

# AUTOMATION – REPORTING – VARIABLE DATA JOB MANAGEMENT - WEBSHOP

## White Paper

This document explains the different Automation and Reporting Capabilities of Caldera.

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## Introduction

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### State of the Art

Speaking about version 9.20 and upcoming versions of Caldera, our software offers several mechanism of Automation and reporting Capabilities.

This document is intended to give a global overview of these capabilities, not necessarily going into deep technical aspects; therefore specific documentations are available.

#### Automation

The concept of Automation implies the ability to submit jobs to the Caldera RIP, and have the latter being automatically processed without any manual intervention. We can here define two cases:

- Fixed Automations: Each and single file is processed in the exact same way.
- Parametric Automations: Each file can be processed using submitted parametrical settings ( For example to a specific printer, with a specific number of copies / resolution .. ).

#### Reporting

The concept of Reporting implies the ability to retrieve jobs information's during of after the processing. For example: for post-production cost analysis.

#### Variable Data

Variable Data , simply implies the ability to submit files to the Rip containing variable Information's, for example a Multi-page PDF file containing a static background, and a variable text on top of it.

#### Job Management

Job Management is a simple vision of the ability to Submit / Track jobs inside a Production Environment. This is typically the role of an MIS.

#### WebSHOP

A WebSHOP consists of a Web-Based front-end allowing end-users to :

- Place Orders
- Upload files associated to these orders
- Potentially Pay on-Line.

Each and single of these cases can be addressed by our products, sometimes in multiples ways, and the choice mostly depends on the Integration capability with Third-Party systems.

## Our solutions

### Automation

- Fixed Automations: This is simply addressed by our Hotfolders / Workflow Technology
  - o See How-To : *Setup Hotfolders and Workflows* Manual.
- Parametric Automations: JDF/JMF Base workflow using our new **Nexio** option. ( See specific section ). Nexio is sold and Managed as a Project, via the Solutions-Integration team of Caldera.

### Reporting

- CostView, the Optional cost-view option of Caldera allows to :
  - o View from any Browser the last Printed Jobs.
  - o Create csv based exports of the Printed Jobs, to be able to import those in a Third-Party solution, or simply Excel.
  - o Cost-View is Client/Server based, allowing you to define one Central Cost-View to fetch the Printed-Jobs information's from other Caldera Rips.
- JDF/JMF Base workflow using our new **Nexio** option. (See specific section).

### Variable Data

Variable Data is not directly possible in the rip. Meaning that you can not directly create a Template document inside Caldera, and have the rip fill in Variable Fields.

However thx to the integration of APPE, Caldera supports Native PDF/VT files.

PDF/VT is the Adobe implementation of VariableData printing, a PDF/VT is a standard PDF file which can be processed by any PDF compliant tool, However it does guarantee that static ( identical elements ), are present only once physically in the file, enabling APPE to use an advanced caching mechanism, in order to improve ripping speed.

PDF/VT files can be generated by a various number of applications, starting with Adobe InDesign.

Tutorials are available from Adobe: Simply search for “*InDesign data merge*” in your favorite search engine.

### Job Management

Flow+ is the answer to this. Flow+ is a complete MIS/ERM/CRM, specially designed for the Digital Printing industry. It uses a JDF/JMF protocol with the Caldera Rip, and offers all needed features, from Quote, Warehouse management, Job Management, and offers the possibility to be linked to third party systems.

Flow+ is sold and Managed as a Project, via the Solutions-Integration team of Caldera.

### WebSHOP

Since V9.20 Caldera has released a SaaS ( Software as a Service ) based WebShop Solution.

The Caldera WebSHOP is a Web-To-Print solution specially designed for the Digital Printing Industry, offering all features of an e-commerce solution. It includes a Pre-Flight module, and connectivity to the Caldera Rip using JDF/JMF protocol, or potentially to any other JDF/JMF based software. The Caldera WebSHOP solution is sold and managed as a Project, via the Solutions-Integration team of Caldera.

## Caldera Nexio : JDF/JMF

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From reading the previous part of this White-Paper, you have probably noticed multiple mentioning of *CalderaNexio* or *JDF/JMF*. ( see [http:// http://www.cip4.org](http://http://www.cip4.org) ).

