TECHNICAL REFERENCE

Version 1.0 – August 2013

IPWeb.

Copyright

Disclaimer

The information in this manual is furnished for informational use only and subject to change without notice. While every effort has been made to ensure that the information contained in this user manual is accurate, up-to-date and reliable, EVS Broadcast Equipment cannot be held responsible for inaccuracies or errors that may appear in this publication.

Improvement Requests

Your comments will help us improve the quality of the user documentation. Do not hesitate to send improvement requests, or report any error or inaccuracy on this user manual by e-mail to doc@evs.com.

Regional Contacts

The address and phone number of the EVS headquarters are usually mentioned in the **Help > About** menu in the user interface.

You will find the full list of addresses and phone numbers of local offices either at the end of this user manual (for manuals on hardware products) or on the EVS website on the following page: http://www.evs.com/contacts.

User Manuals on EVS Website

The latest version of the user manual, if any, and other user manuals on EVS products can be found on the EVS download center, on the following webpage: http://www.evs.com/downloadcenter.

Table of Contents

1. Introduction

1.1 About IPWeb

IPWeb is the Web version of IPBrowse. The interface and the functionalities are as close to IPBrowse as possible. It is a production interface, not a web site.

The IPWeb client is an MS silverlight client, compatible with Windows AND Mac OS.

The infrastructure needed to support an IPWeb system is always included in a typical EVS installation, in general a medium to large EVS studio facility.

This facility usually includes a number of ingest servers and a central storage. File ingest stations can also be part of the system. It is also required to have XSquare installed in order to work with IPWeb.

IPWeb provides Remote browsing and searching of the IPDirector DB.

The first release of IPWeb is based on the use of MS Smooth streaming files. These files are specific to IPWeb and not readable by IPDirector. The smooth streaming files are stored on a web storage, separate from IPDirector NL.

It is XTAccess that generates the web formats, from IPDirector production LoRes.

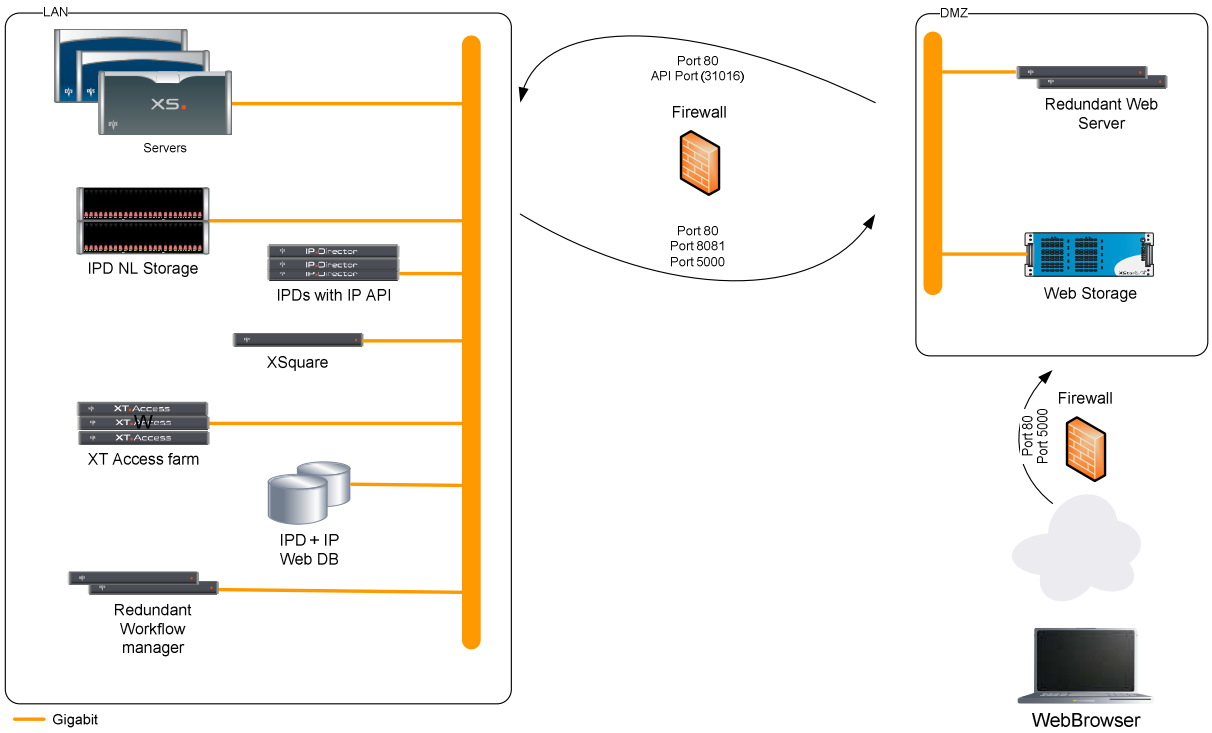
1.2 IPWeb Backend

The basic principle behind a web application is that no software is needed on the client side. In order to make this possible, a web application needs to be hosted centrally on a web server. In our case, there are also additional backend software components that are installed on what we have called the workflow server.

This manual describes the installation and configuration of all the backend software needed to run IPWeb.

1.3 IPWeb Infrastructure

1.3.1 Schematics



1.3.2 Prerequisite: EVS Software

IPWeb is an add-on on an existing EVS IPDirector installation.

Before installing IPWeb, you must have the following EVS Software installed somewhere:

- IPDirector : you will need the address of the IPD WS API
- EVS DB hardware: you will need the address of the DB Server
- XSquare: you will need the address of XSquare Server
- XTA farm for transcoding to web formats: please have XSquare and the linked XTAs configured for web transcoding.

1.3.3 IPWeb Building Blocks

IPWeb requires the following hardware:

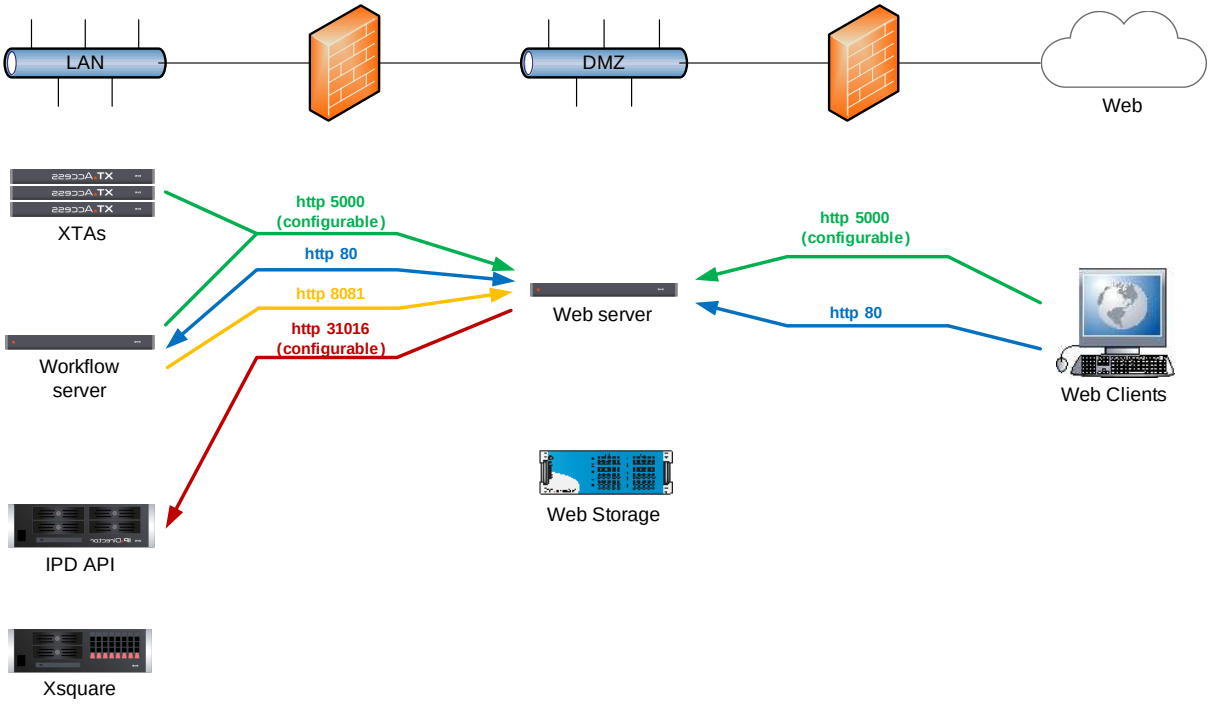
- Workflow server: one or two if redundancy is needed
- Web Server: one or more if redundancy is needed or depending on the number of input streams and web clients
- Web Storage: dimensioning depends on redundancy, number of feeds, clients and quantity of storage needed

1.3.4 Network Connections

IPWeb can be used in a studio environment, where all clients are on the same LAN. In this case, no particular network configuration is required.

If remote access is to be provided, then the Web Servers and the Web Storage must be on a DMZ. The drawing below details the ports that need to be opened in the firewall between the LAN and the DMZ.

In addition, the use of a reverse proxy is highly advised in front of the web server. This reverse proxy could be or not integrated in the firewall. In this configuration, access to the web server is restricted to the only IP of the reverse proxy, protecting the web server for internet attacks. Further information about remote proxy can be found on http://en.wikipedia.org/wiki/Reverse_proxy.



2. XSecure Management

2.1 Introduction

IPWeb requires XSecure codes to run.

The IP Engine code must be installed on the IPWeb DB server hardware. If a pair of redundant DB servers is used, the code must be present on both machines. This allows the IPWeb backend to run.

In order to run the IP Web Clients, you need IPWeb client licenses. These licenses are IPDirector floating licenses and must be installed on the IPDirector DB hardware (beware this might not be the same hardware as the IPWeb DB hardware). If a pair of IP databases is used, the codes must be installed on both servers.

Please refer to the XSecure user manual to:

- Start XSecure Manager.
- Collect information about your device.
- Request a license key from the EVS support.
- Import new license keys.

2.2 List of Codes

In application 30 – IPDirector

- Module 12 – IPWeb Engine
- Module 91 – IPWeb Browse Client License

3. Installation

3.1 Types of Installation

The IPWeb modules are installed through a simple wizard.

There are three types of installation:

- Workflow server: installs only the workflow server components.
- Web Server: installs only the web server components
- Full Installation: this installs all the IPWeb modules on a single machine. Use this option if you are installing a small demo setup when there is no need to have the web server in a DMZ.

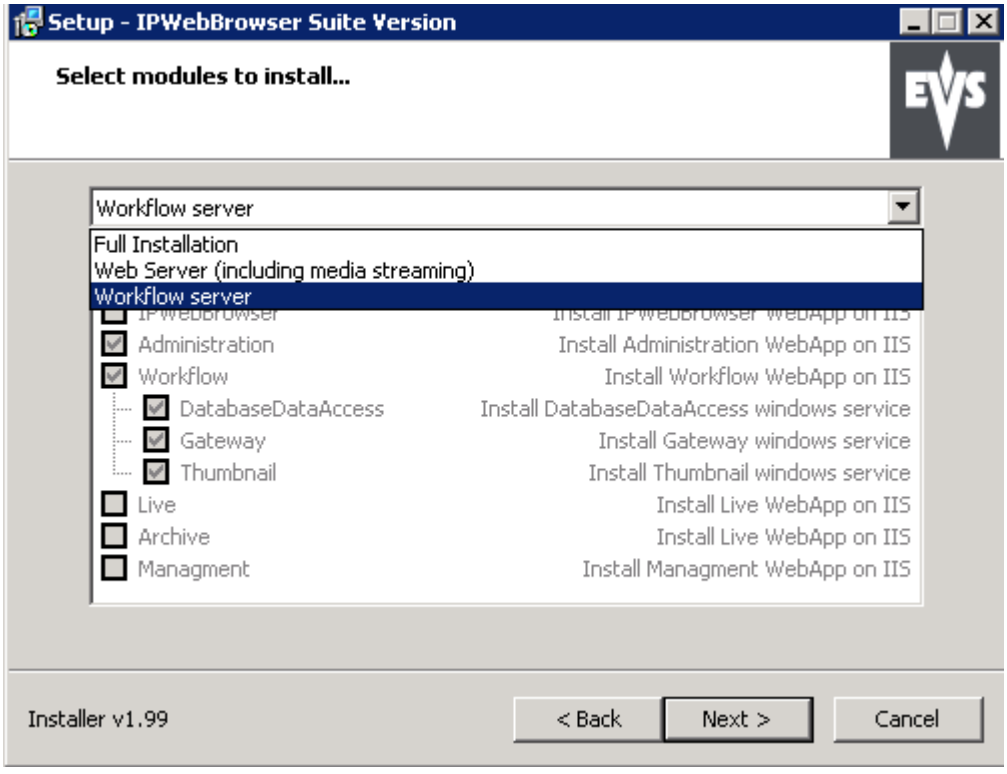
3.2 Workflow Server Installation

The installation of IPWeb is based on an installer and a set of prerequisites in sub folders:

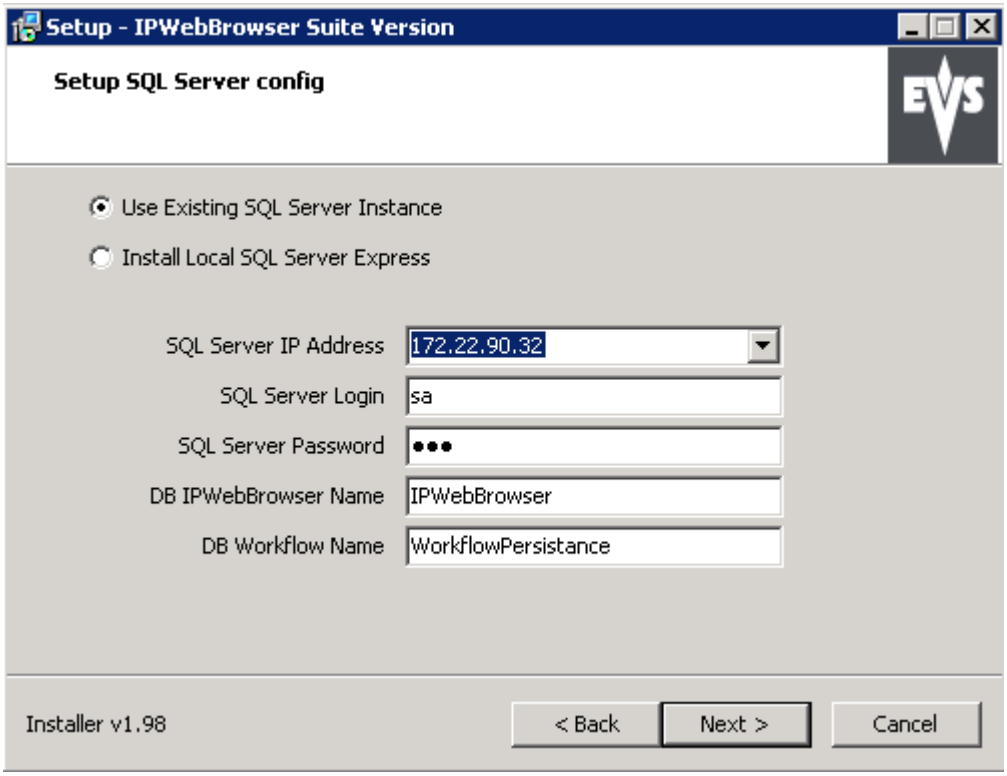
To install a Workflow server, proceed as follows:

1. Copy the package (with the prerequisites sub directory) to a temporary directory.
2. Run the installer and follow the steps in the wizard:

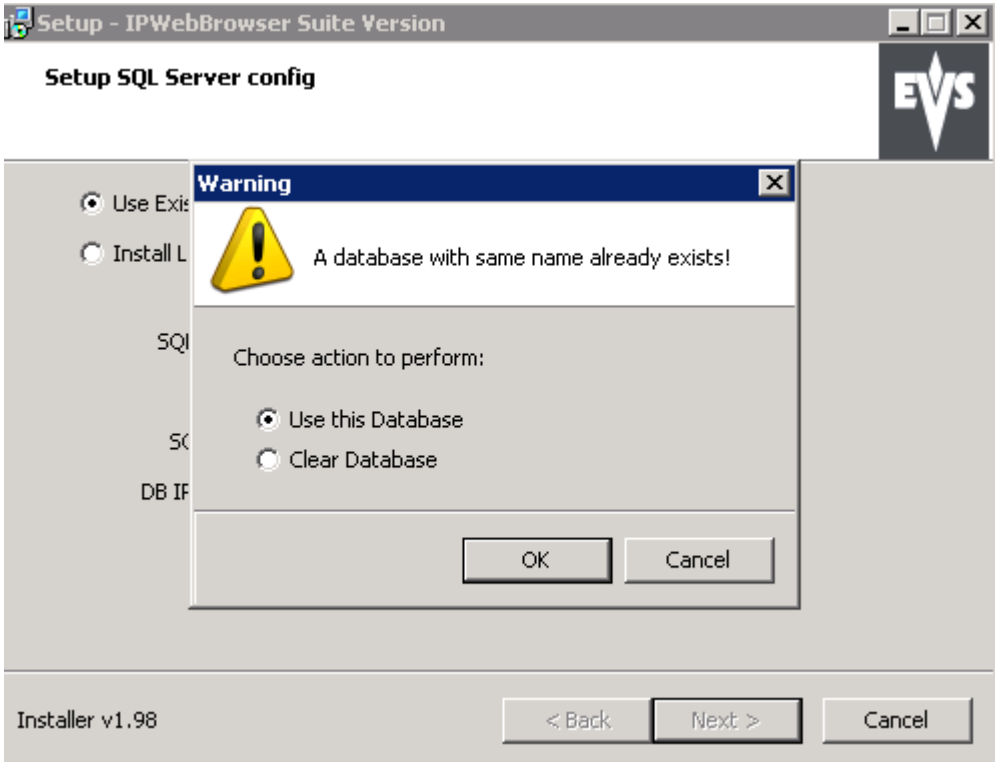
3. Click **Next**



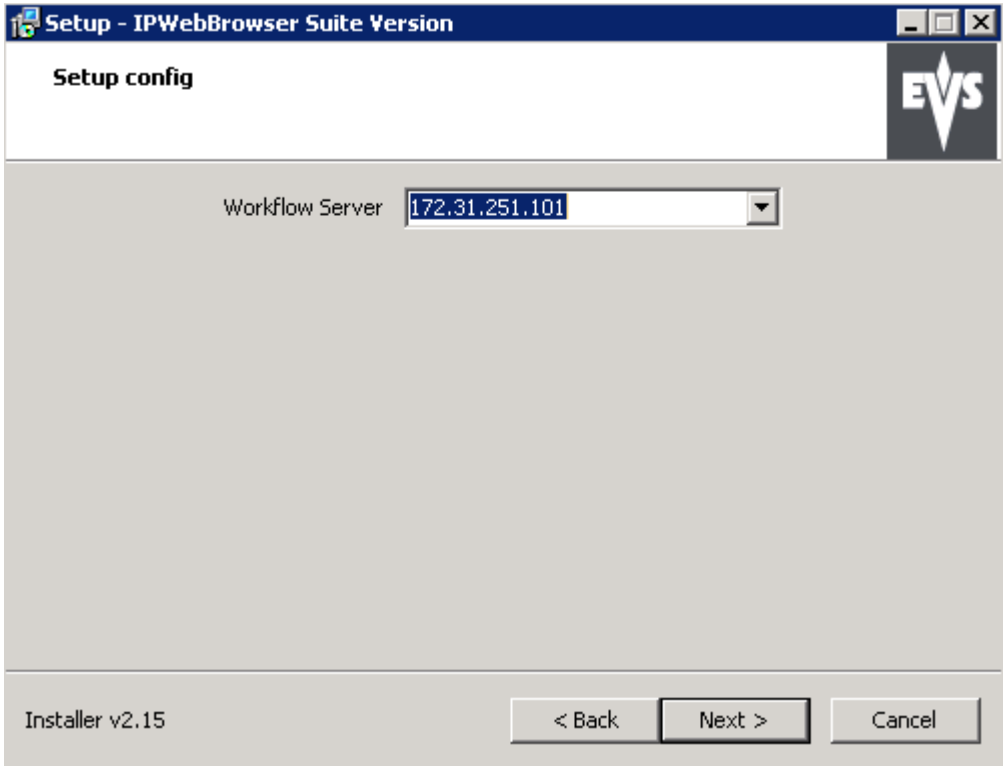
4. Choose **Workflow Server** then click **Next**



