



NFuse 1.61 Feature Discussion

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Overview

The information contained within this document is in reference to the new NFuse features added by NFuse 1.6 and NFuse 1.61 web components. NFuse 1.61 is discussed as a standard within this document because it contains the full set of functionality available at the writing of this document. A few features include:

- Content Publishing Support
- Program Neighborhood Agent Support
- Logout Functionality
- Active Directory User Principal Name Support
- Novell Directory Services Support
- Guest Access Support
- Citrix Secure Gateway Support
- NFuse Enterprise 1.0 Support
- South Beach Support

Many of the items discussed contain design considerations when planning an environment to take advantage of the new features. In order to properly implement these features within an environment, special considerations must be identified including network bandwidth usage, lock down capabilities, and content publishing options.

Note: Citrix Secure Gateway Support, NFuse Enterprise 1.0 Support and South Beach Support were not tested at the time of the creation of this document.

NFuse Functionality

Content Publishing

NFuse 1.61 allows administrators to utilize the NFuse portal to publish links other than ICA Published Application connections. For example, Figure 1 - Content Publishing displays the publishing of Adobe Acrobat files, a text file, and an Internet site within the NFuse portal.

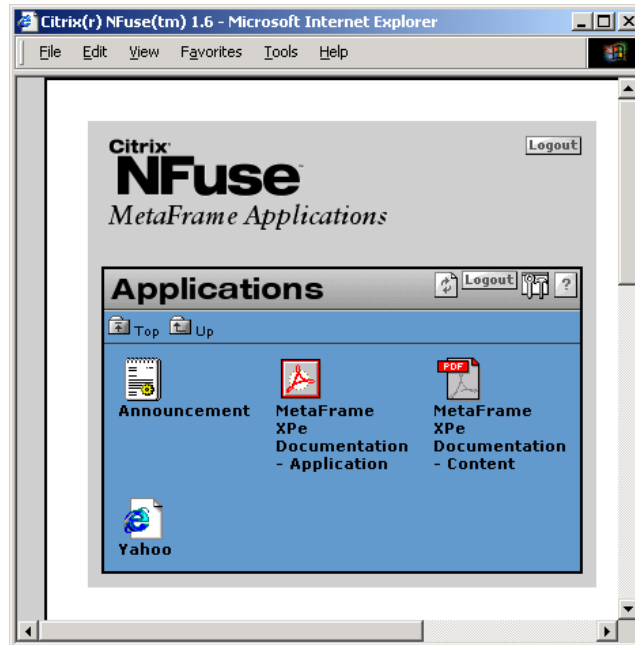


Figure 1 - Content Publishing

Upon execution of the published content, the local workstation downloads and opens the file or downloads the Internet link and tries to establish a connection to the website.

Note: After installing NFuse 1.61, the previous website must be updated to allow for published content.

Design Considerations

- Publishing a file requires that the file is located within a shared directory to which the users have access.
- Content published through NFuse requires that an appropriate viewer is present on the client's workstation. If an appropriate viewer is not found, the file fails to open. Viewers are configured on the client's Folder Options - File Type window identified in Figure 2 - File Types.