Full Implementation documentation of the CalderaJDF and Caldera PrintConfig ( Specific Job Configuration ) is available on request, this section just gives you an overview of how the process is working, and what is involved for the implementation.

### What is JDF/JMF?

**JDF** stand for Job Definition Format. A simple way to look at JDF is to consider JDF as a so-called *JobTicket*. JDF is XML based , it provides a single common language that supports the lifecycle of a print job.

JDF is a widely used standard for the Printing Industry, and covering all aspects of a Print Production Environment

**JMF** stands for Job Messaging Format. It is the communication specification part of JDF, and is fully part of the standard itself.

### What is CalderaNexio?

**CalderaNexio** is the name of the Caldera JDF/JMF implementation Mechanism. CalderaNexio is technically a service running on a Caldera Rip, getting JMF/JDF request, sending the requests from the rip, and submitting reply's to any other JDF/JMF system.

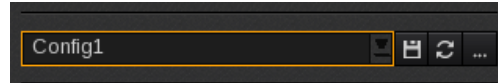
### More about CalderaNexio?

**CalderaNexio** is an optional license, which has multiple levels, the number of Keys depends on the number of Caldera Print-Queues that Nexio is Sending request to.

### What does it do?

Essentially JDF/JMF is used for automation. This allows an external software ( MIS, Webshop ... ), to Submit jobs to the RIP, the JDF will contains :

- The location of the files to process ( Only the JDF is submitted, Nexio will actually retrieve the file ).
  - o The file can be a local file with an URL like <file:///home/public/test.pdf>
  - o The file can be an http URL like <http://mymis/test.pdf>
- The printer to send the Job to.
- The number of copies
- All the Print-Configuration (Identical to the Print-Configuration that can be saved in the Print-Window).



Doing so, you can send a job to the rip and get it printed without manual intervention, but on the contrary of a normal Workflow/Hotfolder mechanism, you can specify parameters to the file.

The job is still going thru RIP's ImageBar, and thru a Workflow, but you do not have to configure the Workflow.

Additionally to the Submission automation, JDF/JMF also allows to send back information about the status of a Job, enabling the MIS to track the Job status.

#### *What is the Difference Between JDF and JMF?*

JDF is the container of the Job itself, describing it, and describing what to do with it.

JMF is the messaging part of JDF.

**To make this very simple, if you need feedback information from the Rip to be sent to an MIS or any other system ( So for example the status of the job, and the Ink-Consumption ) you have to use JMF.** The reason is very simple, the Rip will need a "Reply" address to send the status of the Job once completed, and this can only be defined in JMF, not JDF.

So essentially, JMF defines a communication mechanism , to send JDF files, and receive JDF answers.

#### *How can files be submitted to the Nexio?*

There are 2 ways to submit files to the Nexio :

- **Http :**
  - o Using http, the MIS can send a JDF or a JMF to the Nexio using the URL defined in the Caldera Nexio.
  - o 2 cases can be used here :
    - Active : The MIS send a Request to Nexio ( Usually this is used on a Local Area Network ( LAN ), the MIS and the Nexio are in the same Network.
    - Passive : The Nexio will poll the MIS to get new Jobs. ( This is usually used when the MIS is not on the same network, for example a Hosted Web-Shop, which could technically not push informations to the Nexio ).
- **Hotfolder :**
  - o The MIS drops JDF or JMF files inside a directory.
  - o Nexio checks for incoming files in this directory and processes them.

How does a JDF Look like?

This is a simple JDF file, it instructs to following ( This can be submitted to Nexio directly, though no feedback about the status, the error of the job can be sent back ).

This file can be send over http or via a hotfolder.