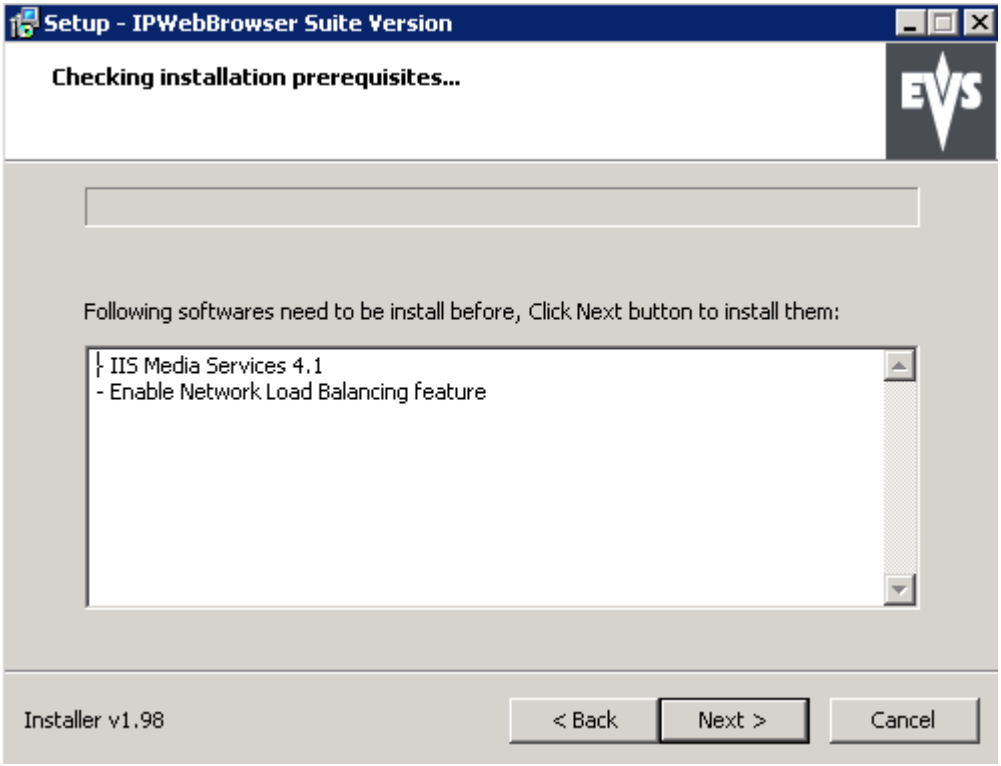
5. Except in the case of managing an all-in-one installation (for demo), choose **Use Existing SQL Server Instance** and type the address of the SQL DB hardware in the **SQL Server IP Address** field. Click **Next.**



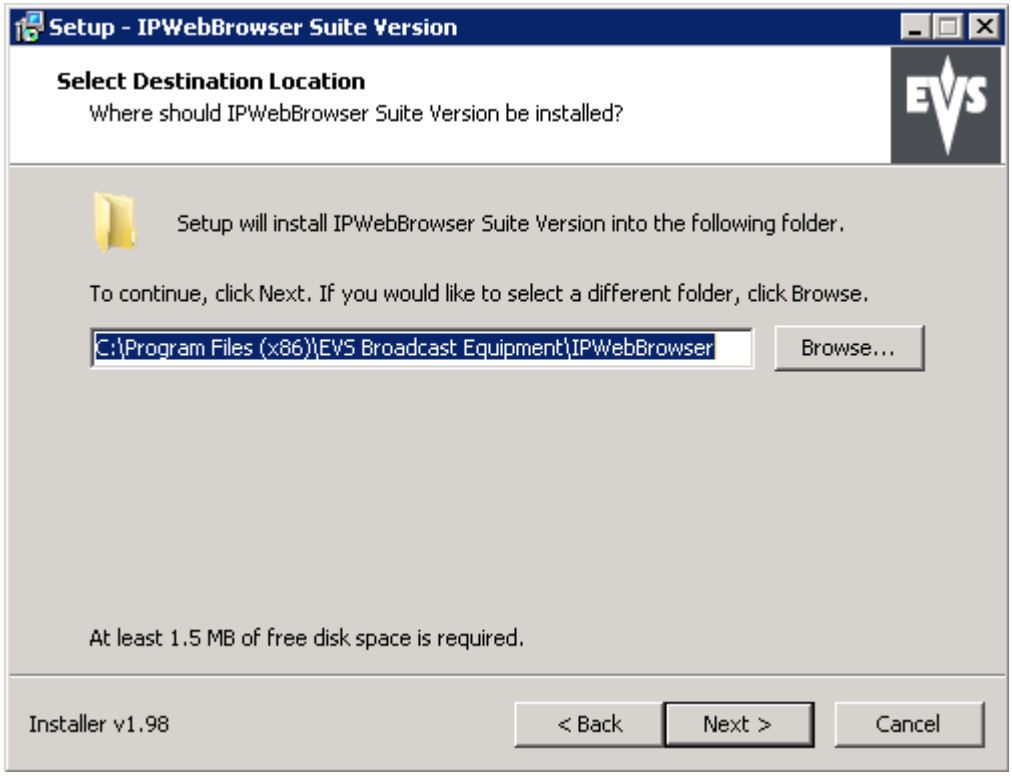
6. If an IPWeb DB already exists on the server, a popup will appear. Choose the relevant option the click **OK**.



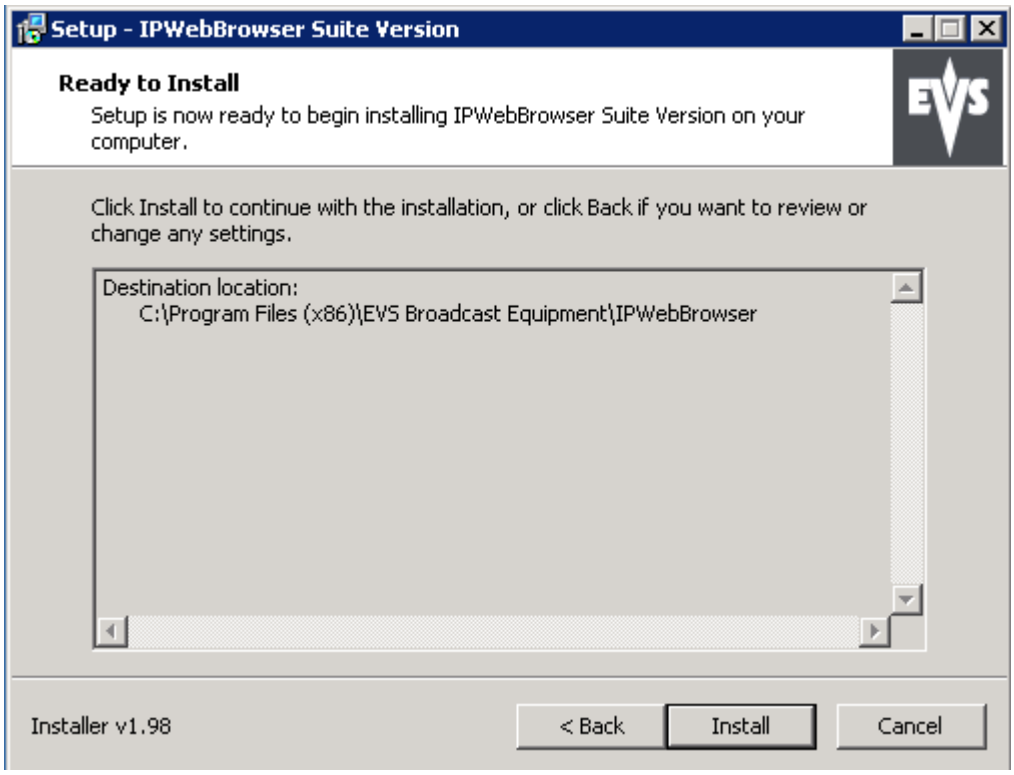
7. In the **Workflow Server** field, enter the address of the local workflow server then click **Next**.



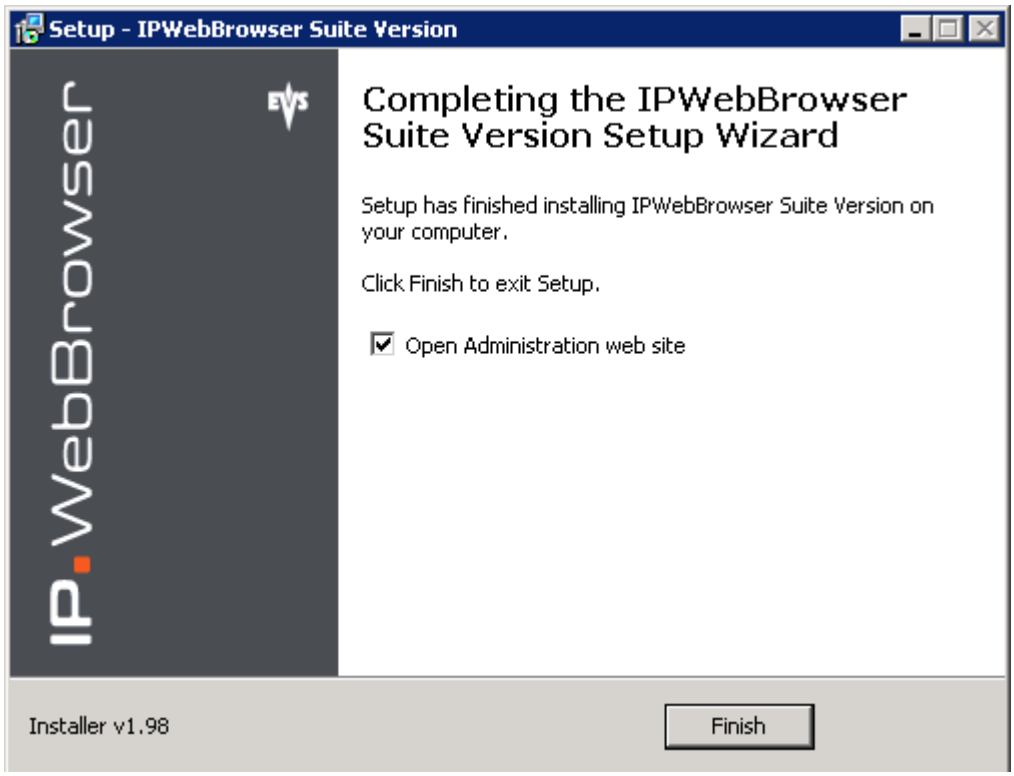
8. If some prerequisites need to be installed, they will show. Click **Next** to install them.



9. Choose the path to install the IPWeb suite. Click **Next**.



10. Click **Install** to proceed with the installation.



11. Click **Finish**.

Note

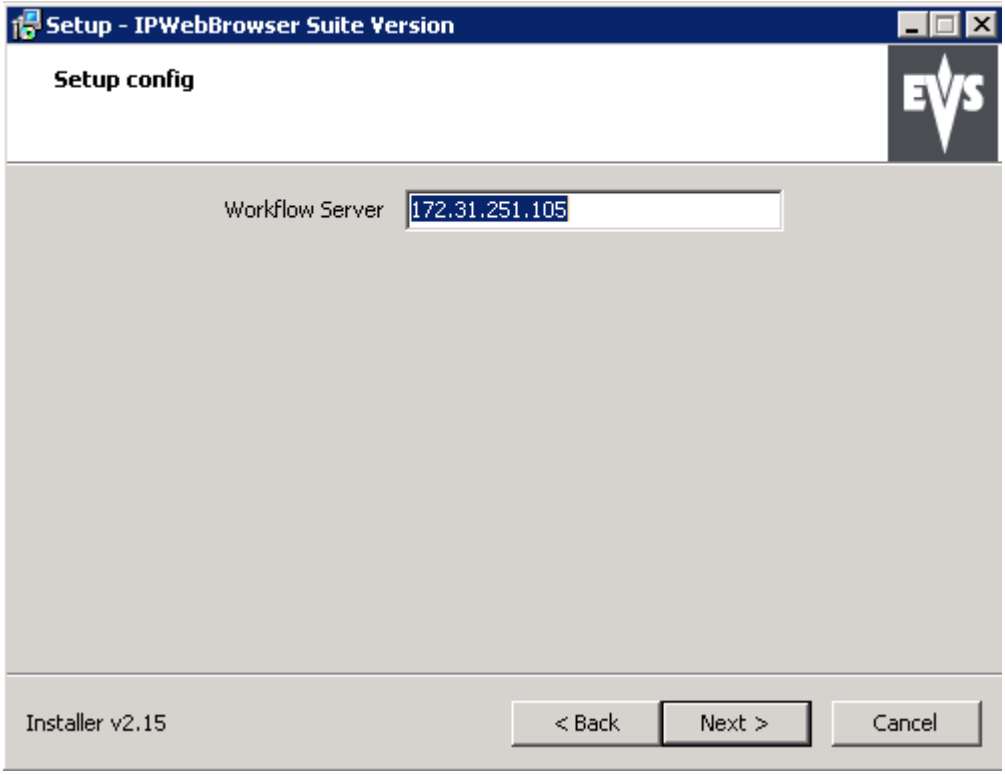
Note that a shortcut to the Admin web site will automatically be created on the desktop.

Icon: 

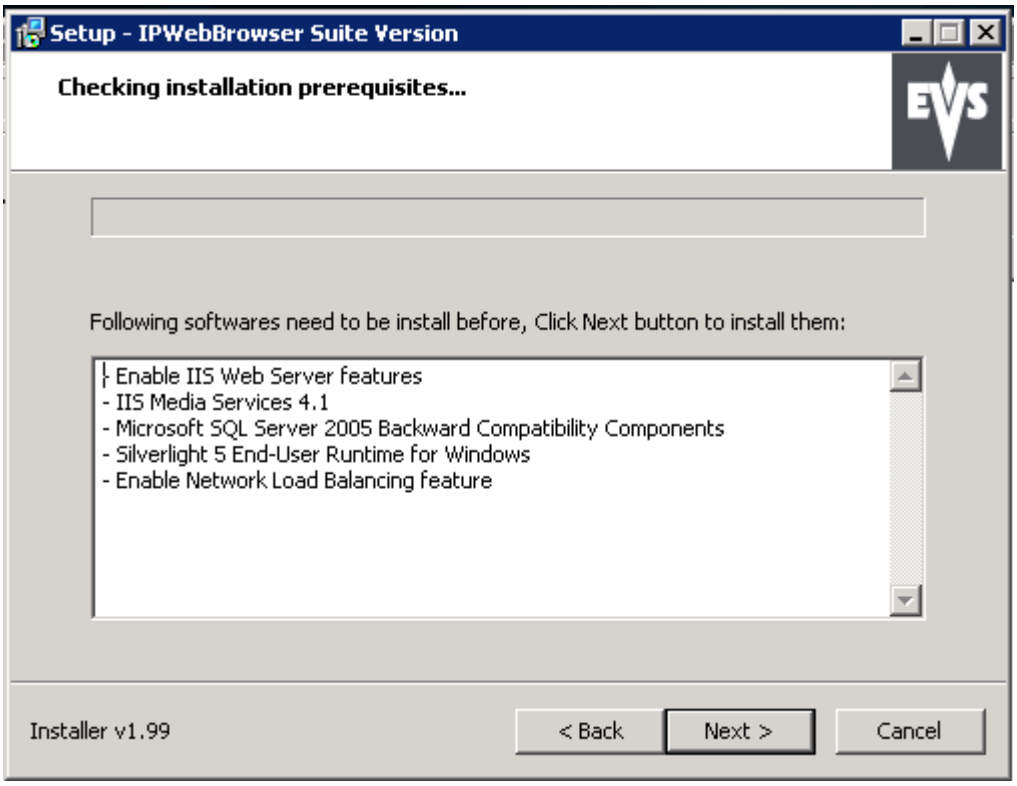
3.3 Web Server Installation

The installation of the web server is very similar to that of a workflow server except:

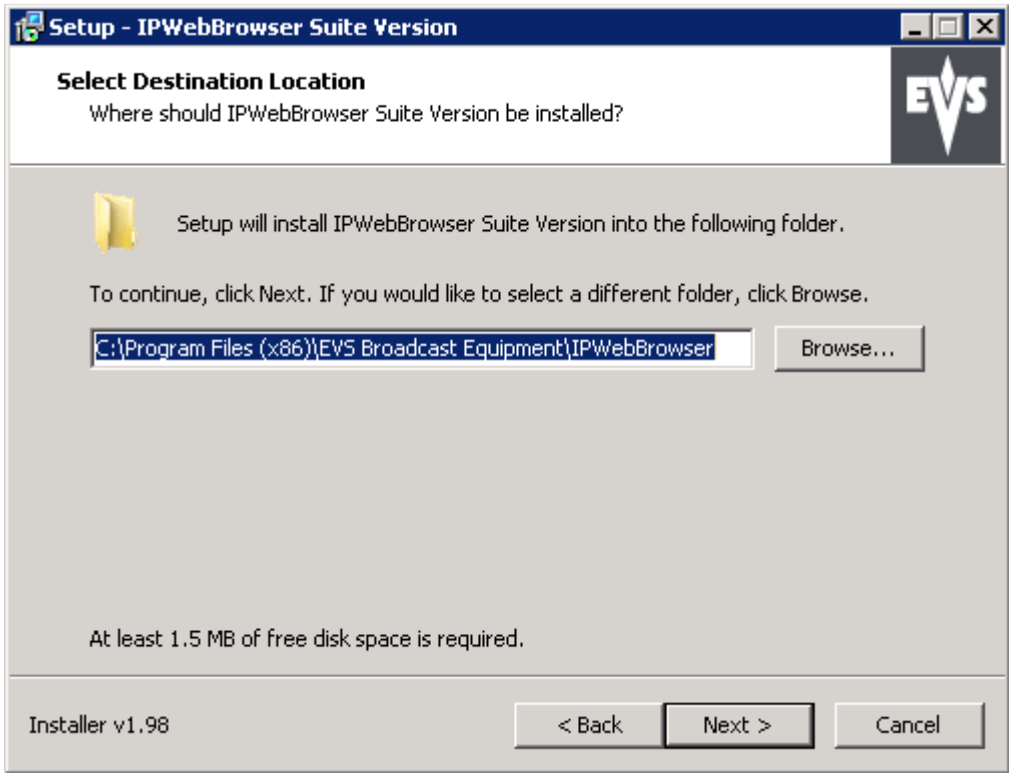
1. At step 3 above, choose **Web Server** then click **Next.**



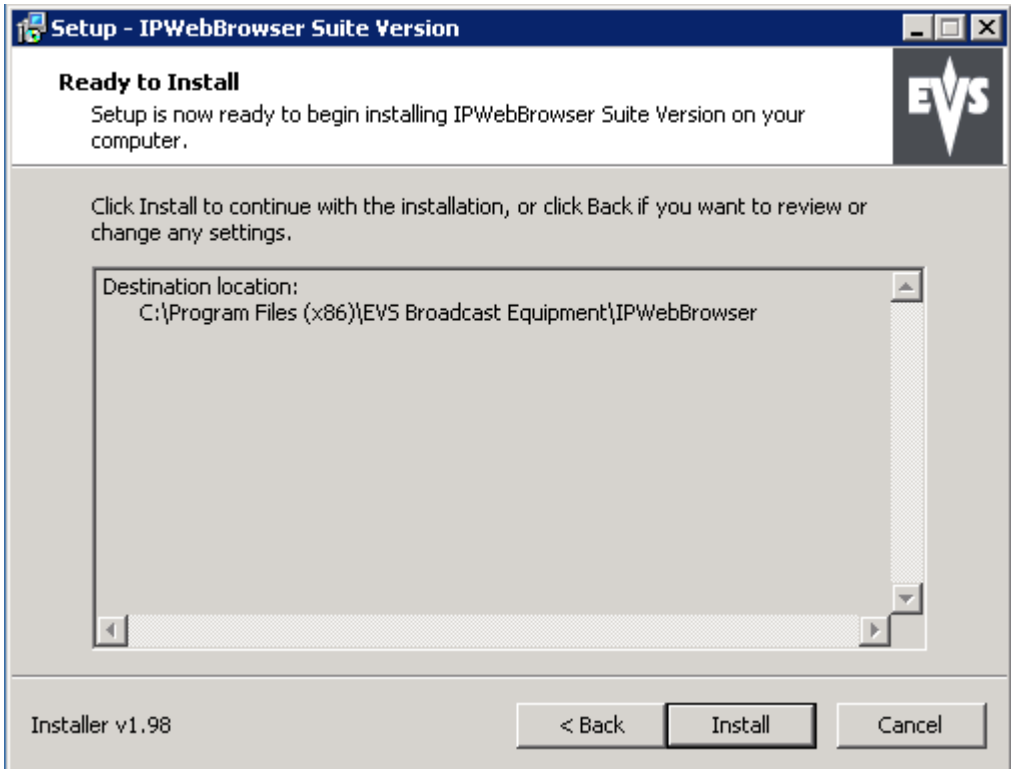
2. In the **Workflow Server** field, enter the address of the workflow server. If working with redundant workflow servers, this is the virtual IP Address. Click **Next**.



