub
Network=Europe,SubNetwork=Ireland,SubNetwork=NETSimW,ManagedElement=LTE118dg2ERB
S00071_statsfile.xml.gz",
"fileCreationTimeInOss": "2020-07-21T10:26:20+0100"
},
{
"id": 100008,
"dataType": "PM_STATISTICAL",
"fileLocation": "/ericsson/pmic1/XML/SubNetwork=Europe,SubNetwork=Ireland,SubNet
work=NETSimW,ManagedElement=LTE38dg2ERBS00001/A20200721.1000+0100-1015+0100_SubN
etwork=Europe,SubNetwork=Ireland,SubNetwork=NETSimW,ManagedElement=LTE38dg2ERBS0
0001_statsfile.xml.gz",
"fileCreationTimeInOss": "2020-07-21T10:26:20+0100"
},
{
"id": 100009,
"dataType": "PM_STATISTICAL",
"fileLocation": "/ericsson/pmic1/XML/SubNetwork=Europe,SubNetwork=Ireland,SubNet
work=NETSimW,ManagedElement=LTE81dg2ERBS00038/A20200721.1000+0100-1015+0100_SubN
etwork=Europe,SubNetwork=Ireland,SubNetwork=NETSimW,ManagedElement=LTE81dg2ERBS0
0038_statsfile.xml.gz",
"fileCreationTimeInOss": "2020-07-21T10:26:20+0100"
}
]
}
```


Request

```
https://<customer-domain>/file/v1/files?filter=dataType=in=PM_STATISTICAL&limit=
2&offset=2&orderBy=id%20asc
```

Description

Result set displays two records, skipping the first two rows from the actual result set (see the Request on page 25).

Response


```
{
"files": [
{
"id": 100007,
"dataType": "PM_STATISTICAL",
"fileLocation": "/ericsson/pmic2/XML/SubNetwork=Europe,SubNetwork=Ireland,SubNet
work=NETSimW,ManagedElement=LTE118dg2ERBS00071/A20200721.1000+0100-1015+0100_Sub
Network=Europe,SubNetwork=Ireland,SubNetwork=NETSimW,ManagedElement=LTE118dg2ERB
S00071_statsfile.xml.gz",
"fileCreationTimeInOss": "2020-07-21T10:26:20+0100"
},
{
```

```
"id": 100008,
"dataType": "PM_STATISTICAL",
"fileLocation": "/ericsson/pmic1/XML/SubNetwork=Europe,SubNetwork=Ireland,SubNetwork=NETSimW,ManagedElement=LTE38dg2ERBS00001/A20200721.1000+0100-1015+0100_SubNetwork=Europe,SubNetwork=Ireland,SubNetwork=NETSimW,ManagedElement=LTE38dg2ERBS00001_statsfile.xml.gz",
"fileCreationTimeInOss": "2020-07-21T10:26:20+0100"
}
]
}
```


10.7 Retrieve All RTT Files Metadata for specific IMSI/IMEI

The following query returns PM_BSC_RTT file metadata for a specific IMSI/IMEI as specified by the pseudonymized IMSI/IMEI value in fileLocation filter.

Request

```
https://<customer-domain>/file/v1/files/?select=id,nodeName,dataType,fileLocation&filter=dataType==PM_BSC_RTT;fileLocation=="*8K-PL_DZv2HAsARRAZ6kMdf7xxa5CdUytusgWtGV0no=*"
```

Response


```
{
"files":[{
"id":58788,
"nodeName":"8K-PL_DZv2HAsARRAZ6kMdf7xxa5CdUytusgWtGV0no=",
"dataType":"PM_BSC_RTT",
"fileLocation":"/ericsson/pmic1/rtt/event_data/8K-PL_DZv2HAsARRAZ6kMdf7xxa5CdUytusgWtGV0no=/B20201204.0845+0000-0900+0000_8K-PL_DZv2HAsARRAZ6kMdf7xxa5CdUytusgWtGV0no=_rttevent.txt.gz"
},
{
"id":58796,
"nodeName":"8K-PL_DZv2HAsARRAZ6kMdf7xxa5CdUytusgWtGV0no=",
"dataType":"PM_BSC_RTT",
"fileLocation":"/ericsson/pmic1/rtt/event_data/8K-PL_DZv2HAsARRAZ6kMdf7xxa5CdUytusgWtGV0no=/B20201204.0900+0000-0915+0000_8K-PL_DZv2HAsARRAZ6kMdf7xxa5CdUytusgWtGV0no=_rttevent.txt.gz"
},
{
"id":58804,
"nodeName":"8K-PL_DZv2HAsARRAZ6kMdf7xxa5CdUytusgWtGV0no=",
"dataType":"PM_BSC_RTT",
"fileLocation":"/ericsson/pmic1/rtt/event_data/8K-PL_DZv2HAsARRAZ6kMdf7xxa5CdUytusgWtGV0no=/B20201204.0915+0000-0930+0000_8K-PL_DZv2HAsARRAZ6kMdf7xxa5CdUytusgWtGV0no=_rttevent.txt.gz"
}
]
}
```

11 Abbreviations Table

Table 6 Abbreviations

S. No.	Abbreviations	Expansions
1	EBS	Event Based Statistics
2	ENM	Ericsson Network Manager
3	FIQL	Feed Item Query Language
4	FLS	File Lookup Service
5	HAL	Hypertext Application Language
6	JSON	JavaScript Object Notation
7	NBI	North Bound Interface
8	PM	Performance Management
9	PMIC	Performance Management Initiation and Collection
10	REST	Representational State Transfer
11	ROP	Report Output Period
12	ULFC	Uplink Spectrum File Collection
13	ULSA	Uplink Spectrum Analyser

Reference List

Table 7

Id. N.	Reference
[1]	*ENM Identity and Access Management Programmers Guide*, 19817-cna 403 3016 Uen
[2]	*ENM Supported Network Elements*, 3/1029-aom 901 151 Uen
[3]	*Supplementary Documentation for ENM Interwork Description for File Lookup Service* , 190 89-lzn 708 0868 Uen
[4]	*ENM Backup and Restore System Administrator Guide*, 3/1543-aom 901 151 Uen