**JDF ID :** 0002

**JobID :** JOB0002

**Printer:** CalderaJet

**Copies:** 50

**CustomerID:** 6955223

**CustomerOrderID :** 222

**File :** /CALDERADATA/public/hotfolder/Nexio/JDF//FILES/222\_FlameBoy\_Cut.eps

```
<?xml version="1.0" encoding="utf-8"?>
<JDF xmlns:cal="http://www.caldera.com/jdf" xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance" ID="0002 " JobID=" JOB0002"
JobPartID="1" Status="Waiting" Activation="Active" Type="DigitalPrinting" Version="1.4" ICSVersions="Base_L1-1.4" DescriptiveName="0002 "
xmlns="http://www.CIP4.org/JDFSchemas_1_1">
  <ResourcePool>
    <RunList Class="Parameter" ID="RL001" Status="Available" DocCopies="50"
Directory="file:///CALDERADATA/public/hotfolder/Nexio/JDF//FILES">
      <LayoutElement>
        <FileSpec URL="222_FlameBoy_Cut.eps" />
      </LayoutElement>
    </RunList>
    <DigitalPrintingParams Class="Parameter" ID="DPP001" Status="Available">
    </DigitalPrintingParams>
    <CustomerInfo Class="Parameter" ID="CI001" Status="Available" CustomerID="6955223" CustomerOrderID="222" />
    <Device Class="Implementation" ID="DEV001" Status="Available" DeviceID="CalderaJet" />
    <Component Class="Quantity" ID="C001" Status="Unavailable" ComponentType="FinalProduct" />
  </ResourcePool>
  <ResourceLinkPool>
    <DigitalPrintingParamsLink Usage="Input" rRef="DPP001" />
    <RunListLink Usage="Input" rRef="RL001" />
    <CustomerInfoLink Usage="Input" rRef="CI001" />
    <DeviceLink Usage="Input" rRef="DEV001" />
    <ComponentLink Usage="Output" rRef="C001" />
  </ResourceLinkPool>
  <AuditPool>
    <Created AgentName="SR" AgentVersion="1.0" TimeStamp="2013-11-13T13:46:22Z" />
  </AuditPool>
</JDF>
```

A JDF file can contain multiple Files to Print, Though only one Job.

How does a JMF Look like?

Using the same JDF file the MIS can submit a JMF to be able to get feedback from the Nexio.

This file can be send over http or via a hotfolder.

**Input JMF :** /CALDERADATA/public/hotfolder/Nexio/JDF/0002.jmf

**JDF File :** /CALDERADATA/public/hotfolder/Nexio/JDF//JDF\_INPUT/0002.jdf

**Return JDF:** /CALDERADATA/public/hotfolder/Nexio/JDF//JDF\_OUTPUT/0002.jdf

```
<?xml version="1.0" encoding="utf-8"?>
<JMF SenderID="SRQ" TimeStamp="2013-11-13T13:46:22Z" Version="1.4"
ResponseURL="file:///CALDERADATA/public/hotfolder/Nexio/JMF//JMF_OUTPUT/0002.jmf" xmlns="http://www.CIP4.org/JDFSSchema_1_1">
  <Command ID="C001" Type="SubmitQueueEntry">
    <QueueSubmissionParams URL="file:///CALDERADATA/public/hotfolder/Nexio/JDF//JDF_INPUT/0002.jdf" ReturnURL="
file:///CALDERADATA/public/hotfolder/Nexio/JDF//JDF_OUTPUT/0002.jdf " />
  </Command>
</JMF>
```

A JMF can contain references to multiple JDF files.

In this example, Nexio will generate a new JDF file containing an « AuditPool » once the job is finished.  
The JDF will be identical to the submitted one, just with an additional Node containing :

- The Status of the Job
- The Report of the Job ( Every information relevant to this job)
  - o Ink consumption
  - o Media Consumption
  - o Cutting settings.
  - o Time of Print
  - o Printed copies ...