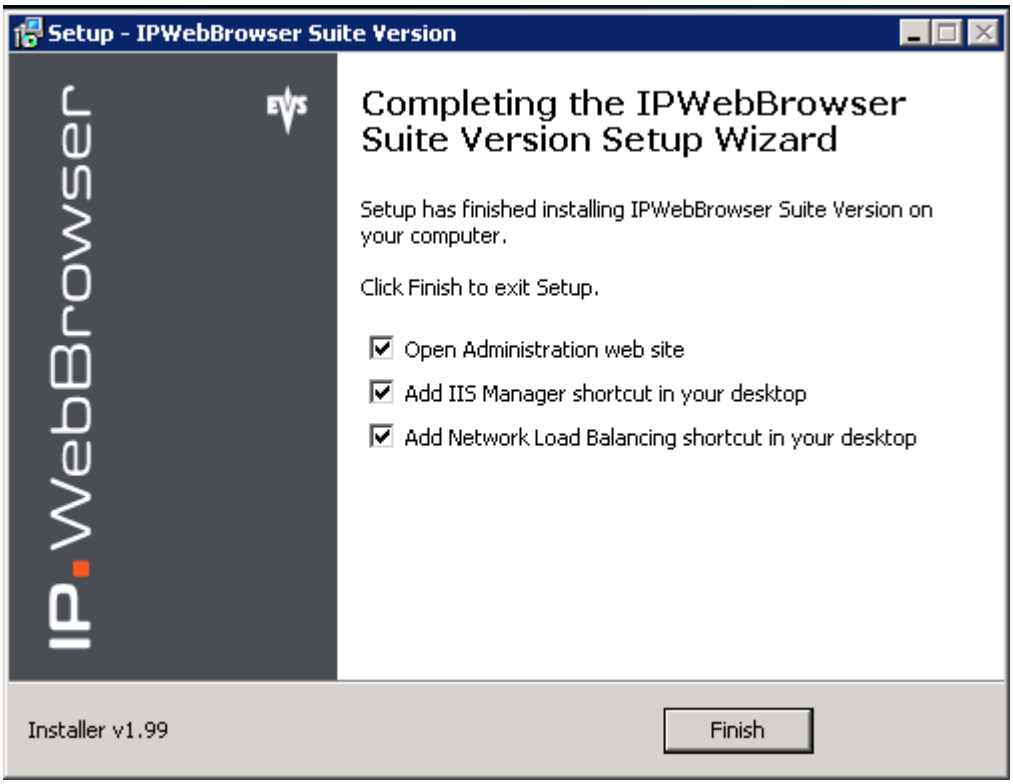
3. If some prerequisites need to be installed, they will show. Click **Next** to install them.



4. Choose the path to install the IPWeb suite. Click **Next**.



5. Click **Install** to proceed with the installation.



6. Click **Finish**.

4. Installing Load Balancing and Redundancy

4.1 General Principles

The load balancing/redundancy of web servers and workflow servers are achieved through MS Network Load Balancing.

MS NLB works with a virtual IP Address that is shared between the servers.

This can be installed together with teaming BUT

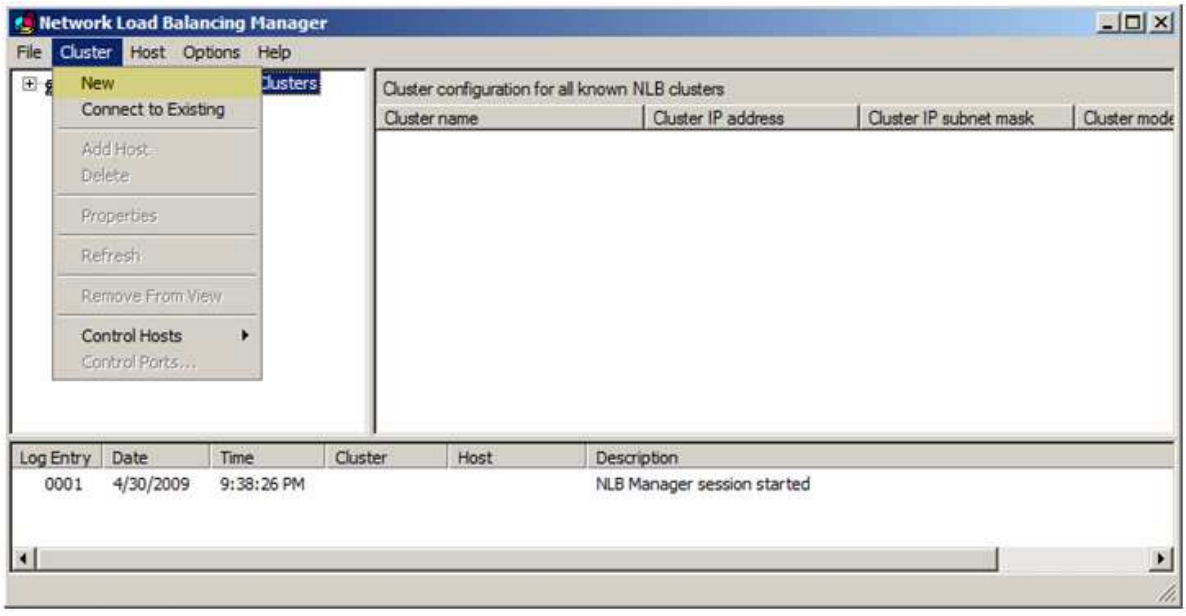
- Teaming must be configured first (follow normal teaming installation procedure)
- NLB must be configured with multicast (see below).

4.2 Workflow Server Redundancy

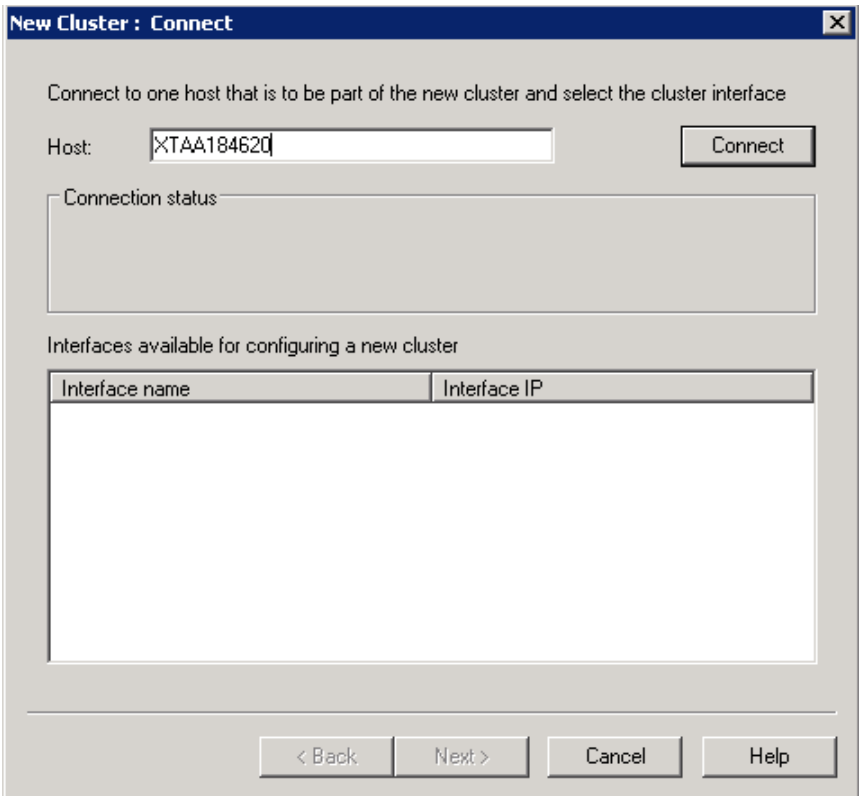
4.2.1 Configuring NLB on NODE 1

Network Load Balanced clusters are built using the Network Load Balancing Manager.

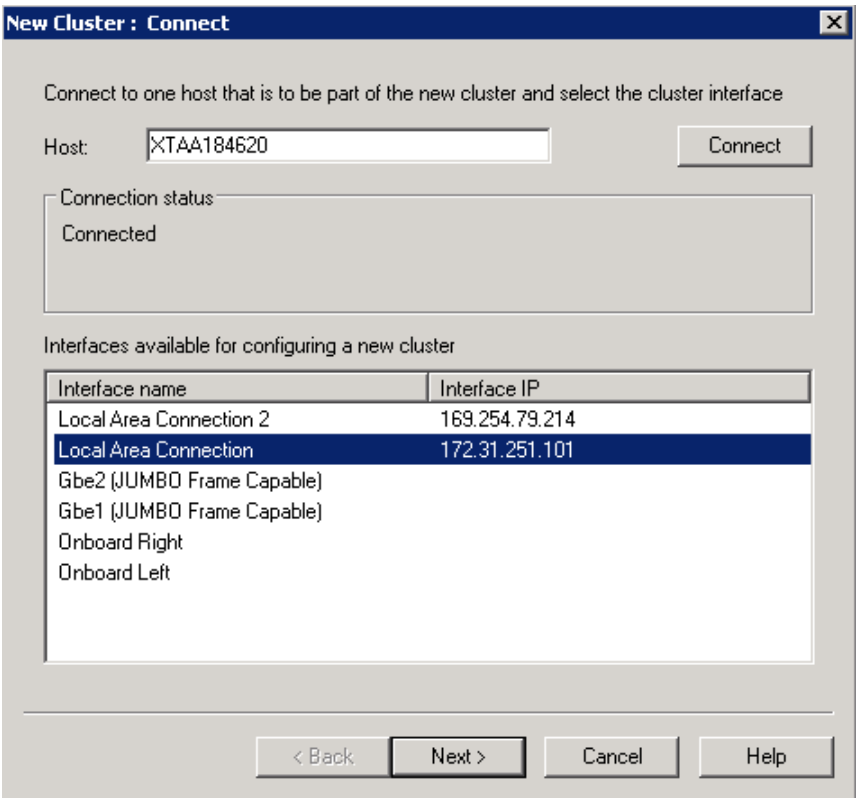
1. Start MS NLB by double-clicking on the **NLB** icon on the desktop or through the Start menu: **Start -> All Programs -> Administrative Tools -> Network Load Balancing Manager**



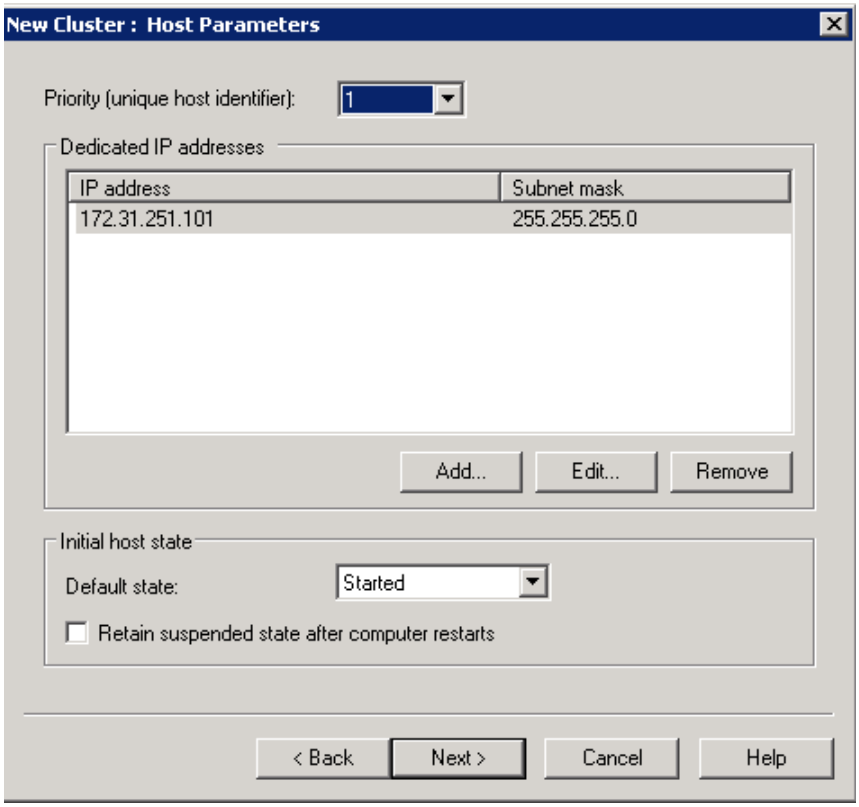
2. Select **New** from the Cluster menu.



3. Enter the first node in the cluster then click **Connect**.



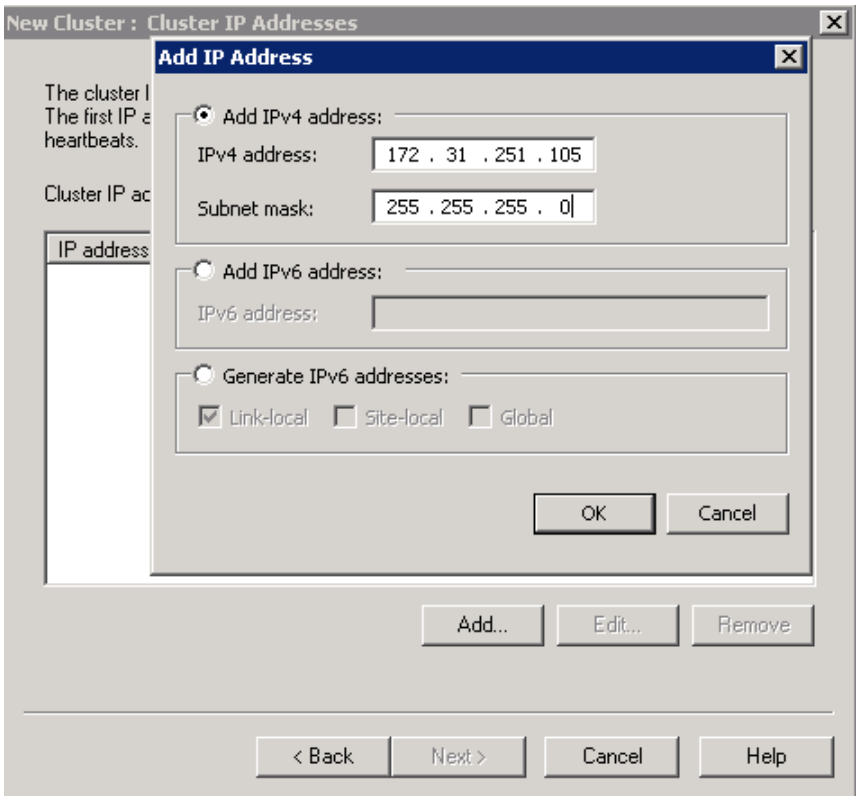
4. You will have the option to choose which network adapter you want to use, the NIC should be on the same subnet as the other servers in the NLB cluster.
5. Click **Next**.



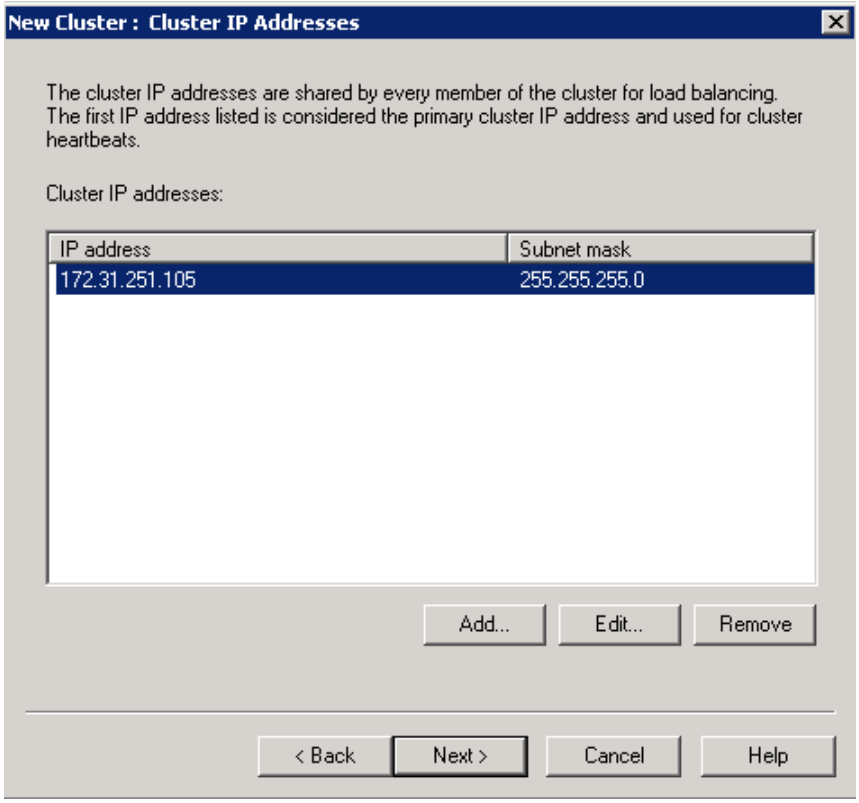
6. Enter the Priority ID as 1 (each node in the NLB cluster should have a UNIQUE ID)

   The workflow server with the lowest priority will be the main server.

7. Make sure the correct adapter was selected under Dedicated IP Address.
8. Select **Started** in the **Default State** field (this tells NLB whether you want this node to participate in the cluster at startup).
9. Click **Next**.