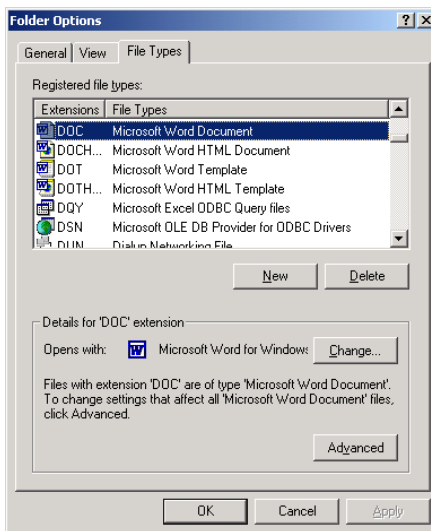


Figure 2 - File Types

- Publishing large files, like PowerPoint, Word, Acrobat, requires a significant amount of network bandwidth in order to pass the file to the client's workstation. A more appropriate option, if the application is present on the MetaFrame server, is to publish the file so it uses the application installed on the MetaFrame server. Instead of requiring the entire file to be transferred to the client's workstation, this configuration only requires screen updates to be sent. For instance, Figure 1 - Content Publishing shows that "MetaFrame XPe Documentation" is published twice. What occurs is based on how the file is published
 - Content: The file is downloaded to the client workstation. This particular file is 3.2 MB in size. Over slow network connections, the download time is excruciating.
 - Application: The file is published as an application. The Application Command line is configured as "**D:\Program Files\Adobe\Acrobat 4.0\Reader\AcroRd32.exe**" "**D:\Program Files\Citrix\Documentation\MetaFrame_XP_Guide.pdf**". Upon execution of the icon, Adobe Acrobat starts as a published application and loads the MetaFrame XP Guide. This configuration requires a significant smaller amount of network bandwidth.

Program Neighborhood Agent Support

The Program Neighborhood Agent allows users to access their published applications without opening Citrix's Program Neighborhood or a Citrix NFuse website. The Program Neighborhood Agent relies on an NFuse site to generate its list of published applications. The applications are listed in one of three places, based on configuration selections:

- Start Menu
- Desktop Folder
- System Tray

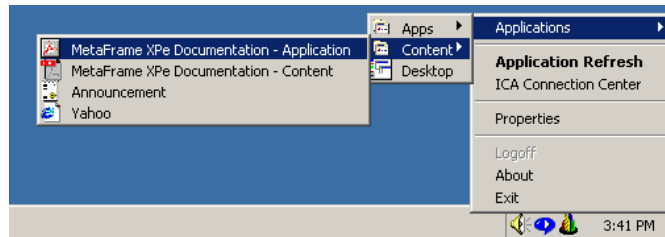


Figure 3 - System Tray Agent

Design Considerations

- NFuse 1.6 and higher Web Components are required on the NFuse server. The installation of NFuse 1.6x creates a directory at inetpub/wwwroot/Citrix/PNAgent. The directory contains the following four files:
 - o **Config.xml**: Used to configure how the Program Neighborhood Agent functions. Includes items such as Folder Display, Published Application Refresh Intervals, and Logon Methods. All possible configuration options are located in the NFuse Guide included with the NFuse CD.
 - o **Template.ica**: Template file for ICA connections. If modifications are made to the Template.ica file for the current NFuse site, the same modifications should be created for the Template.ica file within the PNAgent folder.
 - o **Launch.asp**: Once an icon is selected, the parameters are passed to the Launch.asp, which populates the Template.ica file for execution.
 - o **Enum.asp**: Used to enumerate the applications published for a specific user. This file should not be modified.
 - o The PN Agent functionality is an excellent option for clients who do not wish to utilize a browser. Instead of installing the full Program Neighborhood Client, the PN Agent client can be installed instead. The Program Neighborhood Agent requires 3 MB of memory and has an installation size of 4.5 MB of disk space.

Note: The Program Neighborhood Agent must be installed on the client workstation.

Note: The Program Neighborhood Agent relies on an NFuse 1.6 and higher website installation.

PN Agent Lockdown Configuration

The Program Neighborhood Agent is configured by one of two non-mutually exclusive means. The agent in the system tray allows users to modify the agent's behavior in minor ways, but it can affect an environment. All items discussed are how the agent is configured in the default state

- o User's have the ability to modify the following (Figure 4 - PN Agent Non-Lockdown):
- o Server's URL for the config.xml file stored within the PNAgent folder on the NFuse server.
- o Modify the logon method from either Single Sign-On or to Prompt User.
- o Modify the location within the Start Menu and on the Desktop where the applications are stored.
- o Ability to modify the Window Size, Color Depth, and Audio Quality for the published application. This cannot exceed the limits imposed by the published application itself.