See Below :



```

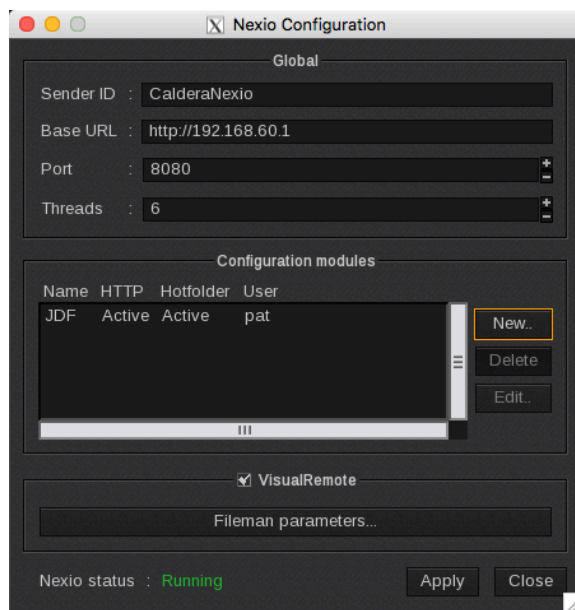
<ResourceAudit TimeStamp="2014-03-14T15:54:57+01:00" AgentName="CalderaNexio" AgentVersion="920">
  <RunListLink Usage="Input" rRef="RL001">
    <cal:Status FileSpecURL="file:///CALDERADATA/public/hotfolder/Nexio/JDF//FILES/222_FlameBoy_Cut.eps" FID="1">
      <print_width unit="Inchs">3.545000</print_width>
      <print_height unit="Inchs">7.335000</print_height>
      <media_width unit="Inchs">64.000000</media_width>
      <media_height unit="Inchs">7.335000</media_height>
      <media_usage_ratio>0.055391</media_usage_ratio>
      <job_id>77</job_id>
      <job_name>JOB002_FlameBoy_Cut.eps</job_name>
      <job_state idx="3">Finished</job_state>
      <job_error/>
      <server_name>CalderaJet</server_name>
      <server_host>192.168.0.115</server_host>
      <create_time timestamp="1394808896">Fri Mar 14 15:54:56 2014</create_time>
      <job_mode idx="2">PS</job_mode>
      <cut_barcode>20E4F0DC</cut_barcode>
      <nb_printed>2</nb_printed>
      <begin_time timestamp="1394808896">Fri Mar 14 15:54:56 2014</begin_time>
      <print_time_sec>1</print_time_sec>
      <op_time timestamp="1394808897">Fri Mar 14 15:54:57 2014</op_time>
      <ink_cons unit="ml" total="0.005243">
        <ink name="Cyan" short="C" unit="ml">0.000000</ink>
        <ink name="Magenta" short="M" unit="ml">0.000018</ink>
        <ink name="Yellow" short="Y" unit="ml">0.001000</ink>
        <ink name="Black" short="K" unit="ml">0.003188</ink>
        <ink name="brown" short="br" unit="ml">0.000766</ink>
        <ink name="LightCyan" short="c" unit="ml">0.000000</ink>
        <ink name="LightMagenta" short="m" unit="ml">0.000271</ink>
      </ink_cons>
      <contents>
        <item/>
      </contents>
    </cal:Status>
  </RunListLink>
</ResourceAudit>

```

## Caldera Nexio : Fonctionnalités

### Configuring Nexio

The Nexio configuration is located in the “Special” menu inside the Caldera Rip.



The *Nexio* service runs on port 8080 on the Rip itself.

The Nexio can have several modules configured, each and single of the 3 Configurations using either Hotfolder or http will be illustrated below.

Each Instance has several Options.

#### **Image bar Tab :**

The tab where to send jobs coming from this queue.

#### **Workflow :**

The workflow to send the Jobs to here we can distinguish 2 cases :

- The JDF contains the Printer, and all Print-settings ( PrintConfig ), the workflow itself is just used to define that a process should be engaged once the file is imported
  - The JDF does not contain the PrintConfig, then the workflow settings will be used.
- If no workflow is selected the file is imported into the relevant Tab, though all PrintConfig if specified in the JDF is tagged to the file. So by selecting the file and pressing « Enter » the correct printer with the PrintConfig defined in the JDF is opened.

**Hold Incoming Jobs :** Instead of being automatically imported and sent to a workflow ( If configured so ), the Jobs are held in the JobTracker. From the JobTracker, they can be Submitted to continue the normal process. ( Usefull in case you need a manual check of the incoming files ).

**Return Status Auto :** The Nexio will send Status automatically ( Must be on in case of a JMF with a ReturnURI).

**Fileman param :** Since import settings can not be defined in JDF, you can use this button to define how files should be imported.