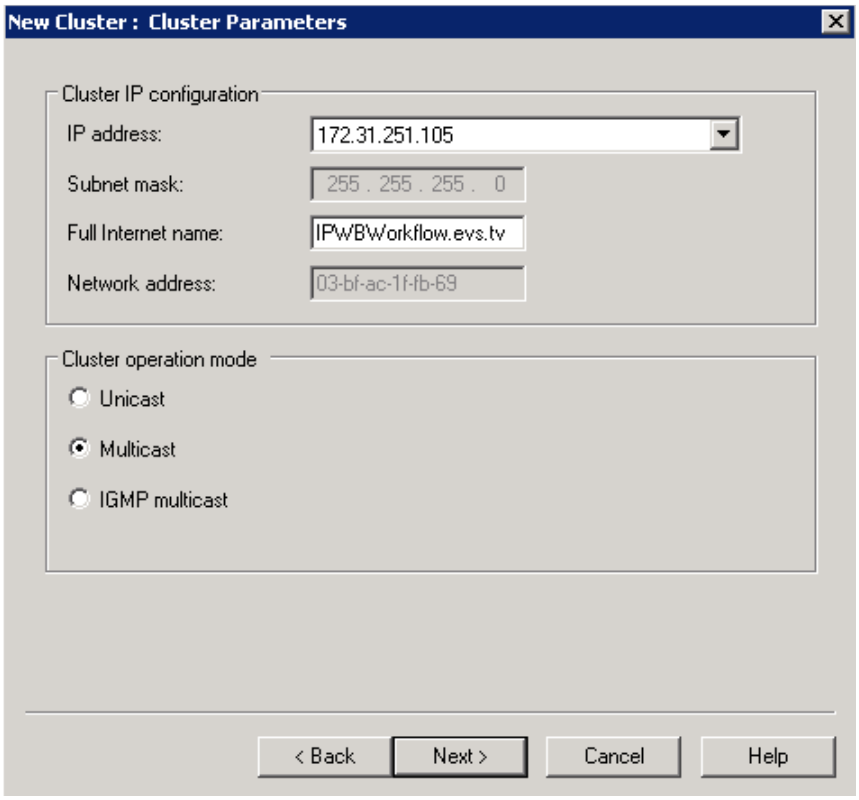


10. You can add multiple IP Addresses for the cluster, enter as many as you want.
11. Click **Add** to enter the Virtual IP Address of the cluster.
12. Enter the Cluster IP and Subnet mask.
13. Click **OK**.

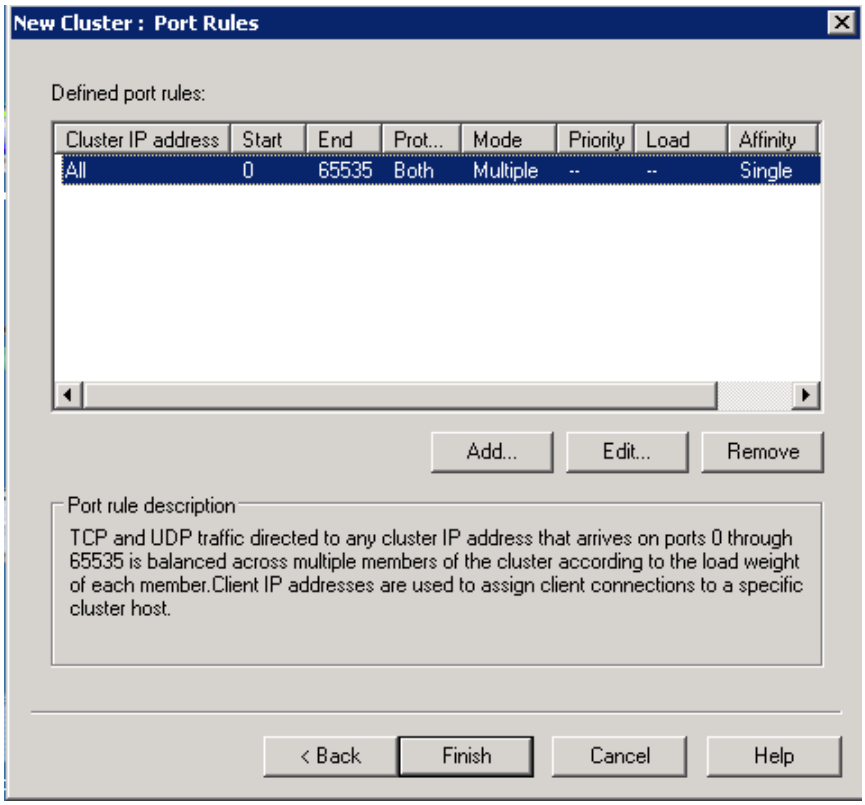


14. Make sure the Cluster IP addresses are correct.

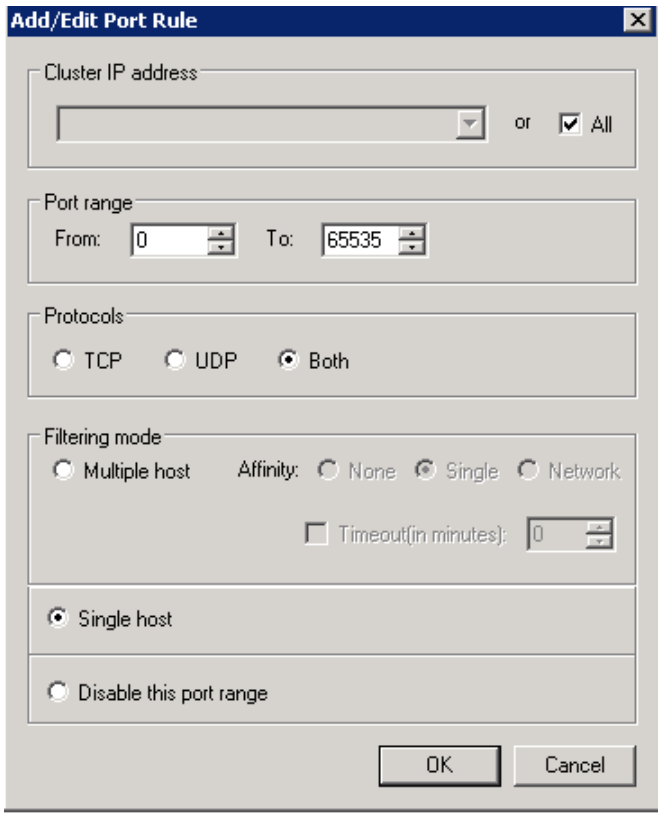
15. Click **Next**.



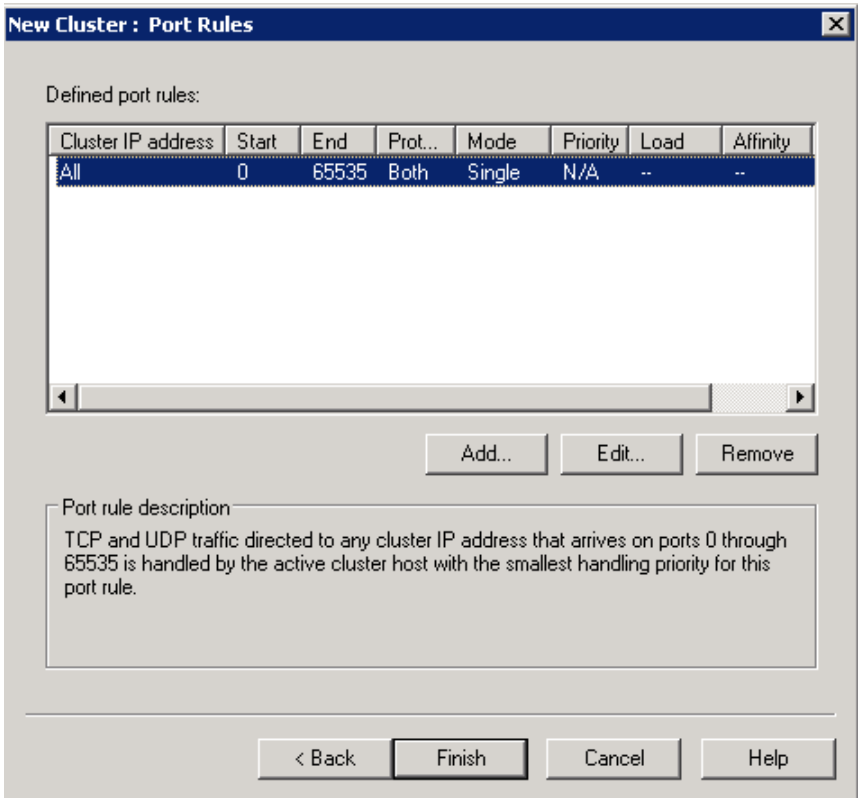
16. Select the IP Address for this cluster.
17. Enter the NLB address.
18. Select **MultiCast** in the Cluster Operation Mode.group box.
19. Click **Next**.



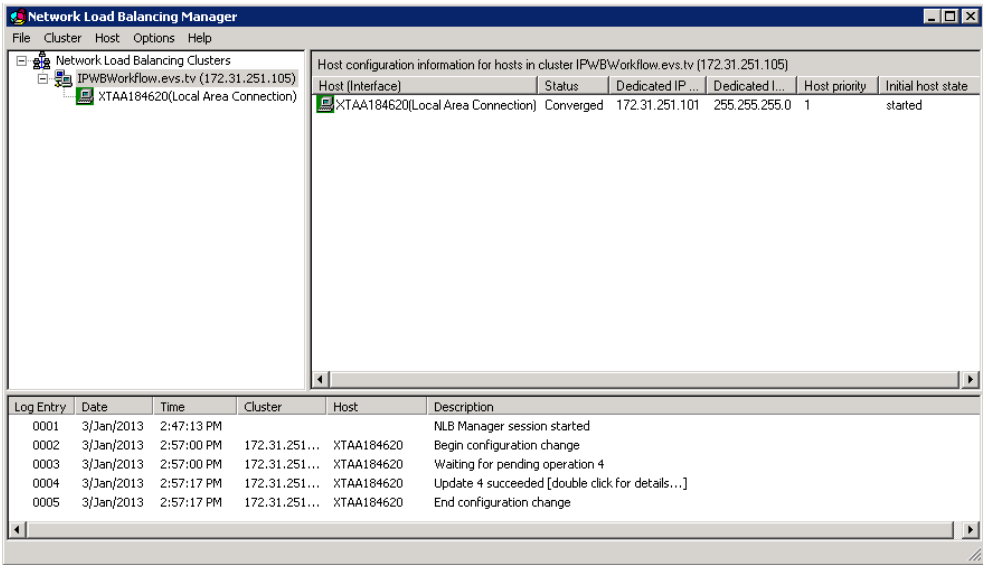
20. Select the IP Address for this cluster.
21. Click **Edit**.



22. In the Filtering Mange group box, select **Single Host**. This makes sure the servers will work as main/backup rather than in load balancing.
23. Click **OK**.



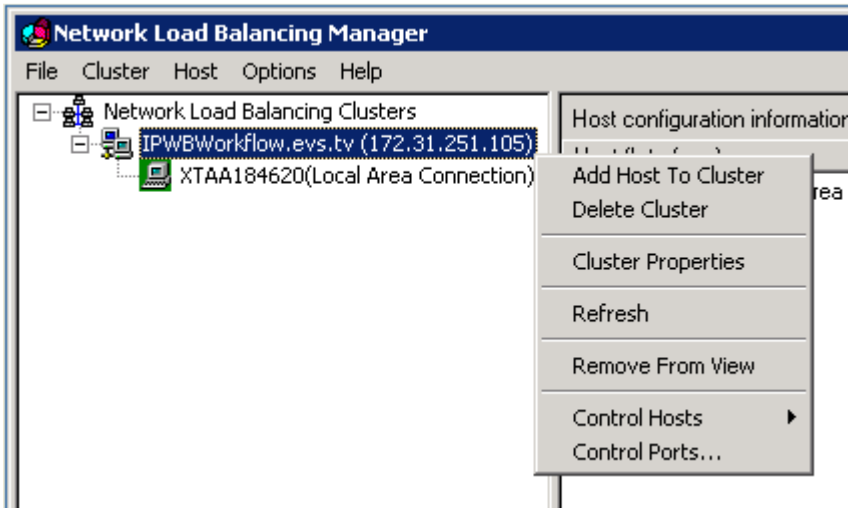
24. Click **Finish**.



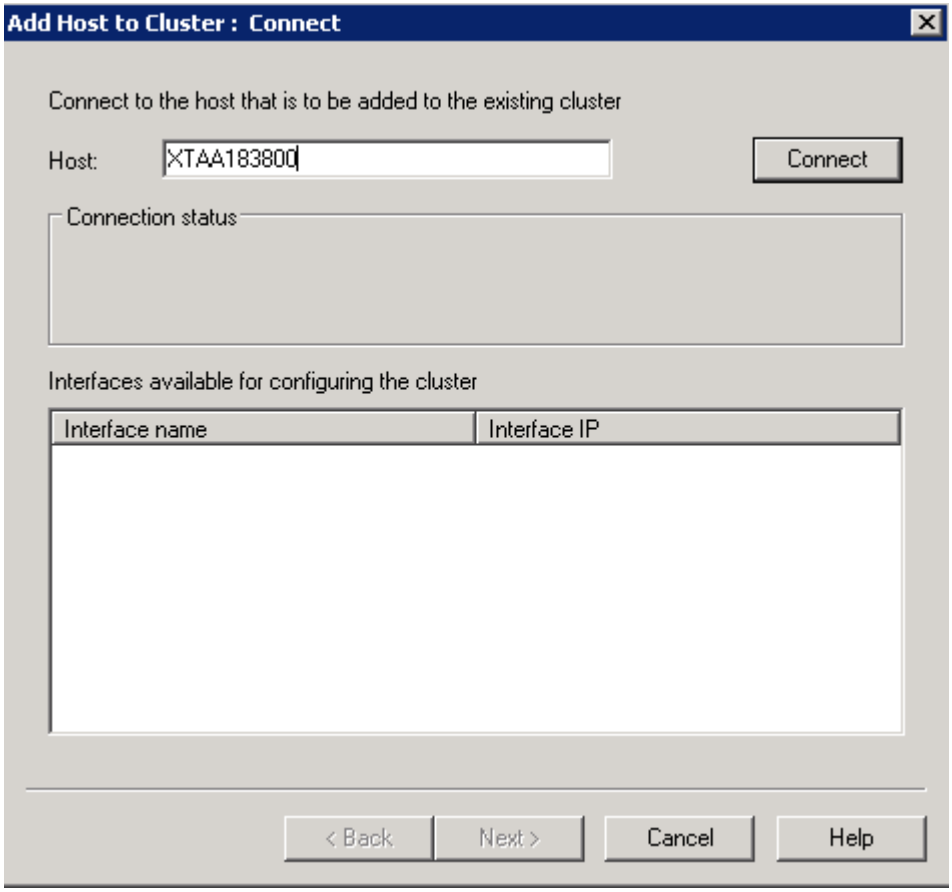
25. Make sure the node's status changes to **Converged**.
26. Make sure you see a **Succeeded** message in the log window.

4.2.2 Configuring NLB for NODE 2

We will configure Node 2 from Node 1. If we wanted to configure this from Node 2, then we would need to connect to the Virtual IP cluster first then add the host to the cluster.

