IP DIRECTOR APPLICATION NOTE

Nearline Config

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INTRODUCTION

This document describes the important points to take into account when configuring an IP-Director Nearline.

[IP] DIRECTOR NEARLINE CONFIGURATION

The nearline management is defined in the Remote Installer -> Configure -> Nearline tab

The following configuration has to be completed :

Name	Destination Path	Default HiRes File Format	XML Unit	Default	Storage system	Authentication Method	Username	Password	Access Rights
AH	\\Burahevsxfile\G on XFILE\AH\	EVS MXF	XTAccess	☐	MS Windows	Integrated			
Graphics4Edit	\\3.23.148.11\Graphics4Edit\EVS\	EVS MXF	XTAccess	☐	Others	User/Pwd	editor	access	

- **Name** : Name given to the nearline folder in the IP-Director interface
- **Destination Path**: Path of the nearline storage. It must be a UNC path accessible with CIFS protocol. Subfolders will be managed as well.
- **Default HiRes File Format** : File format used to backup clips on the nearline folder
- **XML Unit** : XML Unit used to process backups and restore to/from the nearline
- **Default** : Default nearline
- **Storage system** : defines the compatibility with file updates events (see next chapter in this document)
- **Authentication Method** : defines the way the managing services will authenticate on the nearline folder (see next chapters in this document)
- **Username** : user used by the managing services if the authentication method is set to “User/Pwd”
- **Password** : password used by the managing services if the authentication method is set to “User/Pwd”
- **Master** : Defines if the nearline is managed in master or slave mode. In Master mode, metadata XML files are updated according the changes made in the IP Director. In slave mode, the metadata XML files are not updated and kept as they were when the file has been created. Only one IP Director workgroup can manage a nearline in master mode, the other workgroups will have to manage the nearline in slave mode.
- **Access Rights**: nearline access rights given to the IP-Director user groups.
- **Cluster** : This setting is used if the nearline is stored on a storage accessible through multiple servers/heads. This is typically the case with EVS XStore SAN, designed for big storages.
  - **SAN nearlive postfix :** Postfix added to the nearline share folder. This option is used with EVS XStore SAN to access hidden shares where oplocks have been disabled. This postfix is added when IP Director tries to access to a growing file.
  - **IP Address :** IP addresses of each storage heads. IP Director will subscribe to filesystem notification on each of these IP addresses. This option is used if the storage doesn’t consolidate all filesystem notification on the storage head accessed by the SynchroDB managing the nearline.

In addition, a SynchroDB service must be configured to manage the nearline either in RestictedStandAlone either in Network mode.

STORAGE TYPES AND NEARLINE

The nearline management in IP Director can use FileSystemWatcher events to be aware of a file creation, update or deletion on the storage system. But these FileSystemWatcher events are not supported by all storage Operating Systems.

These events are really useful for the IP Director because the IP Director DB is immediately updated when something is changed on the nearline storage.

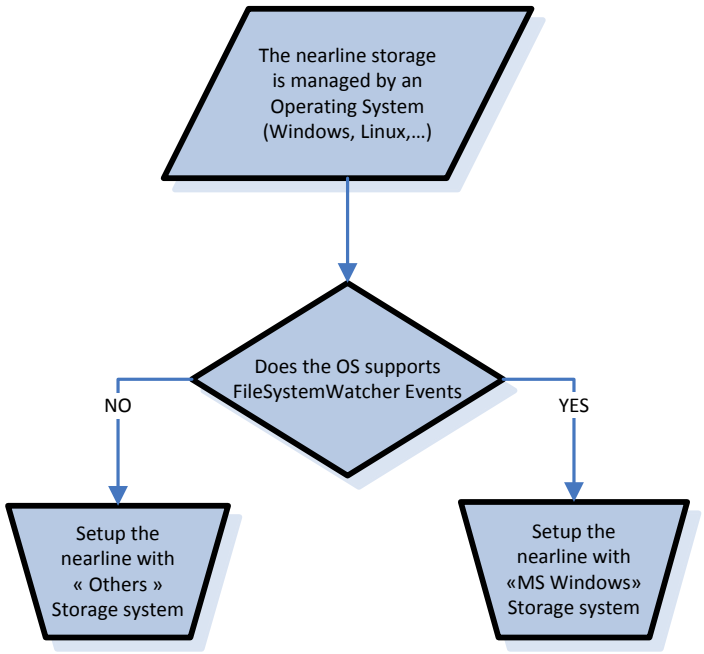
If the storage declared as the nearline is managed by a Windows operating system, it's pretty sure that the FileSystemWatcher events will be supported.

If the storage is managed by a Linux Operating System the FileSystemWatcher compatibility depends on the SAMBA server version and on its configuration.