**http / Hotfolder :** Here you define in which way files will be sent to the Nexio.

Both options can be active :

If **Hotfolder** is defined :

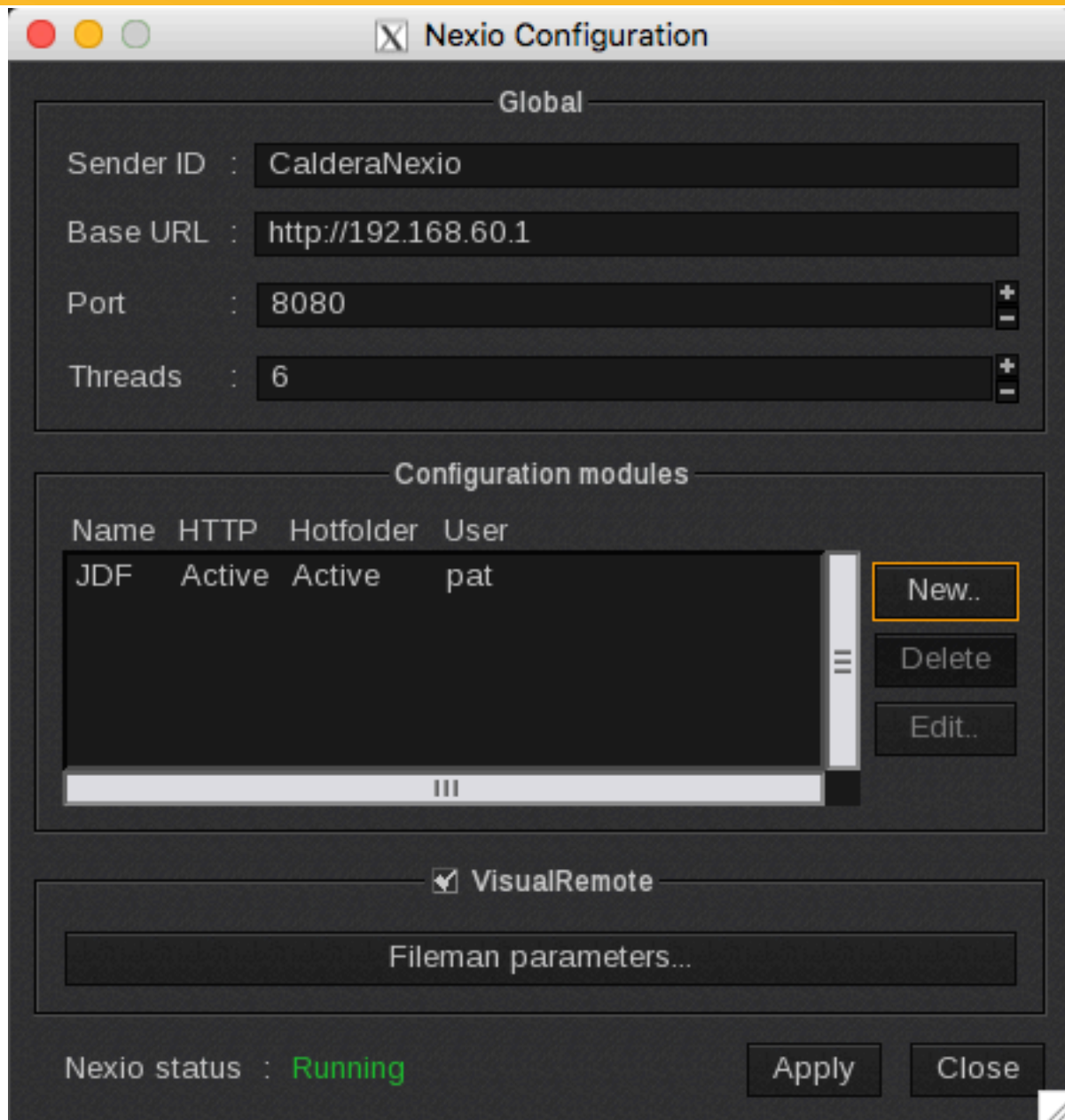
- Nexio will check for incoming JDF or JMF files in this directory

If **http** is defined :

- Nexio will expect to get jobs sent via : <http://<Rip Ip>:<Port>/<Path>>
- For example <http://192.168.1.77:8080/JDF>
- The Path is just a way to distinguish multiple instances ( Nexio will create it automatically)
- Either a different port, or a different Path must be specified for each Instance.