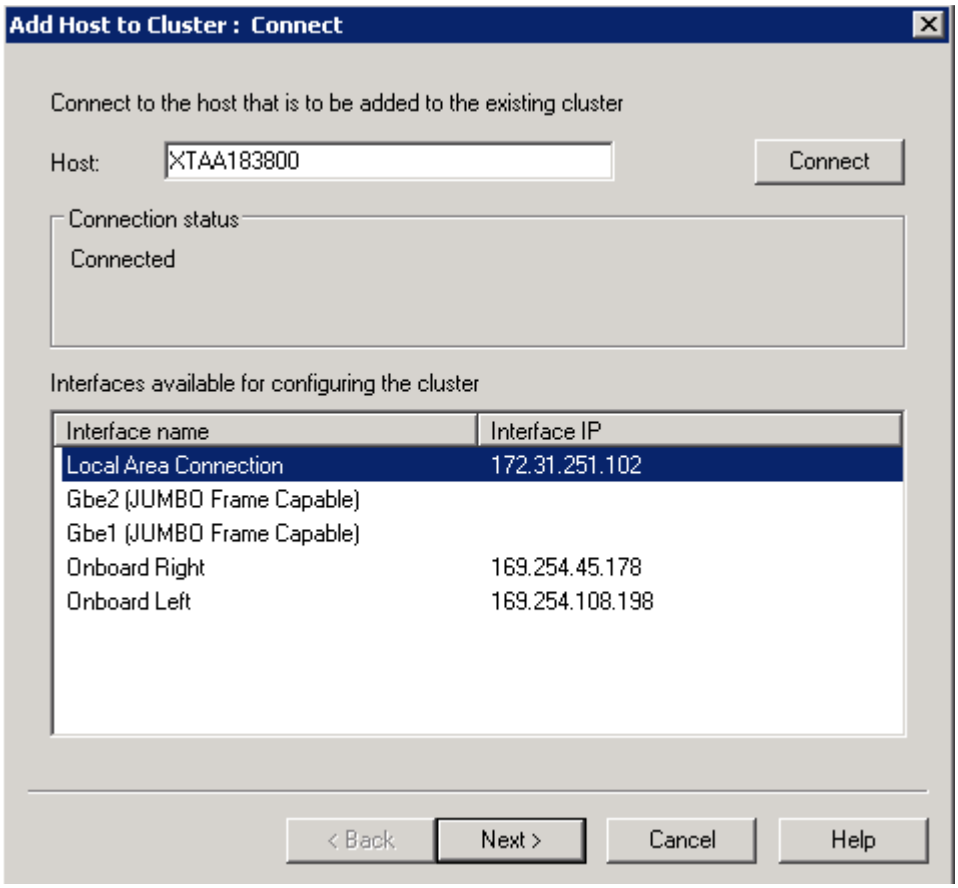


1. Right-click the cluster you have just created and select **Add Host to Cluster**.

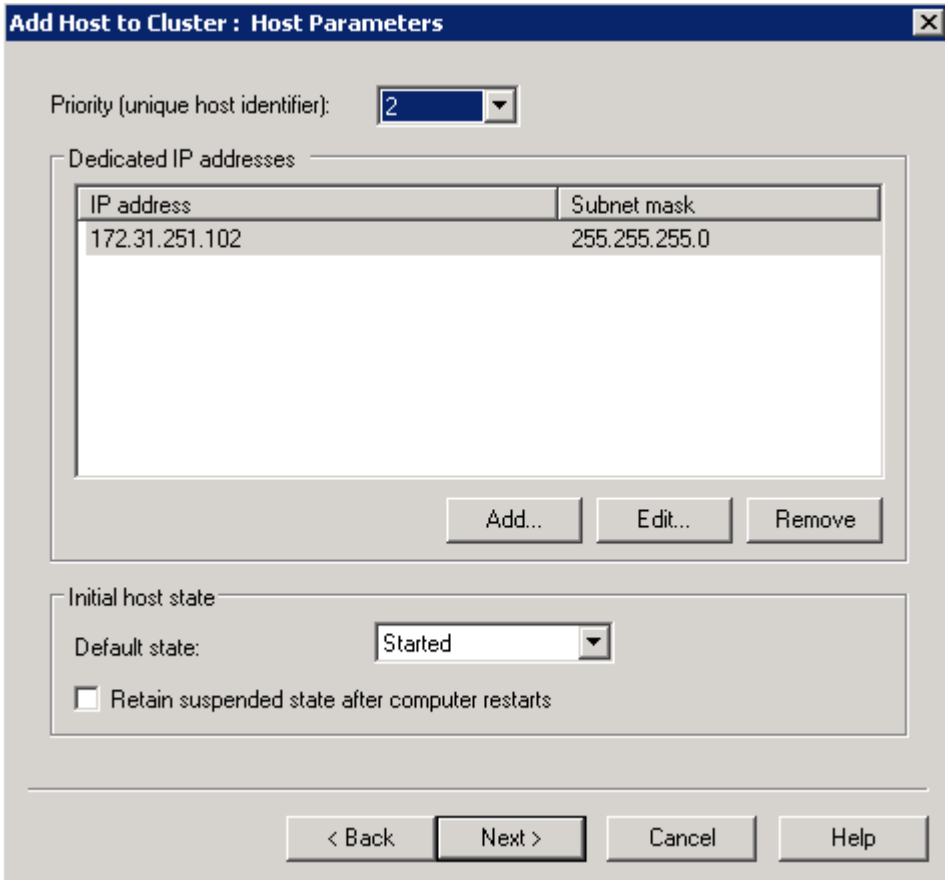


2. Enter IP Address or name of Node 2 and click **Connect**.

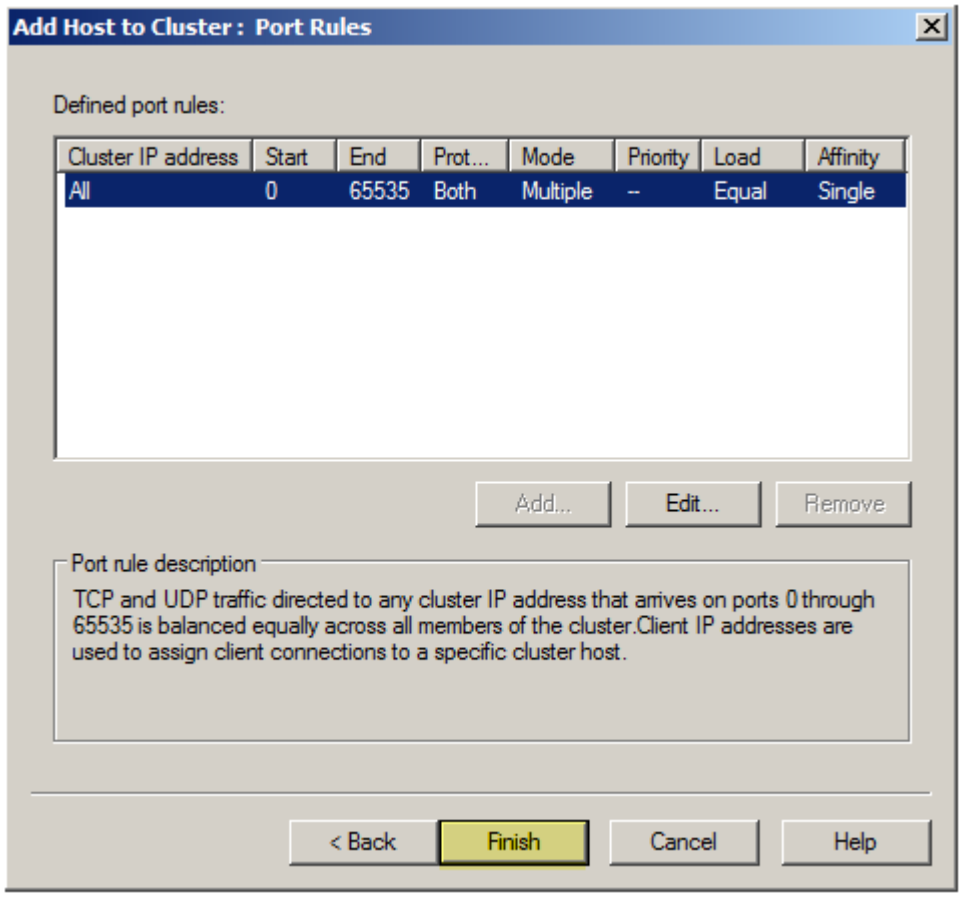
   A list of Network adapters will show up:



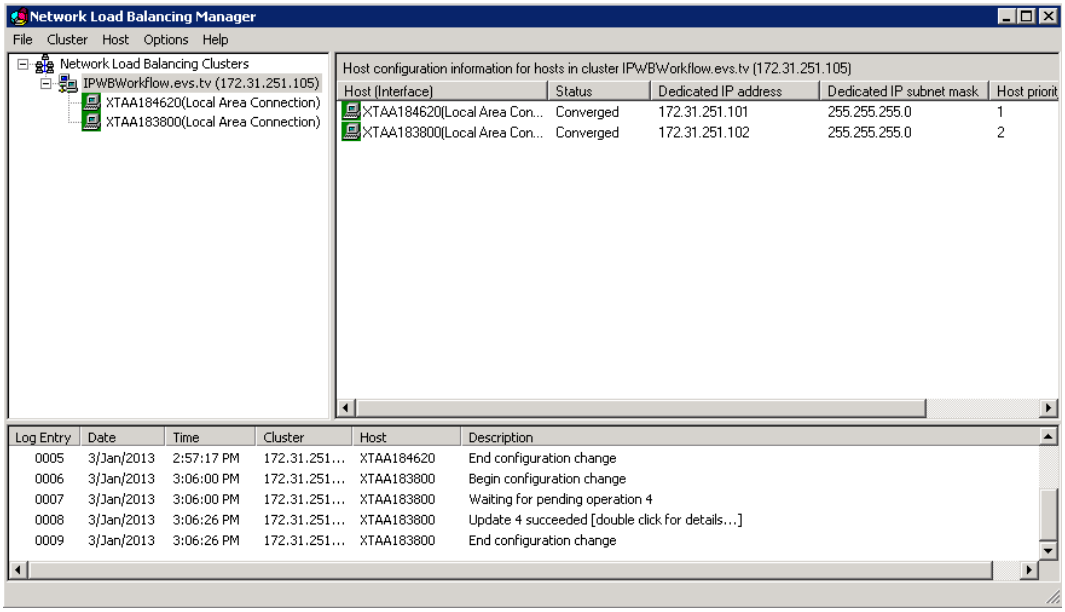
3. You will have the option to choose which network adapter you want to use, the NIC should be on the same subnet as the other servers in the NLB cluster.
4. Click **Next**.



5. Enter the Priority ID as 2 (each node in the NLB cluster should have a UNIQUE ID)
6. Make sure the correct adapter was selected under Dedicated IP Address.
7. Select **Started** in the **Default State** field (this tells NLB whether you want this node to participate in the cluster at startup).
8. Click **Next.**



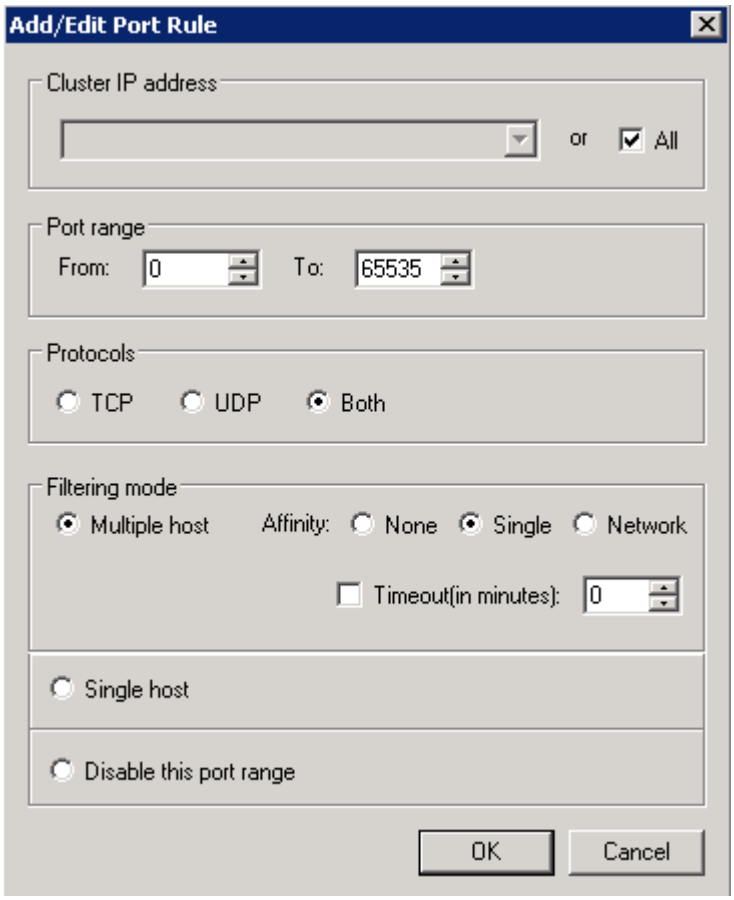
9. You should see a couple of things in the NLB Manager, this will let us know that both nodes successfully converged on our new NLB Cluster.
10. Click **Finish**.
11. Make sure that both node's status changes to **Converged**.
12. Make sure each node has a unique host priority ID.
13. Make sure each node is started under Initial Host State.
14. Make sure you see a **Succeeded** message in the log window for the second node.



4.3 Web servers load balancing

The web servers will work in load balancing rather than in main/backup. This means that all the servers in the cluster will be active. This will achieve N + 1 redundancy: when a server is lost, service is retained but a lesser quality of service is achieved.

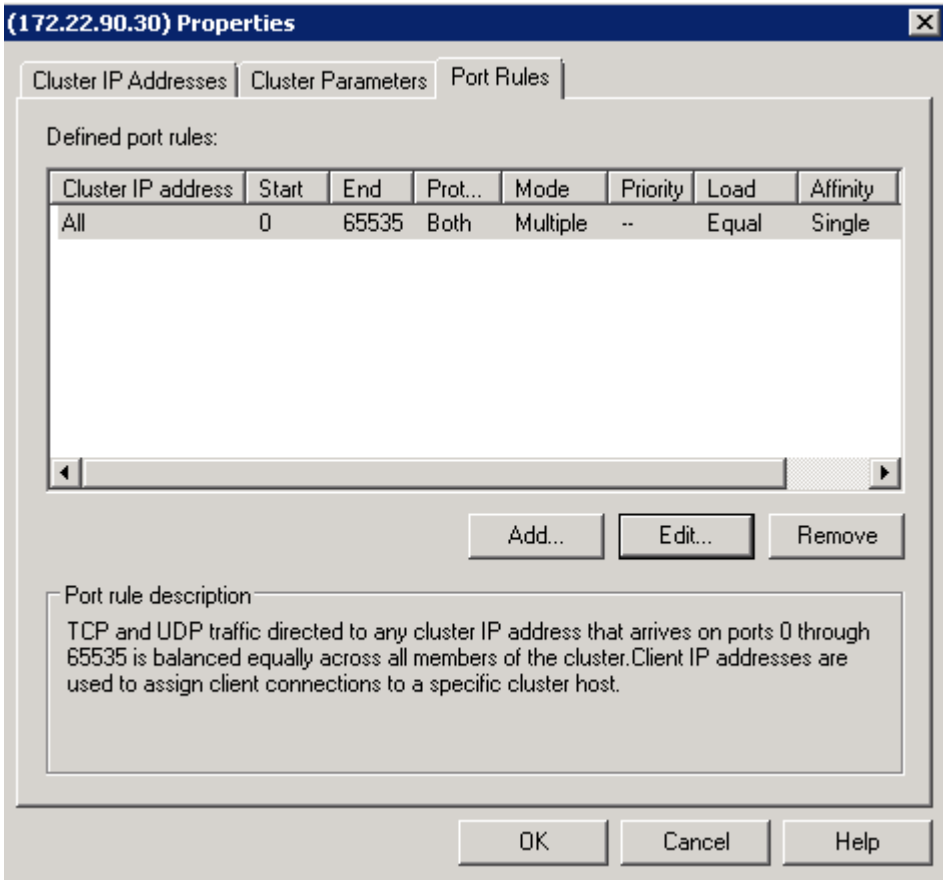
The NLB is configured in exactly the same way as for workflow servers EXCEPT at the Edit port rules stage:



- In the Filtering Mode group box, select **Multiple Host**.

  This makes sure the servers will work in load balancing

- Click **OK**.



- Continue configuring NLB in the same way as for workflow servers.

4.4 DB Redundancy/Maintenance

There are two databases used by IPWeb:

- IPWebBrowser: this is the main IPWeb DB. It holds all the IPWeb data.
- WorkflowPersistence: this is an internal worker DB for the workflow engine.

Both databases need to be accessed through the same IP Address.

Maintenance jobs can be setup for both DBs using the standard EVS tools.

Redundancy is also setup for both DBs using the mirroring tool (with witness).

Since both DBs need to be accessed with the same IP Address, only one virtual IP is setup, for IPWebBrowser DB.

WorkflowPersistence must be master on the same server as IPWebBrowser.

Make sure, when doing a manual fail-over, to fail over both DBs so that they are both reachable through the virtual IP address linked to IPWebBrowser DB.

5. Configuration

5.1 Starting IPWeb Admin web site

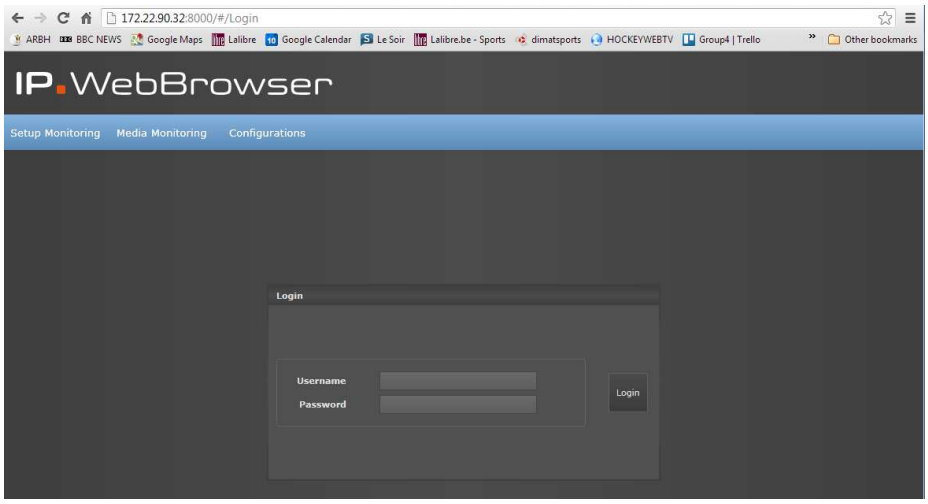
5.1.1 Admin Web Site Address

The Admin Web site can be launched by double-clicking on the icon on the desktop of the workflow server or by typing the address of the site in a browser:

http://WorkflowServerIP:8000

where WorkflowServerIP is the address of your workflow server.

5.1.2 Login



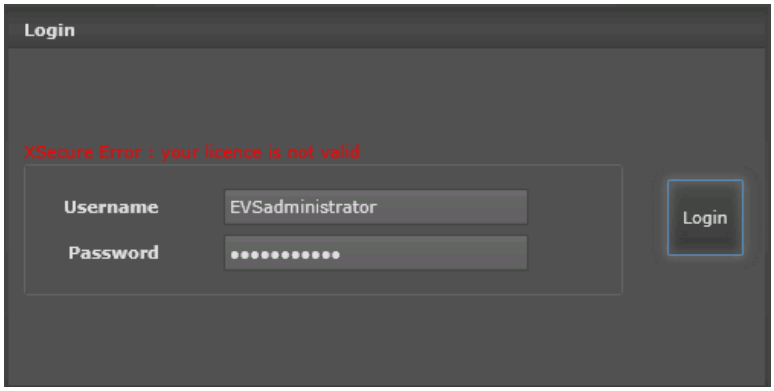
For a first configuration, type the hardcoded login and password:

- Login: EVSAdministrator
- Password: 3V$P4$$W0RD

Once IPDirector Web Service is configured, log in with an IPDirector Administrator account. Please note that the web password must be minimum 3 characters long and contain a number. If these criteria are not met, you will be asked to change your password.

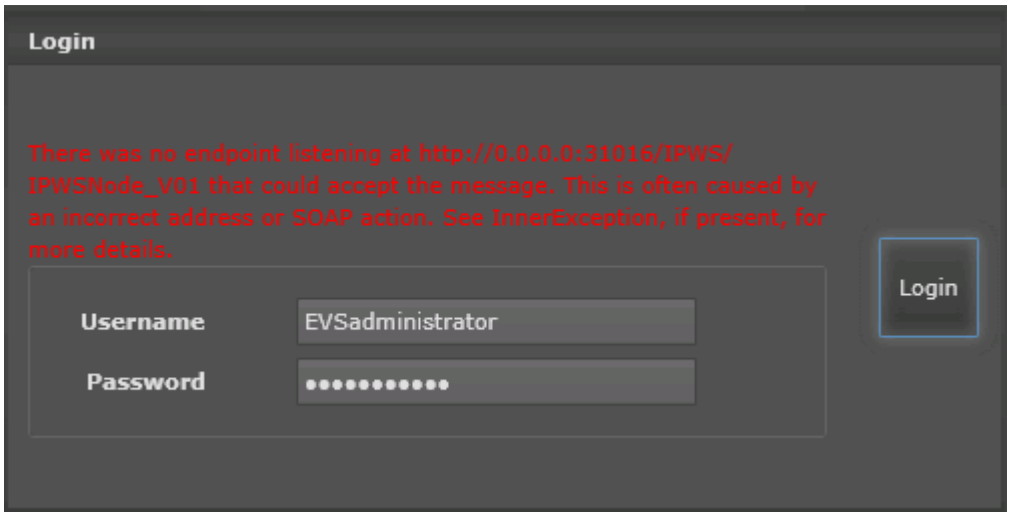
5.1.3 Possible Errors at Login

No XSecure



If not valid XSecure License (Application30: Module 12-IPWeb Engine) exists on the IPWeb DB, the login attempt will fail:

No Endpoint Listening



When IPD API is not defined yet, you will get this error when trying to connect with another login than the default login.

When IPD API is defined, you will get this error message when the API cannot be reached.

Possible Causes

- The IPD API is not started or cannot be reached at the IP Address mentioned in the message
- If the IP Address is 0.0.0.0, it means no IP API is configured

In order to change IP API configuration, log in with the default user mentioned above.