To be compatible with the FileSytemWatcher events the OS must use a SAMBA server with a version higher than 3.00.25 (actually tested with the version 3.00.28) and the "notify" option must be enabled.

A FileSystemWatcher client is available at EVS to test the events compatibility of the nearline storage. If you are not sure of the storage configuration it is better to proceed to a test with the test client.

If the storage supports the FileSystemWatcher you can configure the nearline Storage Type to "MS Windows" in the Remote Installer otherwise this option must be set to "Others"



NEARLINE AUTHENTICATION

As the nearline storage could not be an EVS hardware the IP-Director should be able to access to the files stored on the nearline in any cases without user prompt.

EVS COMPONENTS

The component that must be able to access the nearline are :

- The Master SynchroDB service or any SynchroDB service that could become Master
- The SynchroDB service that manages the nearline or any SynchroDB that could manage the nearline (in network mode)
- The software players (and potentially every IP-Director)
- The XFile or XTAccess applications

The authentication is based on the Windows authentications processes. We can describe 2 different scenario.

EVS USER (DVB) EXISTS ON THE STORAGE

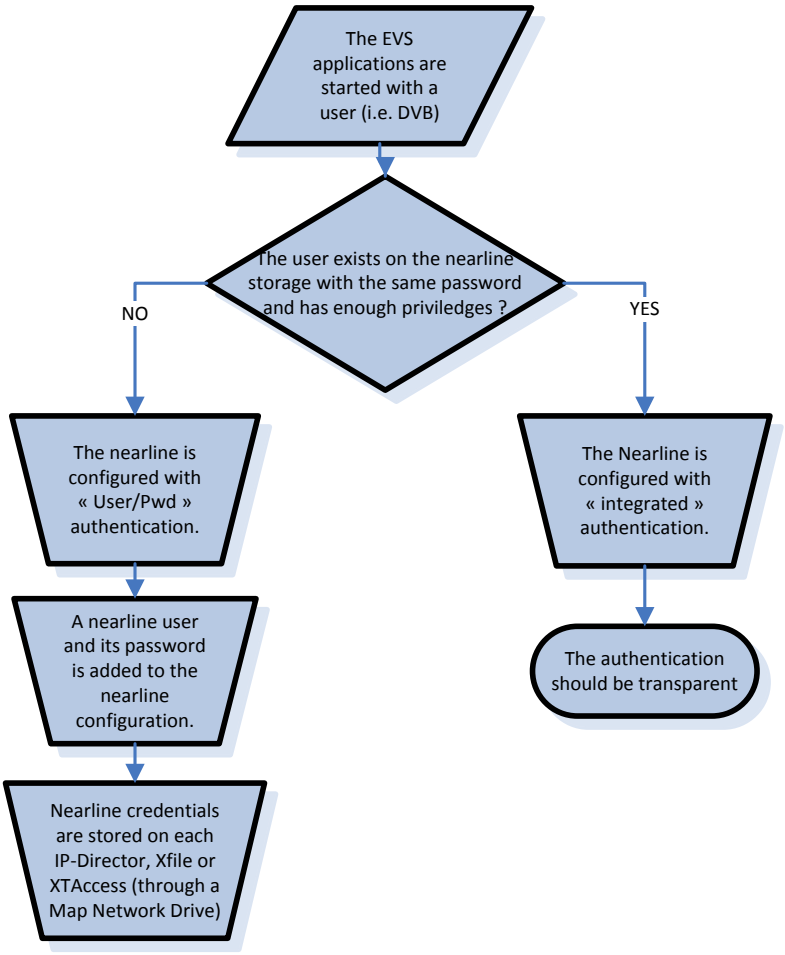
If every application is started with a user and this user exists locally on the nearline storage with the same password, the authentication should be automatic and transparent for the user.

Take into account that, by default, a Windows operating system disables the network access for users without password. It could be blocking for storages hosted on a Windows OS.

EVS USER (DVB) DOESN'T EXIST ON THE STORAGE

If the user used to start the applications doesn't exist on the storage system the synchroDB must be configured to use another user when it tries to connect to the nearline. This is done by changing the authentication mode to "User/Pwd" in the remote installer and by adding the nearline user and password in the same interface. This change is taken into account after a SynchroDB service restart.

This configuration is not used by the IP-Director application (the Software player) neither the Xfile nor XTAccess. The user and password must be stored in the user profile launching these applications by adding a Map Network Drive or by opening the nearline share and store the user and password when windows prompts for authentication.