**Request URI :** is used in « Passive » mode ( Usefull for non LAN configurations like WebShop's).

- Nexio will call an URI to request for new Jobs.
- In reply it will get a JMF with the Jobs

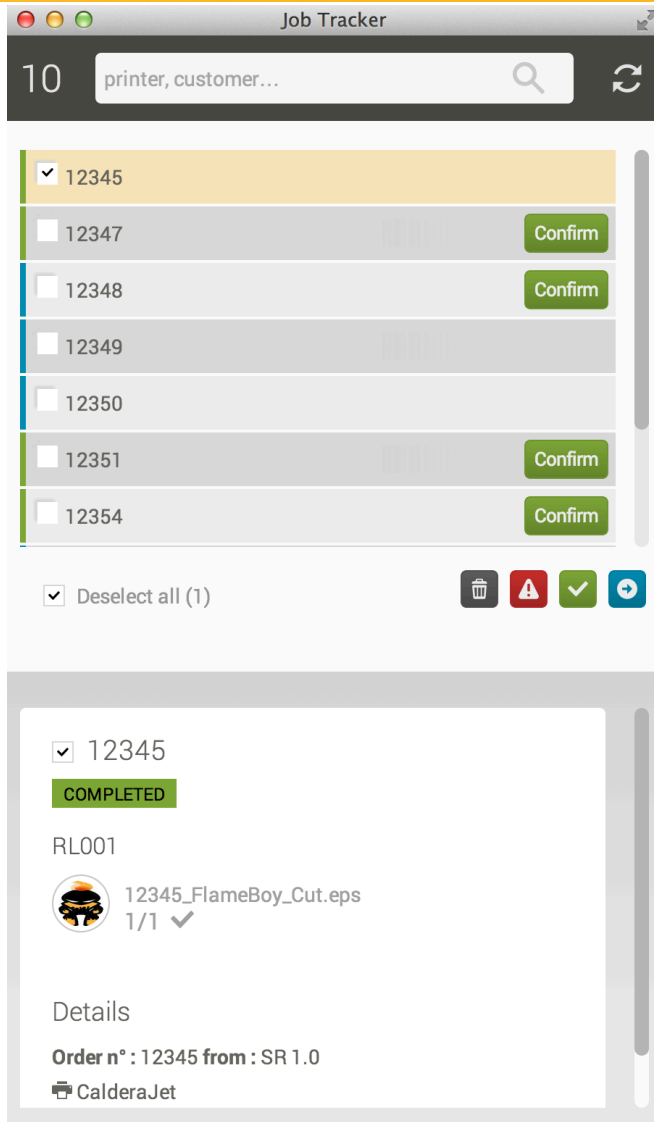


### The JobTracker

Each and single configured module will add a JobTracker instance inside the RIP.



When opening the JobTracker you will see a list of available files within this Nexio Instance, basically like a Spooler of this Nexio queue.

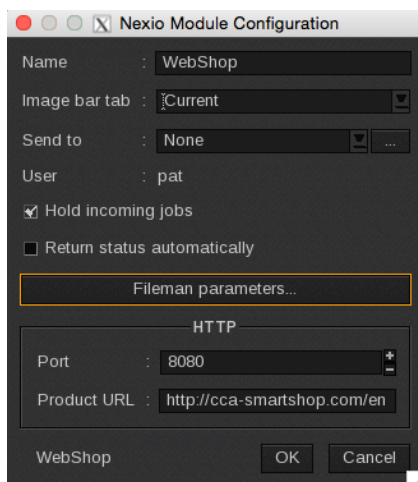


## Caldera Nexio : Implementation examples

### Passive Caldera WebSHOP

In this case the WebSHOP is located outside of the LAN, so it can not send JDF/JMF files to the Nexio.

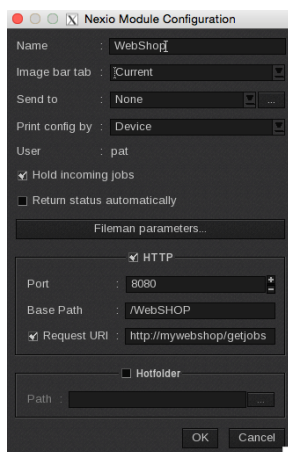
This example is using the Caldera WebSHOP. In this case the Nexio is Pre-configured and only the URL of the WebSHOP Instance has to be specified