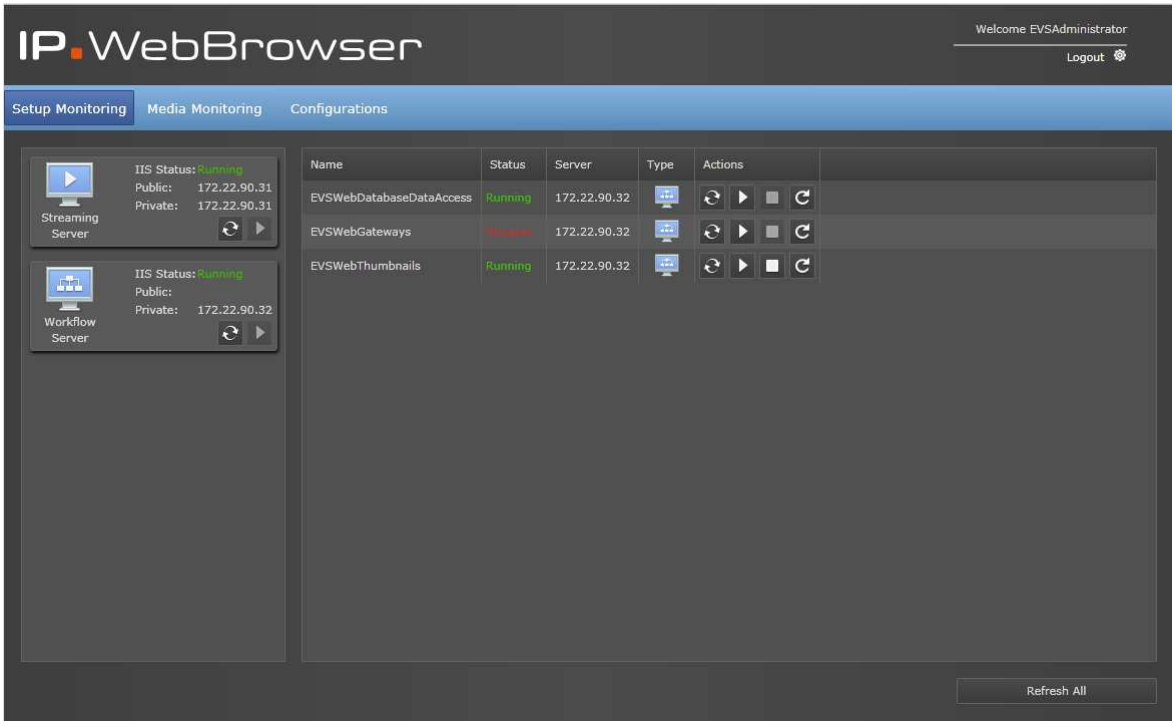
If API address is right:

- Restart all IPWeb services

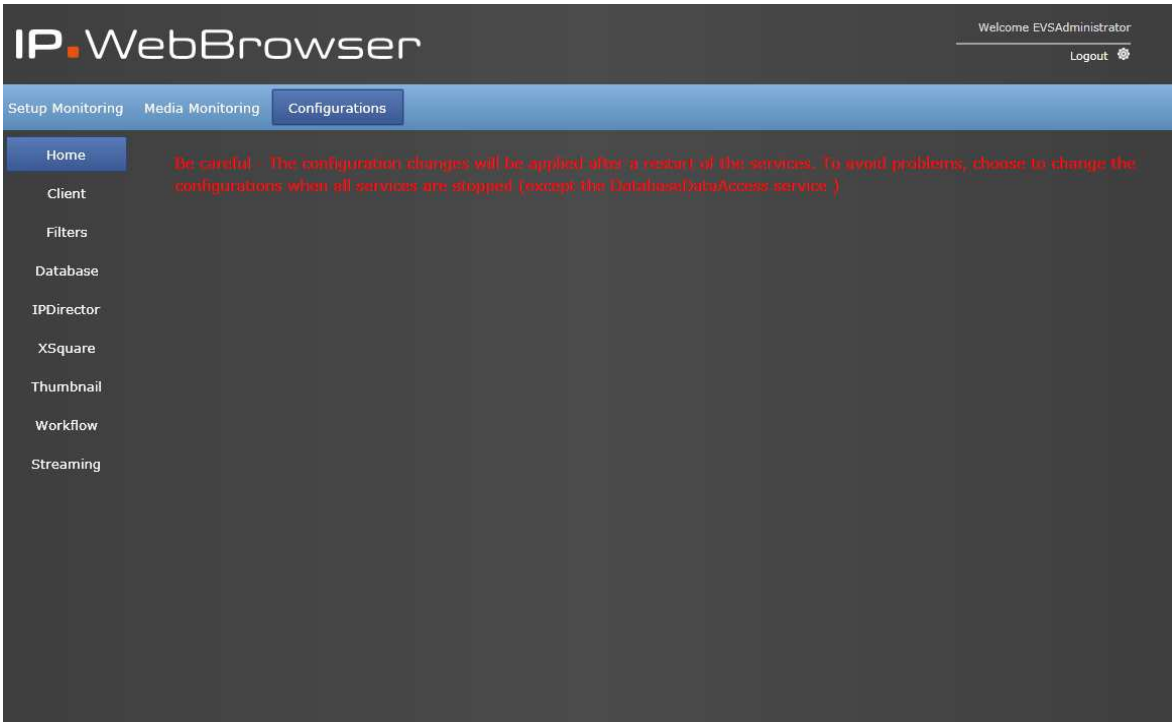
- Check that IP API is started. If Address is the address of the proxy, check that at least one server is started.

5.1.4 First Page After Login

The first page to be displayed is the Setup Monitoring page:



Click the **Configuration** button to go to the configuration pages:

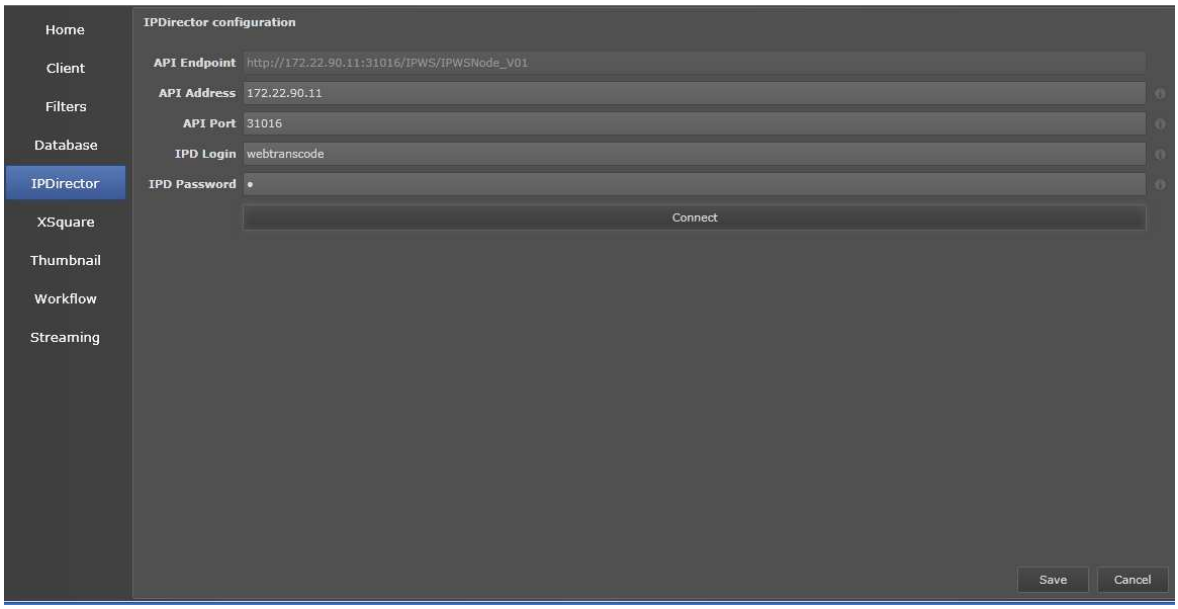


Each page is described in detail below.

Follow the order for configuration

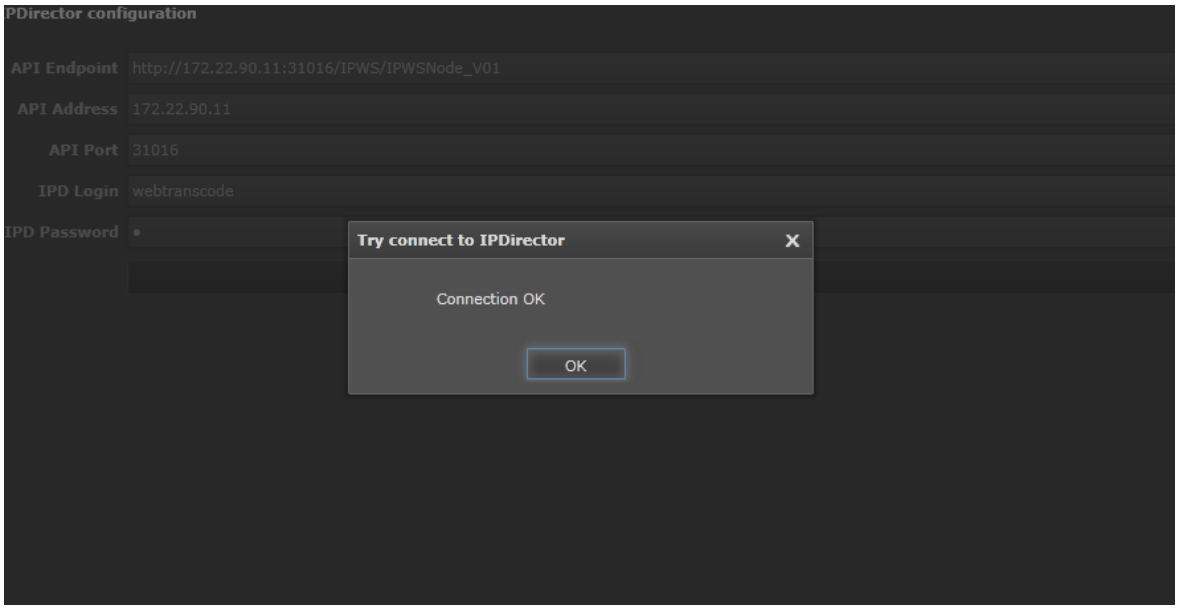
5.2 IPDirector

Click the **IPDirector** Button on the left:

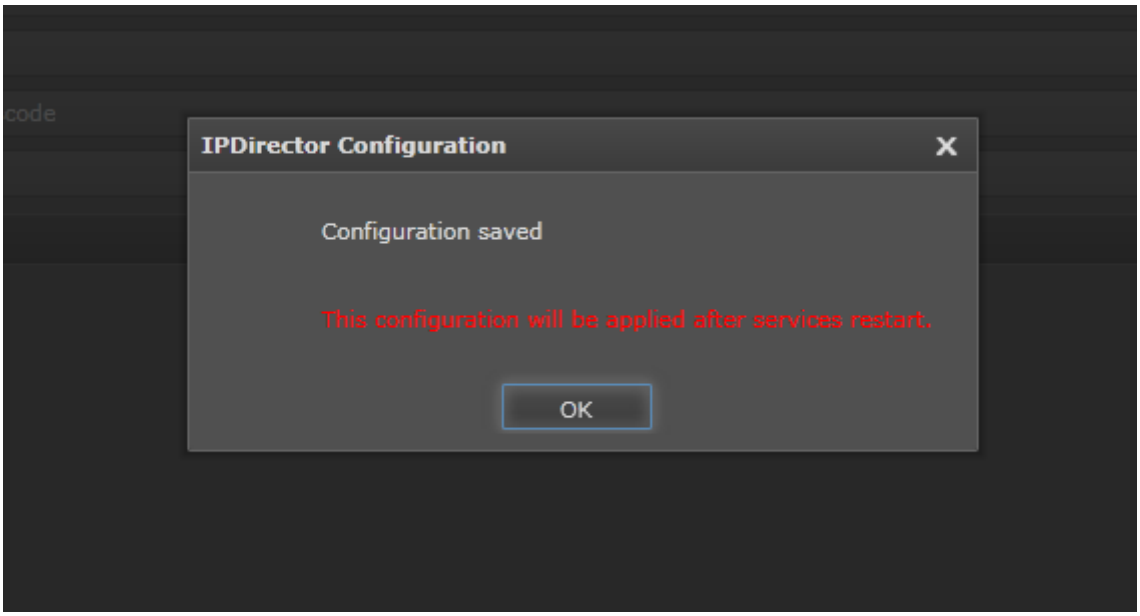


Enter the IPD API Address (use the API Proxy if defined), IPD Login and password.

The connection can be tested by clicking the **Connect** Button:



Once the connection is OK, click the **Save** button at the bottom right of the screen. You will receive a confirmation message:

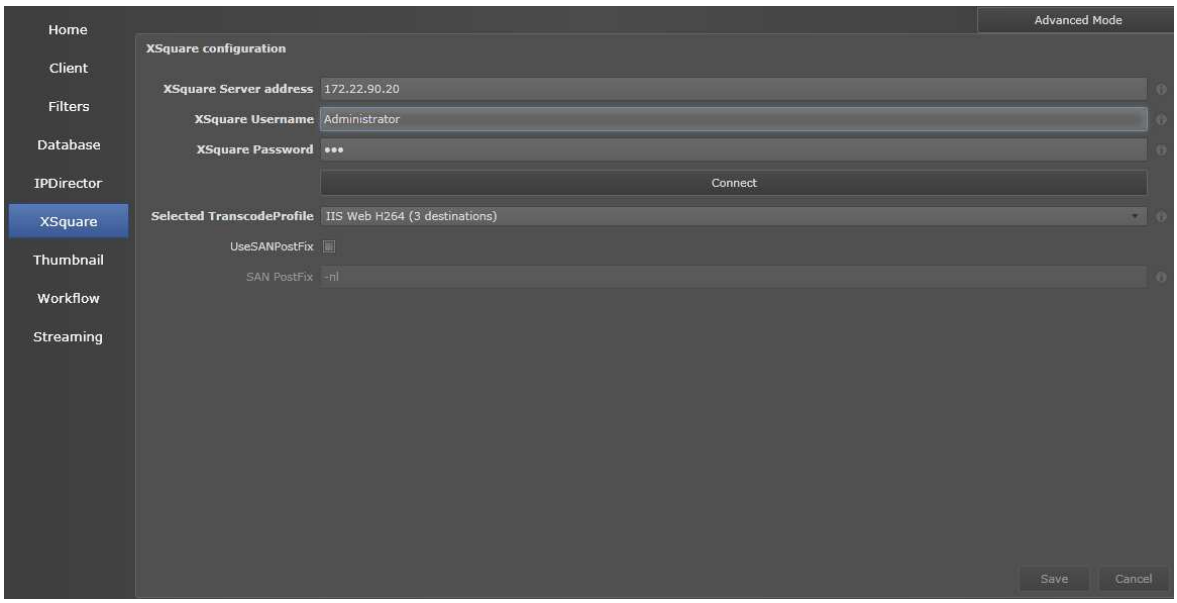


Now that IPDirector access is configured, logout from the admin web site and log back in with an IPDirector account.

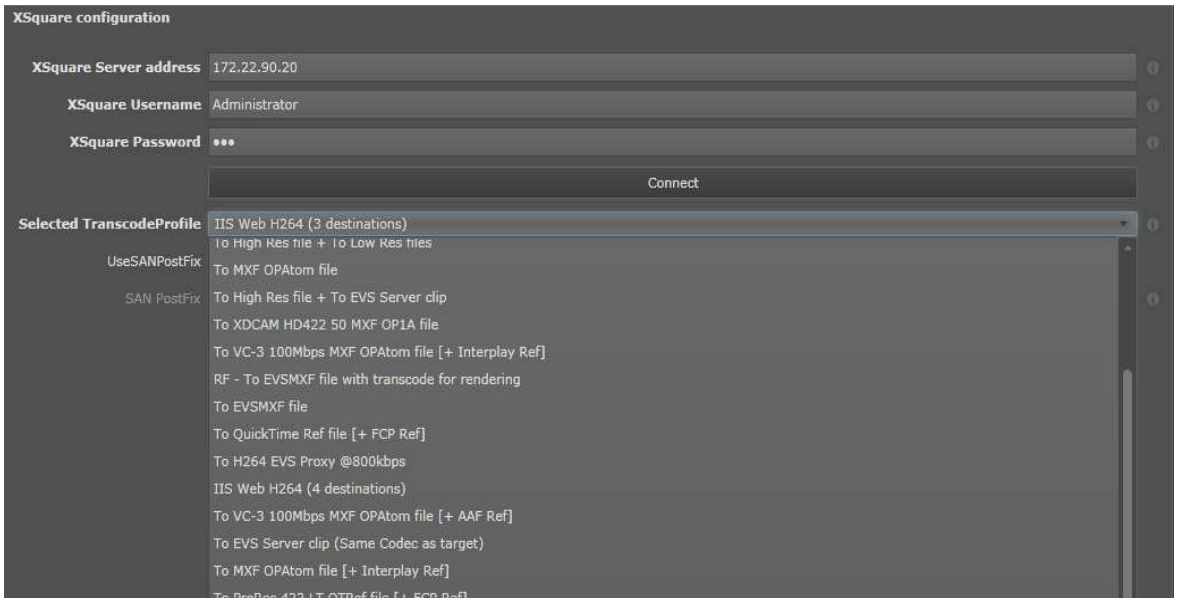
After Changing IPDirector configuration, you must restart the Gateways and Thumbnail services.

5.3 XSquare

Click the **XSquare** button on the left:



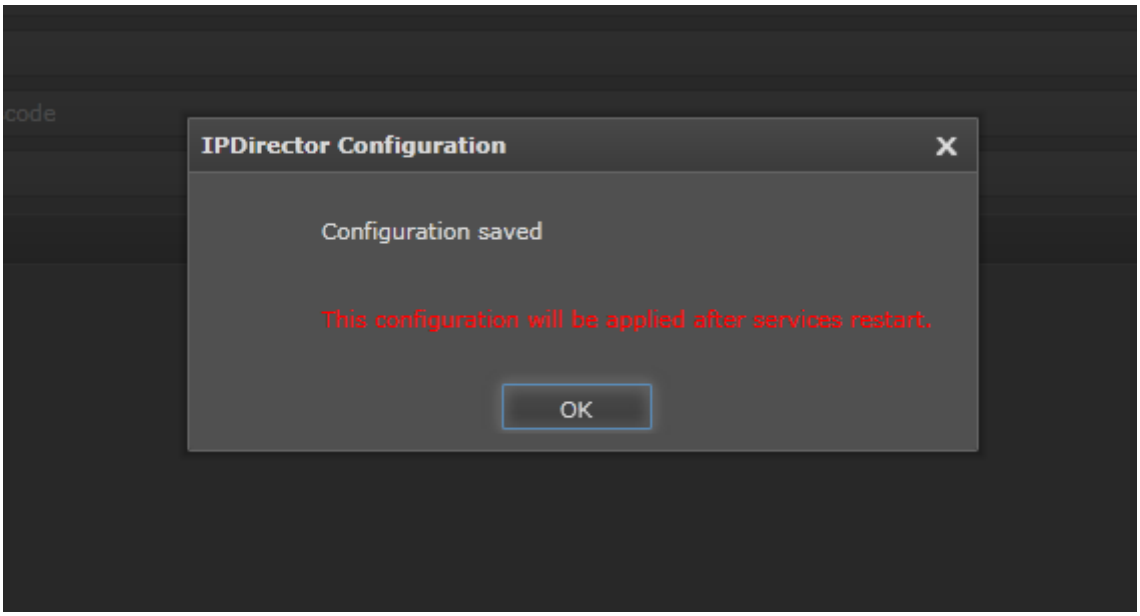
Enter XSquare server address, username and password, then click the **Connect** button.



Upon successful connection, the transcode Profile combo will populate. If not selected, chose the IIS Web H264 (3 destinations) profile.

SAN postfix should be used if reading from an EVS SAN but please confirm with an EVS project manager.

Click the **Save** button at the bottom right of the screen. You will receive a confirmation message:

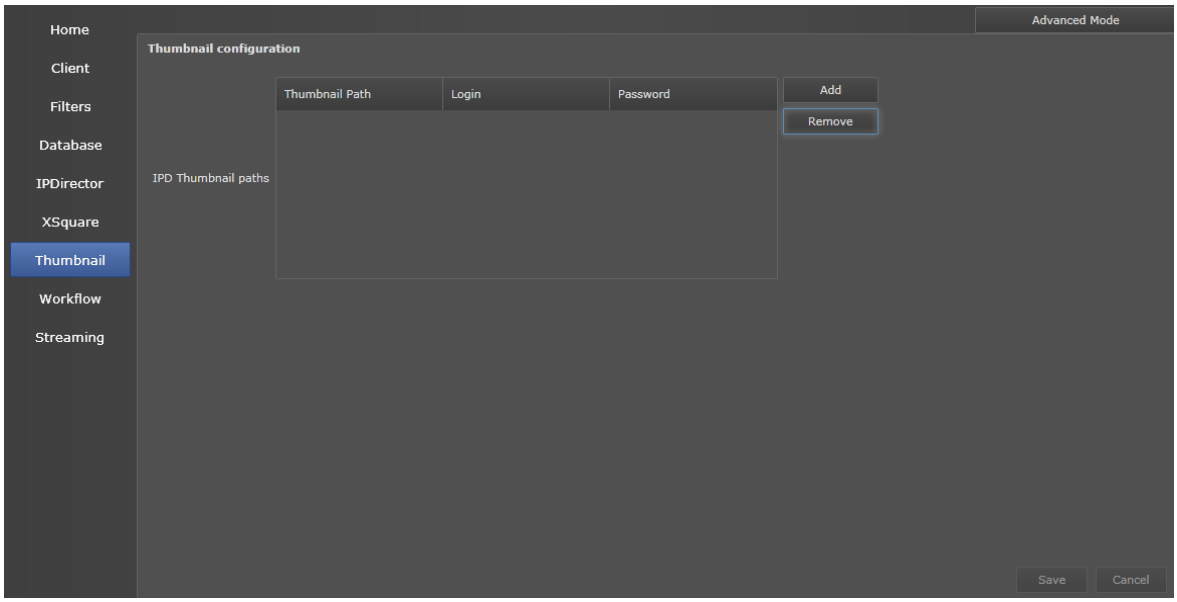


After Changing XSquare configuration, you must restart the Gateways service.