The EVS applications are started with a user (i.e. DVB)
The user exists on the nearline storage with the same password and has enough priviledges ?
NO
YES
The nearline is configured with « User/Pwd » authentication.
A nearline user and its password is added to the nearline configuration.
Nearline credentials are stored on each IP-Director, Xfile or XTAccess (through a Map Network Drive)
The Nearline is configured with « integrated » authentication.
The authentication should be transparent

TESTED SERVERS
EVS XSTORE

As soon as the EVS XStore is managed by a Windows Server, the nearline should be configured with a “Windows” storage system and a “Integrated” authentication. This is the best scenario.

EVS SAN SERVER

The EVS SAN Servers are running a LINUX operating system. Please contact EVS to check if your server version supports the file change notifications (FileSystemWatcher). Check that the SynchroDB services are started with a user that exists on the SAN Servers (it is the case for the DVB user)

OMNEON MEDIAGRID

Following our tests direct access to the Omneon Mediagrid doesn’t support the FileSystemWatcher events correctly. However, FileSystemWatcher events can be retrieved by acccessing the mediagrid through the Omneon File System Driver (FSD) or a content bridge. When using one these two devices, the Mediagrid can still be managed as a Windows storage.

MANAGEMENT THROUGH FSD

The Omneon Mediagrid client driver allows notifications to be received. However, there are no notifications for sub directories so the nearline directory must be flat. The FSD connects directly content directors to access the mediagrid. When there are several content directors, a common host name is usually set for all the content directors. In order to have some load balancing between the content directors, the host name must be used as nearline path.

The FSD needs to be installed on

- Nearline manager IPDirector
- MasterSychroDB IPDirector
- All clients IPDirectors (or IPBrowse) that need to browse files on the mediagrid.

When doing this, the nearline can be configured with the “Windows” storage system to manage the file events.

The FSD has a logon screen. In that screen, choose authentication for the whole machine. When the driver is authenticated to the whole machine on management IPDirectors, authentication type can be set to “Integrated”.

The efficiency of the nearline management on MediaGrid highly depends on the versions of the FSD driver. Please contact the support or the product managers to verify that the version you are using is compatible with the IPD nearline Management

Last validated FSD version: 3.0.1

Known incompatible versions: 2.4.0;3.1.0 (these versions could cause nearline instability issues)

Network provider order must be set to : 1-Windows Network | 2-Omneon FSD

MANAGEMENT THROUGH CONTENT BRIDGE(S)

The mediagrid can also be accessed through a content bridge. The content bridge emulates a windows file system. A content bridge then accesses the mediagrid using a content director.

Modifications made by a content bridge get notified to other users of the same content bridge but notifications made through a different content bridge or through the FSD are not received by a content bridge.

If more than one content bridge is present in the system, a host name can be setup to load balance between the content bridges.

There are two options to setup an IPDirector nearline through a content bridge:

1. Only one content bridge is used for writing and reading on the nearline: configure the IP Address or host name of the content bridge as the nearline path
2. There are several content bridges: a host name must be setup to load balance between the content bridges. The host name is used as main nearline path. The individual IP Addresses of the content bridges are added as cluster IP Addresses.

In all cases, the nearline needs to be managed in user/password. No further authentication is needed on management IPDirectors. Client browsing stations (IPDirector or IPBrowse) MUST be authenticated on the storage through the correct path.

XTAccess/XSquare setup: performances tend to be better and stability is definitely better when writing a media through the FSD. XTAccess/XSquare can be setup to write the A/V files through the FSD path and the evs.xml file through the content bridge. IPDirector will get notified of creation/update/delete of the evs.xml and will find the A/V accordingly.

MEDIAGRID CONFIGURATIONS

There are two important configurations to be made on the mediagrid itself:

1. Make sure the mediagrid is configured to be case insensitive. For the content bridges, similar lines than the following need to be in the configuration file:

```
CB 172.16.1.200 mgbo mgadmin 1234 caseinsensitive
MG 172.16.1.200 mgbo mgadmin 1234 caseinsensitive
CIFS_CASE_SENSITIVE=NO
```

2. The mediagrid stores files as slices. By default, the size of a slice if very large and not adapted for our small evs.xml files. The mediagrid can be configured to reduce the size of a slice for some file extensions. Make sure this is done for .xml files and .ipdnl (live bit) files.

MEDIAGRID AND XML UNITS

Putting xml units on a mediagrid seriously damages the performances of the media. This must be avoided.

EMC ISILON X-SERIES

Isilon X-Series nodes have been validated with IP Director with file notifications (Storage System = Windows).

This validation has however a few prerequisites :

- OneFS version should be higher or equal to 6.5.4.12
- The SynchroDBs should always point to the same Isilon node if the Smart Connect function is used to access the Isilon cluster. This is achieved by configuring host files on the synchroDBs (cluster name points to one node IP address). The other IP Directors can use the round robin mechanism.
- File and folder renaming is not supported once they have been detected by IPD.

Please contact product managers to have the test status for other storages