### Passive other WebSHOP

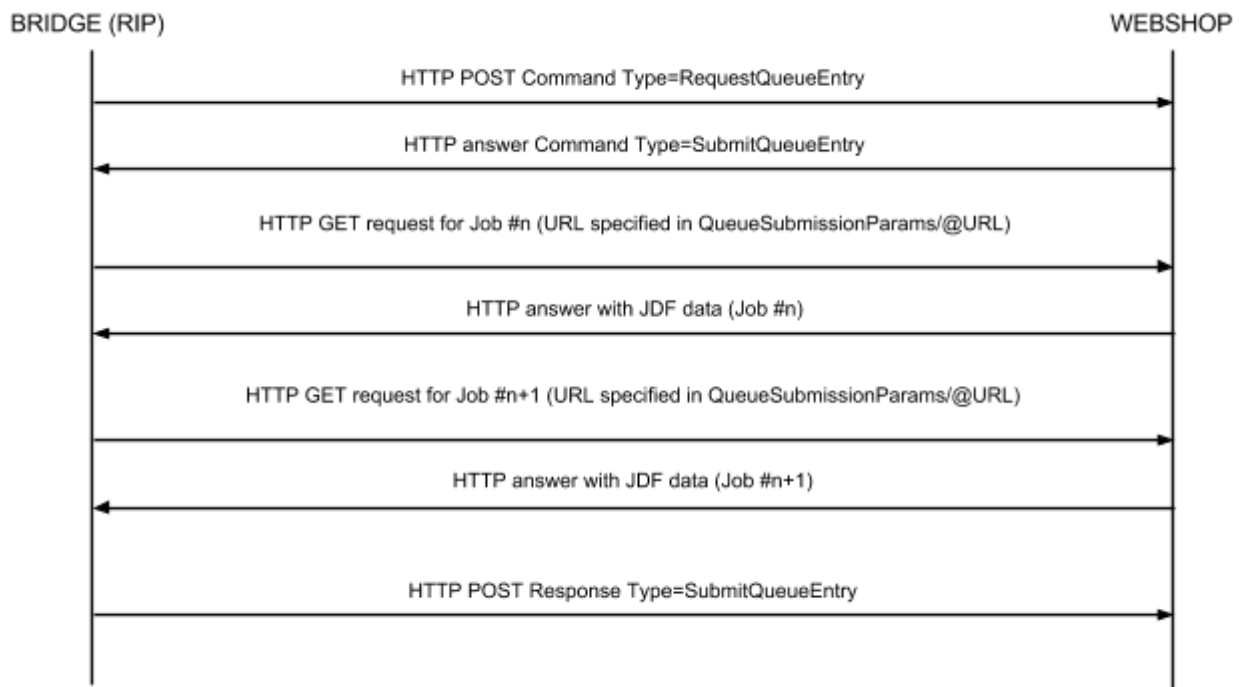
In this case the WebSHOP is located outside of the LAN, so it can not send JDF/JMF files to the Nexio.

This example is using a non Caldera WebSHOP. In this case the Nexio has to be Configured to request Jobs from the Webshop.



When using the Job-Tracker « Refresh » Button :

- Nexio will send a JMF request from URL : <http://mywebshop/getjobs> to get new Jobs
- The WebShop must reply with a JMF to the request, containing the available Jobs.
- The JMF will contain one or several URL's.
- Nexio will call each URL to get a JDF file per Job.
- Nexio will Retrieve the Files associated to each JDF, and process them according to the settings.
- Nexio will send a JMF confirmation to the same URL, to confirm the status of each Job retrieval.

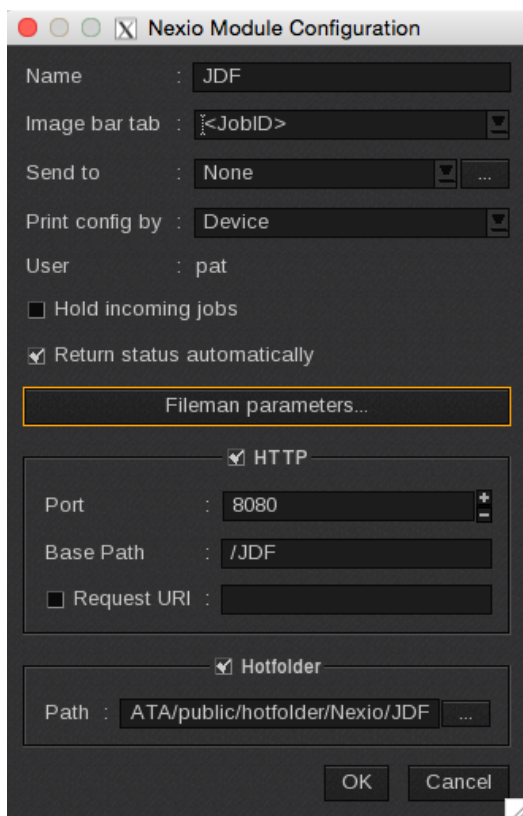


Active JDF via hotfolder or http

In this case the MIS will drop a JDF file into a Hotfolder or send a request to the specified URL in Nexio.