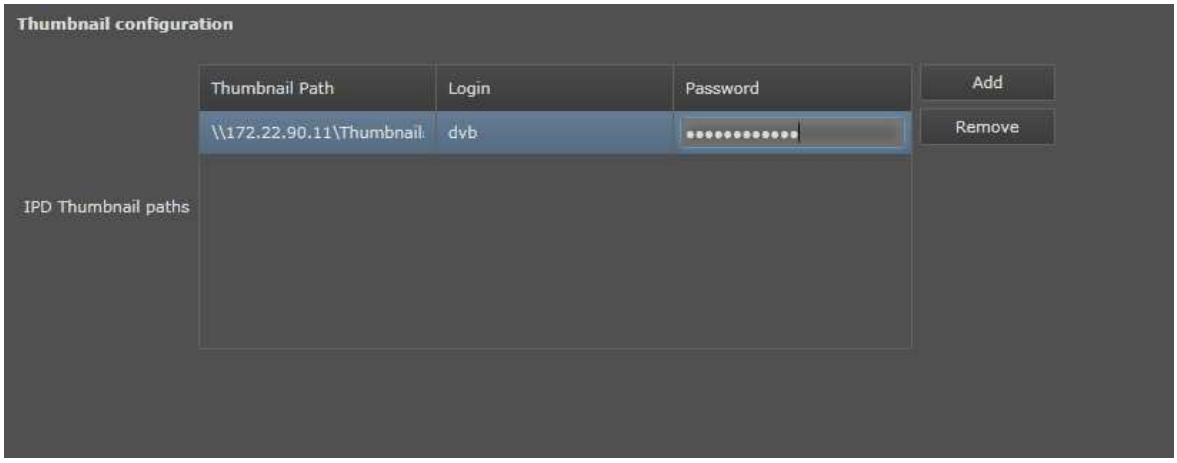
5.4 Thumbnails

If you want to show thumbnails in IPWeb, then you need to configure them here. If there are no thumbnails, you do not need to set this up.

Click the **Thumbnail** button on the left:

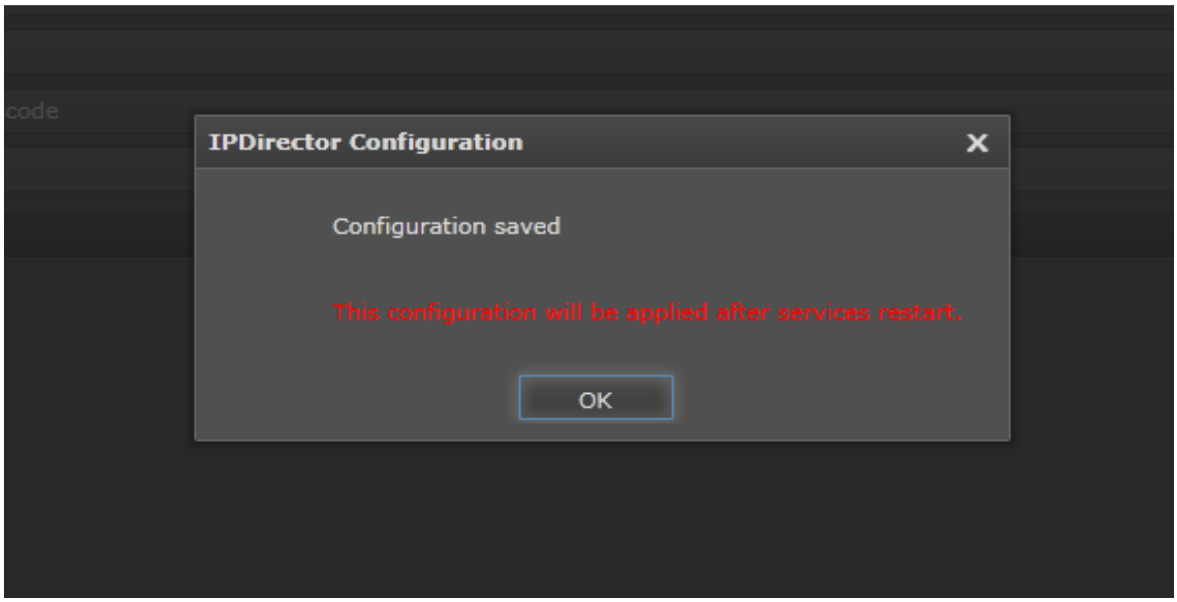


Click **Add**.



Enter the path to the thumbnails as defined inside the IPDirector configuration. If thumbnails for clips and logs are on different servers, enter two lines in the configuration

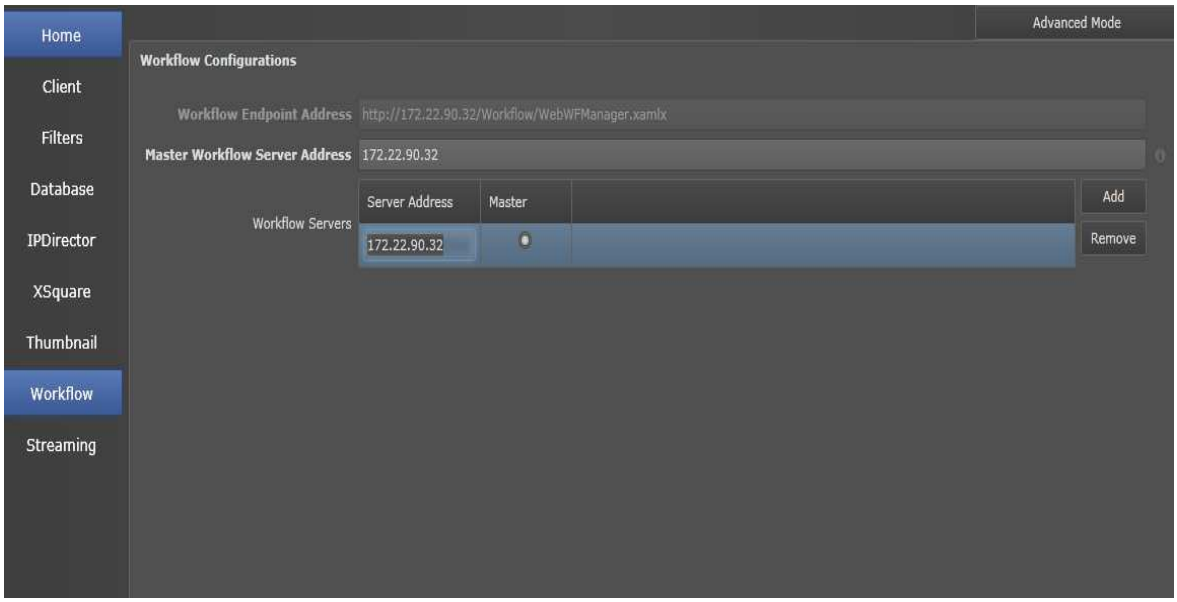
Click the **Save** button at the bottom right of the screen. You will receive a confirmation message:



After Changing Thumbnails configuration, you must restart the Thumbnail service.

5.5 Workflow

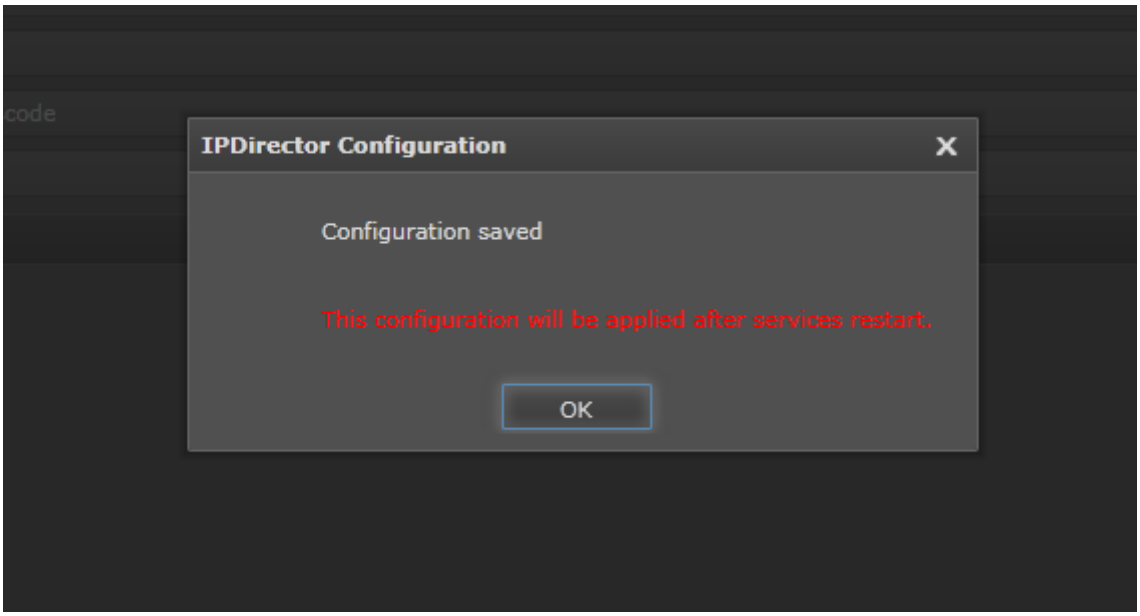
Click the **Workflow** button on the left:



Master Workflow Address: this is the virtual IP Address if using redundant servers. It is just the IP Address of your workflow server if using just one server.

Click **Add** to enter a line for each workflow server

Click the **Save** button at the bottom right of the screen. You will receive a confirmation message:



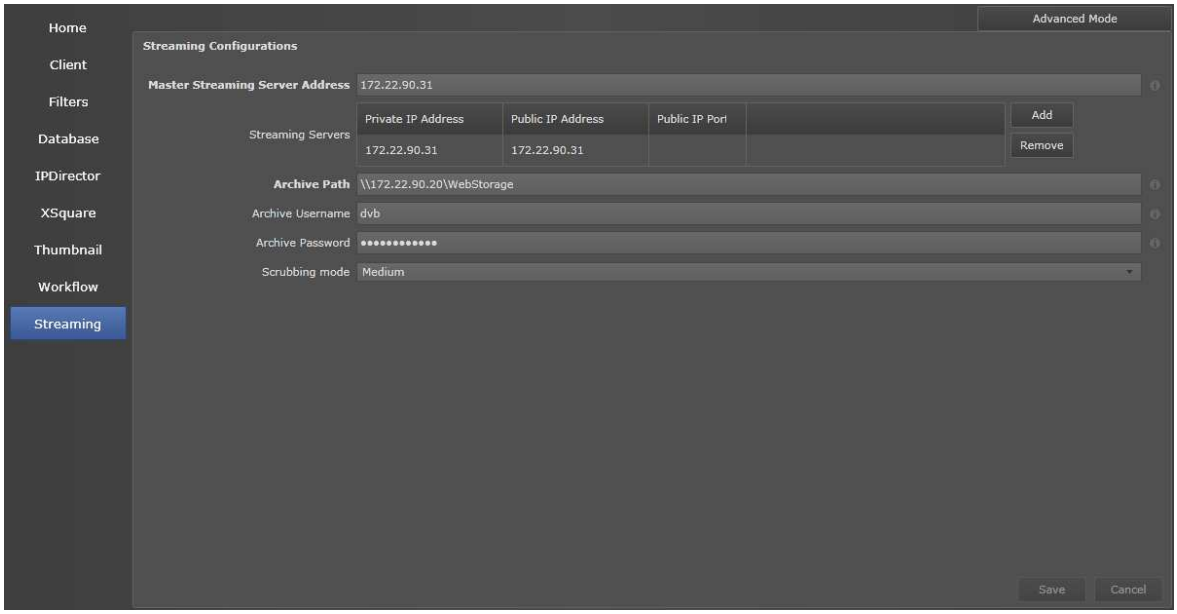
After Changing IPDirector configuration, you must restart the Gateways and Thumbnail services.

Warning

If the master Workflow address is changed in the Admin configuration site (for example when adding redundancy to the system), you MUST run the installer again on all your web servers and enter the new workflow address.

5.6 Streaming

Click the **Streaming** button on the left:



Enter the master Streaming server address. If using one server, this is the public IP Address of the web site. If using more than one server, please see explanations below.

Add a line for each Web Server in your setup. Each server has its own private AND public IP Address. If only one server is used, the public IP Address is the same as the Master Streaming Address. If more than one server is used, please see explanations below.

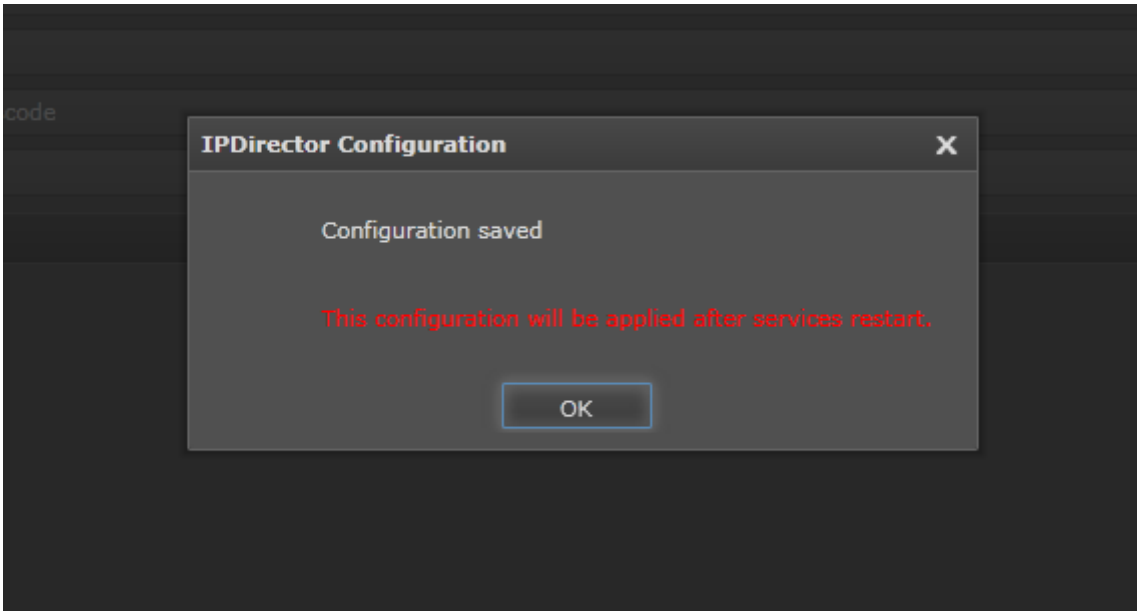
Enter the Archive path. This is the path to where the medias are going to be stored on the web storage. This path must exist and be shared before configuration.

Enter the Archive credentials: username and password. Avoid using dvb with a blank password for a best practice in security reasons.

Note

The credentials used must exist on both the Web Server and Web Storage.

Click the **Save** button at the bottom right of the screen. You will receive a confirmation message:



After Changing Streaming configuration, you must restart the Gateways and Thumbnail services.

Warning

Please note that when the streaming configuration is changed, the web server IIS is restarted so that

- Any client would be disconnected
- Any ongoing streams would also be disconnected and would fail in XTA/X².

Web Site access and Streaming Server Addresses Configuration

The Remote client accesses the web site through a public IP Address and a port. This address is translated by the firewall to the private IP Address of the Web server on port 80. If more than one server, this is translated to the Virtual IP Address for the web servers.

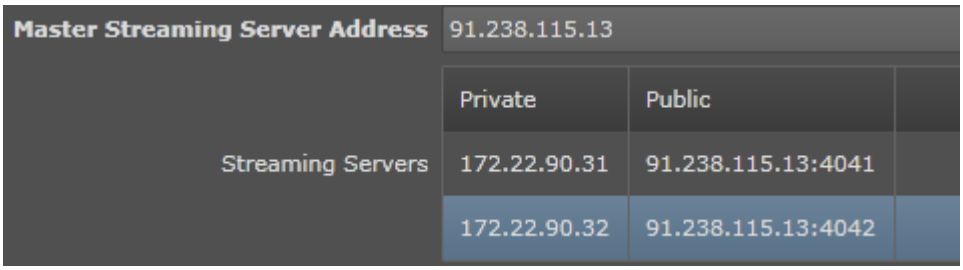
The medias are also accessed through the web server. Each time a media is loaded on the client, it is loaded through its address on the web servers.

When a media is being ingested, only the server that does the ingest can stream the media. This means the individual IP Address of each server must be reached. Usually, only one Public IP Address is allocated to the web application but different ports can be used. For example, port 4041 can be routed to the first web server and port 4042 to the second.

When a media has finished being ingested, it can be reached through any server so the Virtual IP Address can be used. Since this virtual IP is already linked to the public IP Address for general web site access, the master server streaming address is set to the Public IP Address of the web site.

Example of Redundant Servers Configuration

Configuration in IPWeb Admin web site:



Let's say the Virtual IP Address for the servers is 172.22.90.30.

The mapping on the firewall will be:

Public Address	Private Address
91.238.115.13 port 80	172.22.90.30 port 80
91.238.115.13 port 4041	172.22.90.31 port 80
91.238.115.13 port 4042	172.22.90.32 port 80

Default Scrubbing Mode

The scrubbing mode determines how many images per second the player tries to display with scrubbing with the browse bar.

Depending on the average connection type for the user, set it to one of the values in the combo:

- Disabled: image is refreshed when the user releases the mouse
- Low: one image every xx ms
- Normal (default value) : one image every xx ms
- Aggressive: as many as possible

Adding/re-installing a Streaming Server

When you add a new streaming server to your existing pool OR if you re-ghost, uninstall then re-install a streaming server, you MUST come to the streaming page, update the details if needed and click **Save**. This will re-apply all the configurations to the all the servers in the pool.

5.7 Database

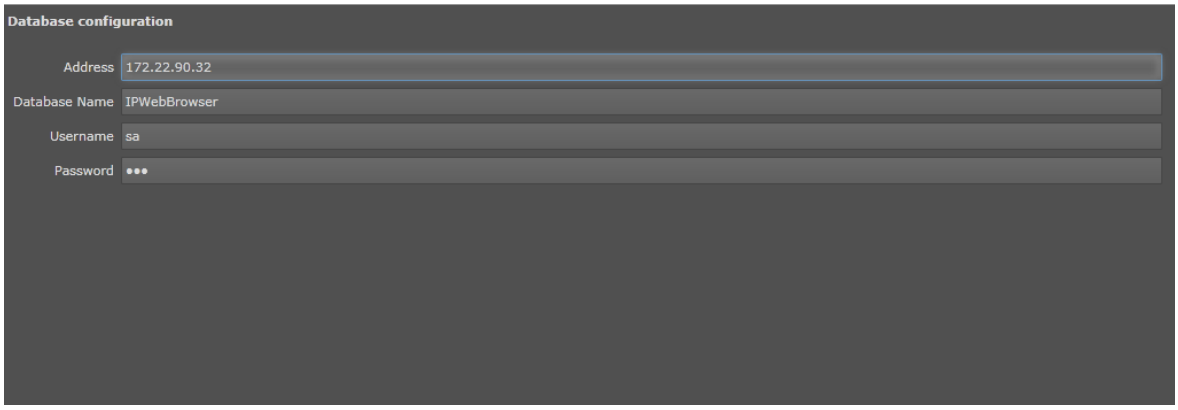
The database address should be correctly configured at installation.

If you need to change the DB address or name, please make sure it points to the same DB as before but on a different address (for example, virtual IP Address).

If pointing to a different DB with different configuration, you need to go through all the tabs and re-save the configuration.