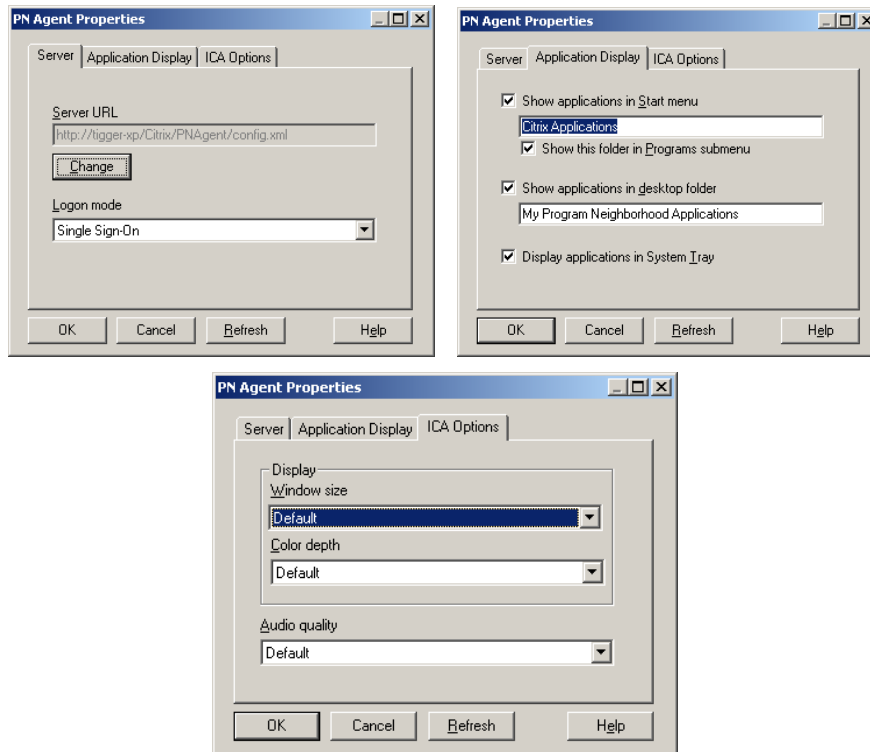


Figure 4 - PN Agent Non-Lockdown

Administrators do have the ability lock down the System Tray icon from a central location by modifying the section of the `wwwroot\Citrix\PNAgent\Config.xml` file. In the default installation mode, the section of code outlined below identifies how the PN Agent functions within the client's System Tray.

```
<UserInterface>
    <ServerSettings>true</ServerSettings>
    <FolderDisplaySettings>true</FolderDisplaySettings>
    <RefreshSettings>false</RefreshSettings>
</UserInterface>
```

By modifying the items identified in bold below, administrators can lockdown the PN Agent to what is identified in Figure 5 - PN Agent Lockdown

```
<UserInterface>
    <ServerSettings>false</ServerSettings>
    <FolderDisplaySettings>false</FolderDisplaySettings>
    <RefreshSettings>false</RefreshSettings>
</UserInterface>
```

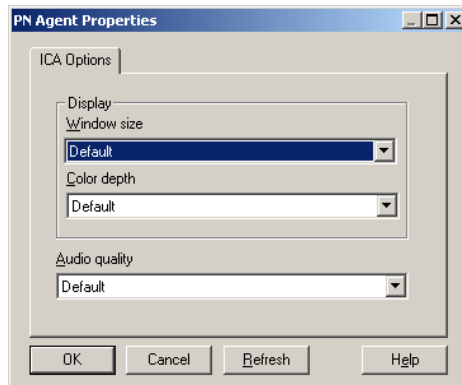


Figure 5 - PN Agent Lockdown

Administrators also should modify additional options within the `config.xml` file. Most entries within the file have the option `modifiable="true"`. Modifying these entries to be `False` forces the client's PN Agent to follow the rules configured in the central `config.xml` file. With the combination of all of these options, administrators can simplify the maintenance of the agent significantly.

PN Agent Authentication

The PN Agent is capable of authenticating users by:

- Prompting the user for logon credentials
- Performing a Single Sign-On
- Prompting the user for Novell credentials

If the PN Agent is not in a locked-down state, the user is capable of modifying authentication methods between the Single Sign-On and prompting for user credentials. However, Administrators can manage this setting through the `config.xml` file located in the `PNAgent` folder on the NFuse server. Authentication options are configured within the following section of code:

```
<Logon>
  <LogonMethod>sson</LogonMethod>
  <LogonMethod>prompt</LogonMethod>
  <SupportNDS>false</SupportNDS>
  <NDS_Settings>
    <DefaultTree></DefaultTree>
  </NDS_Settings>
</Logon>
```