In this example :

- JDF files are dropped in /CALDERADATA/public/hotfolder/Nexio/JDF
- Or
- Sent to <http://192.168.1.77:8080/JDF>



- Nexio will check the content of this folder or get the JDF via http.
- Nexio will retrieve the Files associated to each JDF, and process them according to the settings. ( Each File can be a relative or absolute Path or an http URL ).
- No Feedback is sent, since it is only JDF
- The JobTracker will show the status of the Jobs.
- After processing ( Via workflow if configured ), No feedback is sent back to the MIS, neither statistics about the status of the Job ( Ink consumption ... ).

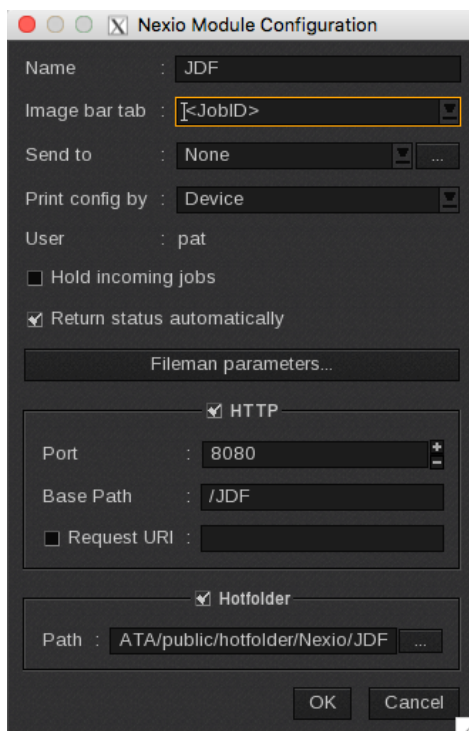


Active JMF/JDF via hotfolder or http

In this case the MIS will drop a JMF file into a Hotfolder or send a request to the specified URL in Nexio.

In this example :

- JDF files are dropped in /CALDERADATA/public/hotfolder/Nexio/JDF
- Or
- Sent to <http://192.168.1.77:8080/JDF>



- The JMF contains one or several lines to JDF files.
- Nexio will check the content of this folder or get the JDF via http.
- Nexio will retrieve the Files associated to each JDF, and process them according to the settings. ( Each File can be a relative or absolute Path or an http URL ).
- A Feedback is sent to the specified ReturnURL in the JMF file in case of error.
- The JobTracker will show the status of the Jobs.
- After processing ( Via workflow if configured ), a feedback is sent back to the to the specified ReturnURL ine the JMF file, as a JDF, containing the initial submitted part + the AuditPool containing the PrintConfig ( Config configuration , Ink consumption ... ).
- If the file is processed again ( lets says printed again ), a new feedback is sent and the AuditPool contains an additional Node.

## JDF/JMF Ressources

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CIP4 JDF / JMF tutorials

- Visit <http://www.cip4.org>
- Cip4 JDF/JMF Check tool: <http://jdfutility.cip4.org/JDFUtility/>
- Cip4 Alces : <http://community.cip4.org/tools/alces/>
  - Alces is a very powerfull tool to submit JDF/JMF files over http and can receive JMF/JDF feedback, allowing you to emulate the full communication with Nexio.

CalderaNexio is managed by the Caldera Solutions Integration Team.

The Caldera Solutions Integration Team offers full project management, audit and support for the Nexio Integration.

Nexio implementations are always managed as a project, no further technical documentation is sent without an Audit.

Nexio ( JDF/JMF ) is used with the Caldera Product range with :

- Flow+
- The Caldera Webshop
- Costview
- More to come...

## Other submission Methods CSV/XML/TXT

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*Nexio also support CSV / TXT / XML based ticket submissions, via an extra module "Translator"*

*This feature is not documented and reserved to the Solution Integration team, and needs to be studied case by case to analyze doability, and required time.*