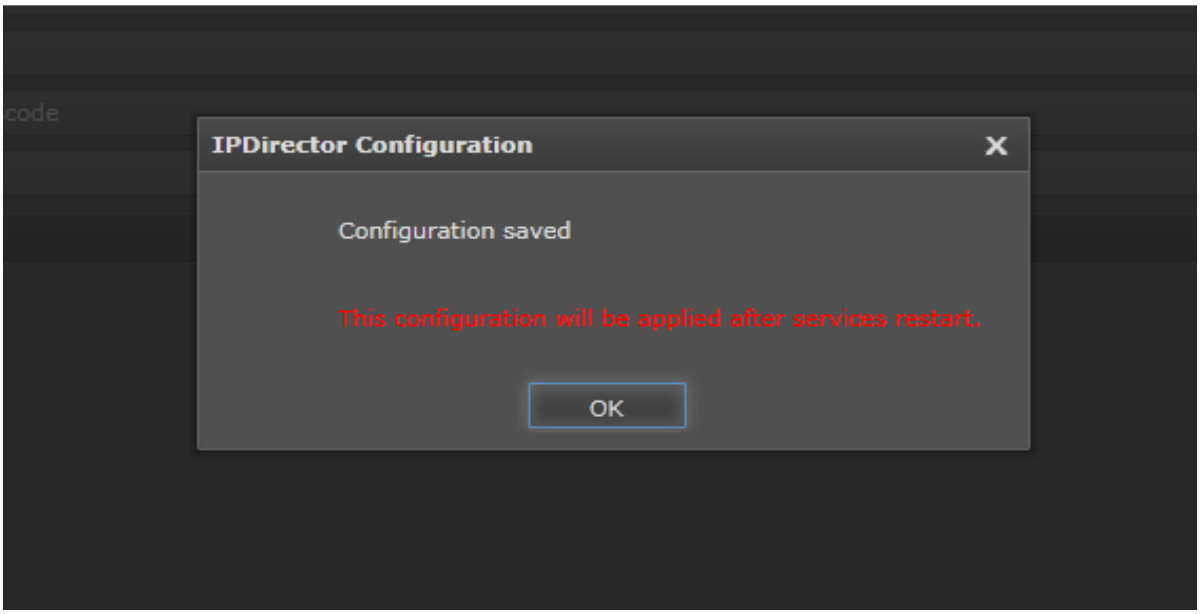
If you need to change the Database address, proceed as follows:

Click the **Database** button on the left:



Enter the new DB address and Name

Click the **Save** button at the bottom right of the screen. You will receive a confirmation message:



After changing the DB address, you must:

Restart all the services, including DataBaseDataAccess

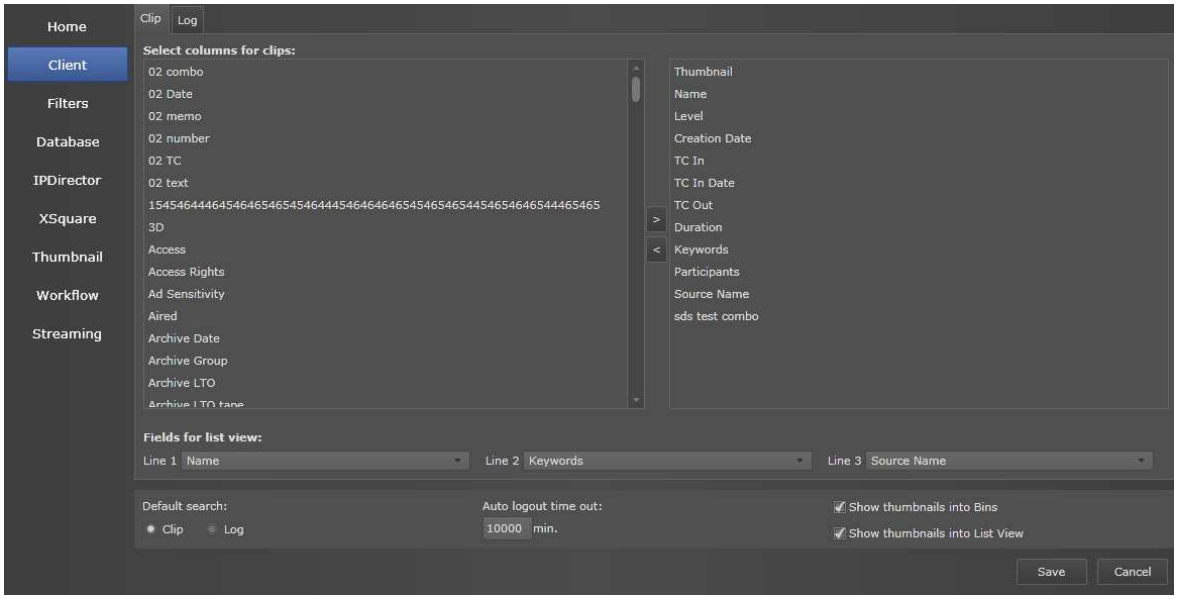
Logout, then log back in to ensure you have valid credentials

If pointing to a different DB with different configuration, you need to go through all the tabs and re-save the configuration.

5.8 Client

This is the configuration of the IPWeb client. It is very similar to IPBrowse Configuration.

Click the **Client** button on the left:



Choose

Select columns for clips: which columns are to be shown --> for clips and logs.

Thumbnails will be displayed in grid view if the thumbnail column is chosen

Fields for list view --> for clips and logs

Default search: this is the default node in the tree that will be selected when logging in to IPWeb

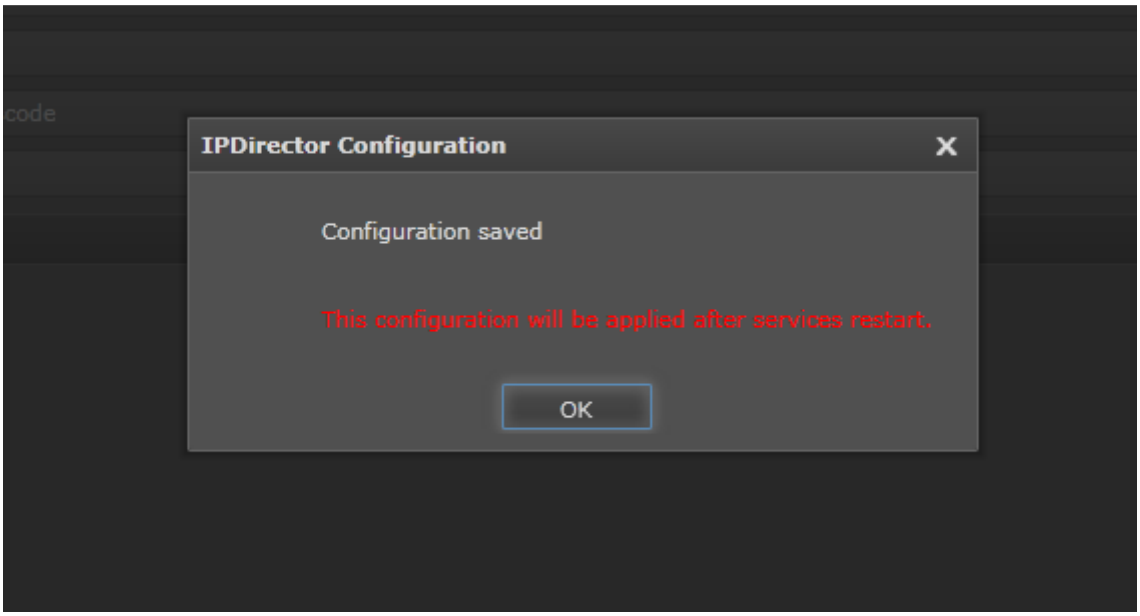
Auto logout time-out. If licenses are shared between a large number of potential users, the time out ensures the license is released when the user does not use IPWeb.

Choose whether or not to display thumbnails:

Show thumbnails into Bins

Show thumbnails into List View

Click the **Save** button at the bottom right of the screen. You will receive a confirmation message:



There is no need to restart services after changing the client configuration. This will be applied at each user's next login.

5.9 Filters

The IPWeb Workflow Server only transcodes and displays clips that satisfy the filter conditions defined in the configuration.

This allows an administrator to determine exactly which media are to be made available to IPWeb.

Also, the filter should be set so that only one clip element from each asset to be published will satisfy the filter conditions. This ensures the correct clip element is transcoded and prevents duplicate display of clips.

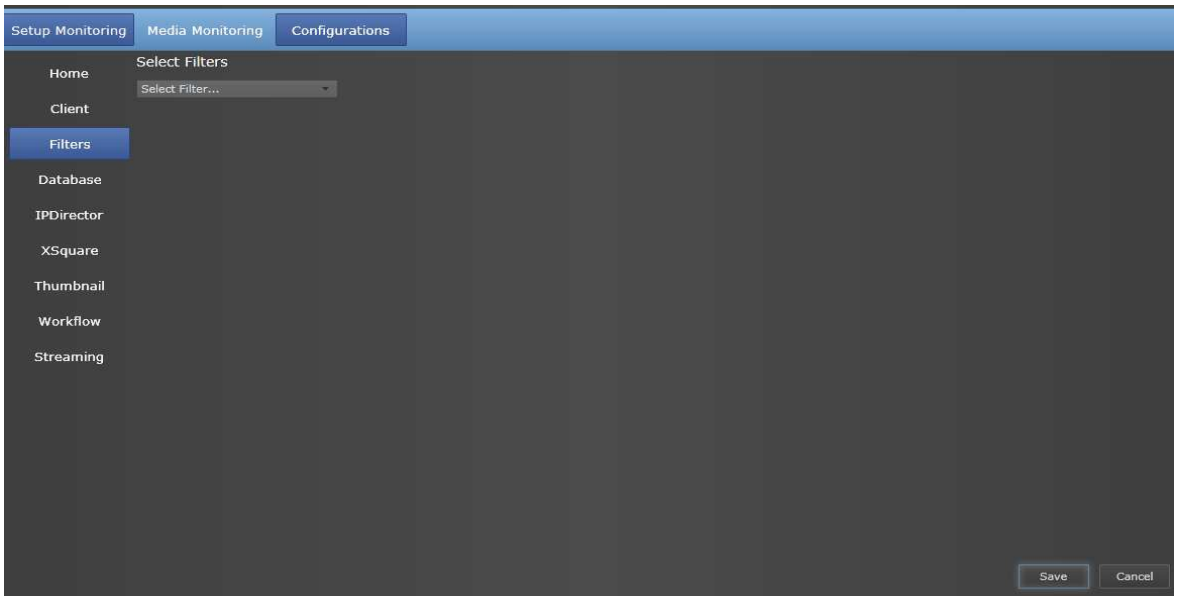
For example, if an asset has elements on a server (HiRes), HiRes and LoRes on the same Nearline, the filter could be:

StorageName = NearLineName

Mode = Lo

This is how to configure filters:

Click the **Filters** button on the left:



Select a filter in the drop down, the column will be displayed

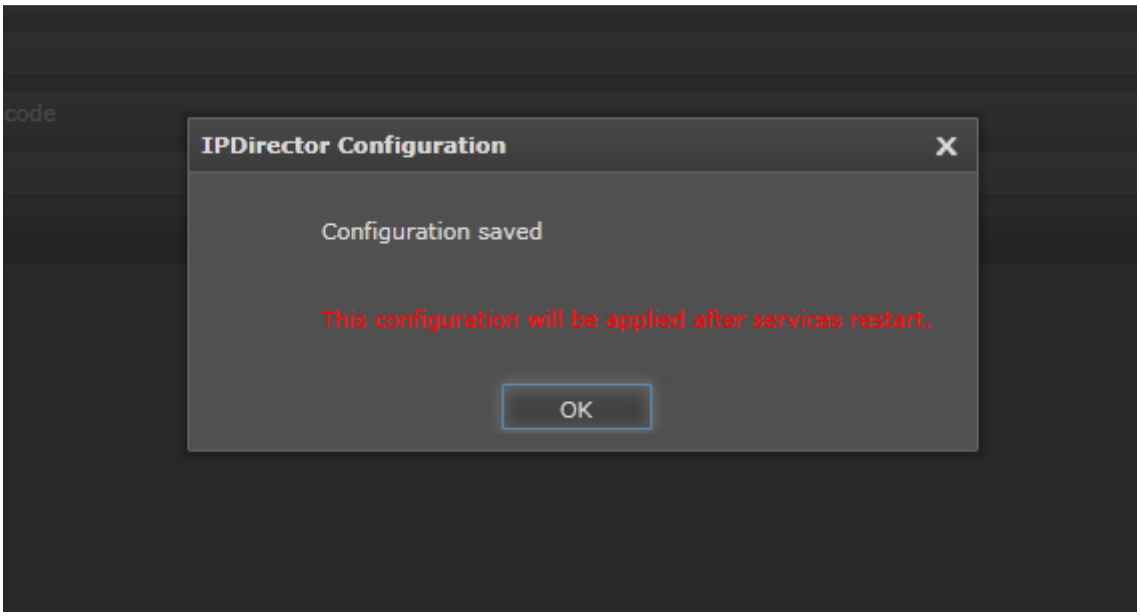
Just enter the filter criteria. Please note that filter syntax is the same as for advanced filters.

Add more filter criteria if needed:

This example includes all LoRes elements on IPDA NL with a 3 star rating.

A filter can be removed by clicking the white cross on the right

Click the **Save** button at the bottom right of the screen. You will receive a confirmation message:

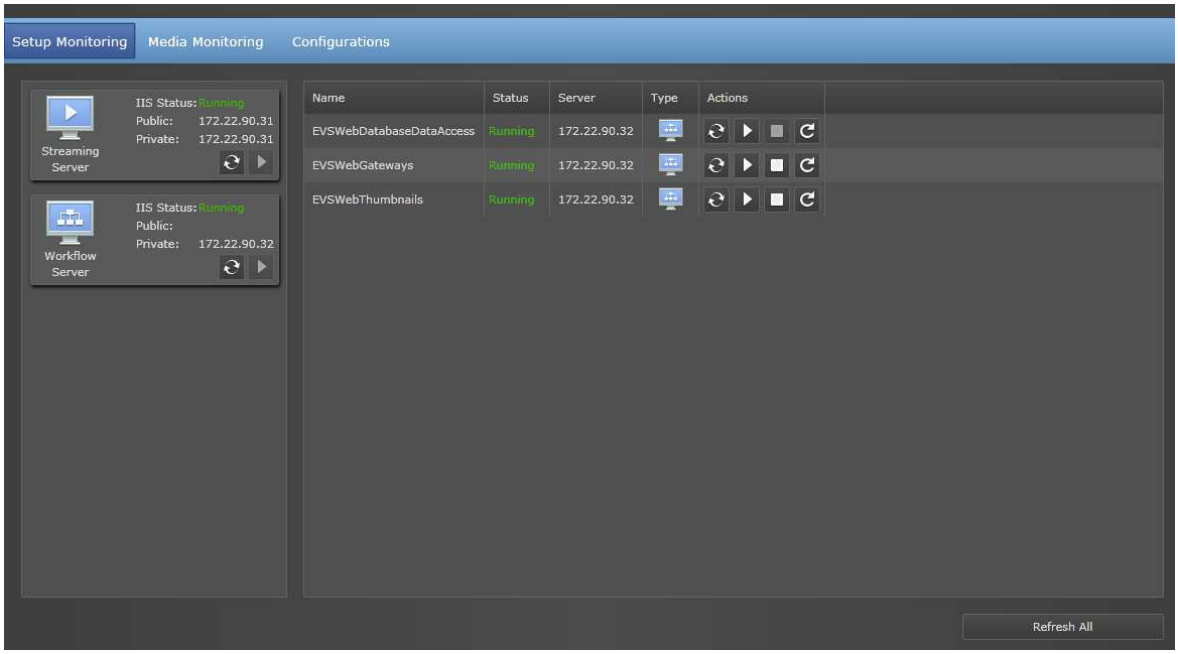


There is no need to restart services after changing the filters configuration. This will be applied on-the-fly.

5.10 Setup Monitoring

The setup monitoring shows the state of all your workflow servers and streaming servers.

Just click the **Setup Monitoring** button.



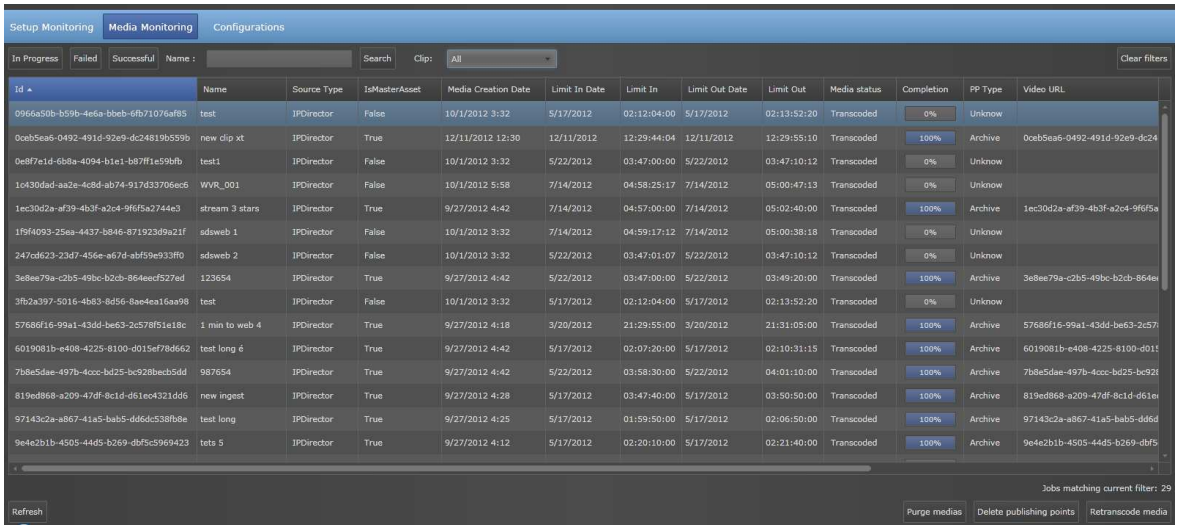
The services can be restarted from this interface when configuration is finished.

If thumbnails are not used, the EVSWebThumbnails service does not need to be started.

5.11 Media Monitoring

This page shows all the clips that satisfy the Filters and their transcode status.

Just click the **Media Monitoring** button:



The operations that can be done on this page are:

1. Filter clips
2. Re-transcode clips
3. Delete publishing points
4. Purge medias
5. View transcode history

5.11.1 Filter Clips

The Clips can be filtered according to

Status: In Progress, Failed, Successful. These are toggle buttons

Name: type the name then click Search (Enter does NOT validate the search)

Clip type: All, Master or sub clips.

Sub clips are shown on this page but they don't actually need transcoding since the A/V material is already available. They reference the material from their master asset. Their status will be transcode, PP type unknown and video URL empty. It is useful to sort on clip = only Master Clips in order to have a view of transcode status.

5.11.2 Re-transcode Clips

If one or more clips have not been transcoded properly, select the clip(s) and click the **Retranscode Media** button.

This will re-send a transcode request to Xsquare.

Note

- A transcode request will be sent even if the clip was marked as transcoded. This is a “force re-transcode” option.
- When retranscoding sub clips, the system will look to see if a parent is transcoded properly (or in the process of being transcoded). If yes, a reference to the parent is made. If not, a transcode request is sent to Xsquare.

5.11.3 Delete Publishing Points

Once a clip is fully ingested, its publishing point goes from live to archive. However, the live publishing point is not deleted straight away since this would disconnect any client browsing the media. Instead, there is a script that runs every hour to delete stopped live publishing points on the server.

The ‘Delete Publishing Points’ option forces a purge of the stopped publishing points.

5.11.4 Purge Medias

In normal mode, a clip that gets deleted from IPDirector automatically gets deleted from IPWeb. However, it can happen that clips get deleted from IPD but stay in the web DB.

The **Purge Media** button allows to remove them from the IPWeb DB.

EVS Headquarters
Liège Science Park
16, rue Bois St Jean
B-4102 Seraing
Belgium

Corporate
+32 4 361 7000

North & Latin America
+1 973 575 7811

Asia & Pacific
+852 2914 2501

Other regional offices
www.evs.com/contact

To learn more about EVS go to **www.evs.com**