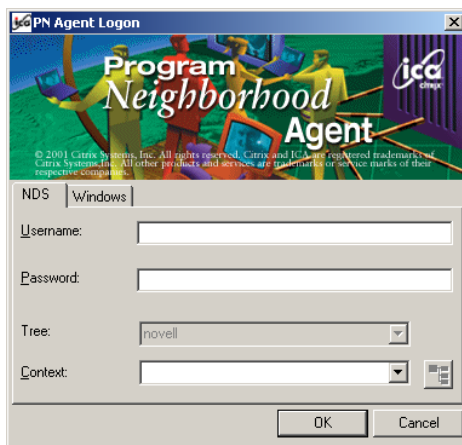
Having the "sson" option within this section always defaults to single sign-on. Within this configuration, the PN Agent utilizes the logon credentials used for logon to the workstation. Removing the "sson" option from the code results in the following screen upon startup of the PN Agent:



In order to perform a Novell authentication through the PN Agent, the `Config.xml` code should look like the following:

```
<Logon>  
  <SupportNDS>true</SupportNDS>  
  <NDS_Settings>  
    <DefaultTree>Novell</DefaultTree>  
  </NDS_Settings>  
</Logon>
```

This configuration initiates a Novell authentication upon the startup of the PN Agent. The following screen appears with the tree filled in, if it is configured in the `Config.xml` file.



PN Agent Refresh Rates

The PN Agent has the capabilities to refresh the application listing contained within the System Tray, Start Menu, and Desktop Folder at various intervals. The refresh possibilities include:

- On PN Agent Startup
- On application startup
- On a timed interval
- On the request of the user

The first three options are configurable through the `config.xml` file located on the NFuse web server. Modifying the following lines configures the refresh options:

- PN Agent Startup: `<OnApplicationStart modifiable="true" forcedefault="false" >true</OnApplicationStart>`
- Application Startup: `<OnResourceRequest modifiable="true" forcedefault="false">false</OnResourceRequest>`
- Timed Interval (In Hours):


```
<Poll modifiable="true" forcedefault="false">
  <Enabled>true</Enabled>
  <Period>6</Period>
</Poll>
```

The refreshing of applications does have a slight impact on network utilization. On average, when a client requests an application refresh, the network usage is roughly equal to 1KB. The network utilization generated by the response from the server is dependent on the number of published applications for a particular user. The server's response with no applications is roughly 600 Bytes. On average, each application published for the user adds an additional 2.4KB to the response. Figure 6 - PN Agent Refresh Network Utilization graphically displays the utilization of a PN Agent Refresh impact.

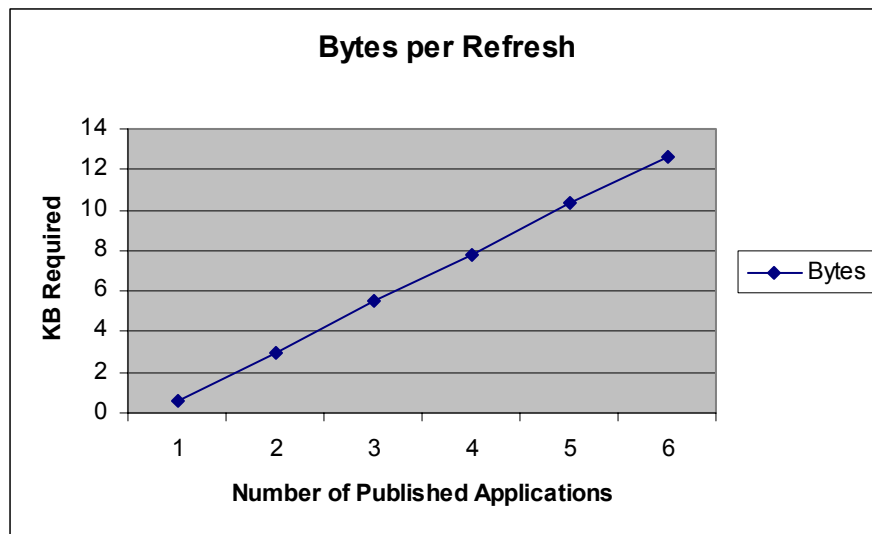


Figure 6 - PN Agent Refresh Network Utilization

Logout Button

Selecting the Logout button on the NFuse web page, shown in Figure 1 - Content Publishing, allows users to completely logout of their current NFuse session. This functionality does not allow the user to simply hit the Back button on their browser as the authentication mechanisms for the user are removed from the system. This is an important security practice for users, especially those who share workstations.

Active Directory User Principal Name Support

As more and more organizations move towards Active Directory, users will start to logon with their User Principal Names (UPN) rather than their Account Name and Domain Name. The UPN name resembles the look of an email address. NFuse 1.61 enables logon to the portal with the use of the UPN name. As shown in Figure 7 - UPN Name, the user is able to connect to the NFuse site with the UPN name and Password, but without the domain filled in.



Figure 7 - UPN Name

NDS Support

NFuse 1.61 is easily configured to take advantage of an NDS directory structure. Making the following modifications to the NFuse.conf file, located in the \Winnt\Java\Trustlib directory, enables Novell authentication through NFuse (Figure 8 - NFuse Novell Authentication).

```
LoginType=NDS  
NDSTreeName=Novell  
SearchContextList=Citrix, USA.Citrix, FL.USA.Citrix
```

Design Considerations

- Failing to set the Search Context List results in NFuse searching NDS for the user's context. This process could take a significant amount of time, depending on the size of the directory structure.
- The NDS Tree Name must be specified in the NFuse.Conf file in order for NDS authentication to function properly.

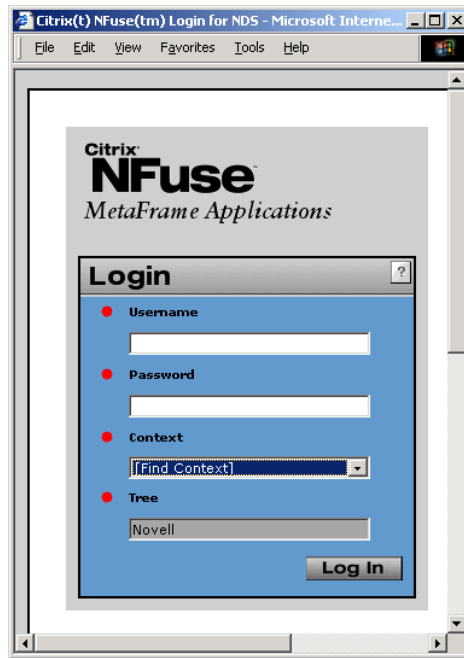


Figure 8 - NFuse Novell Authentication

Guest Users

NFuse 1.61 allows users to connect to the farm as a Guest. A simple modification within the NFuse.conf file located in the Winnt\Java\Trustlib directory enables this functionality. The following line results in the logon screen identified in Figure 9 - NFuse Guest Logon.

```
AllowGuestLogin=On
```

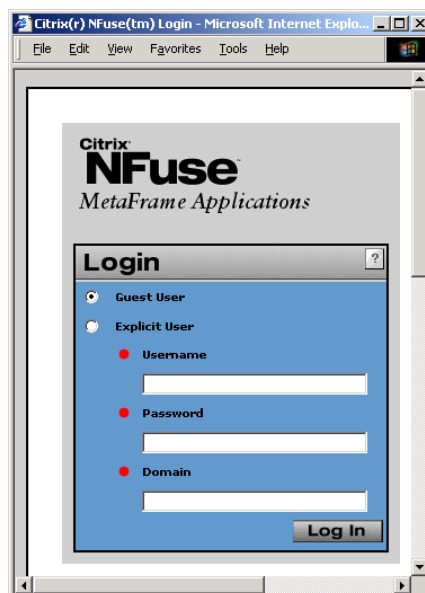


Figure 9 - NFuse Guest Logon



Conclusion

Based on all of the items described above, special considerations should be taken into account when implementing the following:

- Content Publishing
 - Is it better to publish a file or is it better to publish the application so it opens the file?
- Program Neighborhood Agent
 - Should users be able to modify the PN Agent settings?
 - Where should the icons appear? System Tray? Start Menu? Desktop?
 - How often should the application list refresh?
 - Is there a security risk with implementing the Single Sign-On functionality?
- Logout Button
 - How important is it for users to not have the ability to hit the back button after logout?
 - Do users share the same workstation with other users?
- Guest Users
 - Are Guest users allowed to enter the environment?
 - What security restrictions are in place?
- NDS Authentication
 - Is there a finite set of contexts that users are members of?

These questions address if and how functionality should be implemented within a production environment.



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