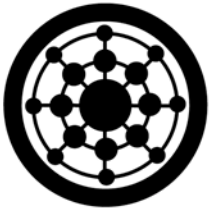
User's Guide



InfoChannel®
NETWORK MANAGER 3
ENTERPRISE EDITION

SCALA®
broadcast multimedia

www.scala.com

This manual was produced by Ross Hippely and Erik Mattsson.

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SCALA, INC.
1 EAST UWCHLAN AVENUE
EXTON, PENNSYLVANIA 19341 USA

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INFOCHANNEL 3

Technical Support Options

Scala is committed to providing our clients with excellence in support services. We understand that every customer's support requirements are different and have tailored our support options to accommodate a variety of requirements.

The following options pertain to all InfoChannel 3 products, including InfoChannel Designer 3, Network Manager 3, InfoChannel Player 3, InfoChannel Reporter 3, and all add-on EXes.

Scala Service Plan maintenance agreement - First Year

SUPPORT OPTION	DESCRIPTION	PRICE
Scala Service Plan maintenance agreement	• Covered for 1 Year from date of purchase • Unlimited access to Technical Support • Major and minor software upgrades • Priority response to phone and email • Electronic access to www.scala.com, and Web Discussion message boards	No charge

Scala Service Plan maintenance agreement - Renewal

SUPPORT OPTION	DESCRIPTION	PRICE
Standard	• Electronic access to www.scala.com, and Web Discussion message boards	No charge
Per Incident *	• Unlimited access to Technical Support	$99
Scala Service Plan maintenance agreement	• Covered for 1 Year • Unlimited access to Technical Support • Major and minor software upgrades • Priority response to phone and email • Prorate multiple InfoChannel products to one blanket Maintenance Agreement	Call for pricing

* "Incident" is defined as anything pertaining to a particular problem, question, or request. Any subsequent emails, phone calls, onsite actions pertaining to that incident will be covered under the agreement. Please have credit card information available at time of call.

Please contact your VAR for renewal information.

Scala Support USA: Hours: 9:00 am to 8:00 pm Eastern Standard Time
Phone 888 444-5867

Scala Support Europe: Hours: 9:00 to 17:00 Central European Time
Phone: +31 45 523 7301

Scala Support UK: Hours: 9:00 to 17:00 Greenwich Mean Time
Phone: +44 (0) 2476 353 008

Scala Training: Hours: 9:00 am to 5:00 pm Eastern Standard Time
Phone: 1-888-SCALA-96 (722-5296)

Scala VAR Support: Hours: 9:00 am to 8:00 pm Eastern Standard Time
Phone: 888-SCALA-25 (722-5225)

Software Maintenance Agreement

THIS SOFTWARE MAINTENANCE AGREEMENT is made between Scala, Inc. of 1 East Uwchlan Ave., Suite 300, Exton, PA 19341 ("SCALA") and the Customer. SCALA and Customer agree as follows:

1. Definitions

"Commencement Date" means the date referred to in Clause 3;

"Customer" means the end user of the SCALA Software.

"Initial Period" means the twelve (12) calendar months next ensuing after the Commencement Date;

"Related Persons" means and includes any related body corporate of SCALA (as defined in section 50 of the Corporations Law) or any director, secretary, officer or employee, agent or contractor of any of SCALA or its related bodies corporate.

"Software" means the SCALA software licensed to Customer pursuant to a license agreement.

"Software Updates" means bug fixes, documentation improvements and feature additions including all major and minor revisions.

"Software Support" means advice on operating the Software, advice on problems with the Software (given over the telephone or in writing and includes the provision of Software notes by SCALA).

"Software Maintenance" includes the provision of Software Support and Software Updates.

"Support Organization" means SCALA or, at SCALA's option, any person, firm or corporation designated by SCALA in writing at any time during the term hereof to supply Software Maintenance to Customer.

2. Services

Subject to the terms and conditions contained in this Agreement and Customer's payment of the applicable Software Maintenance fees, the Support Organization will provide Software Maintenance to Customer as further described hereunder.

3. Term

The Software Maintenance to be supplied under this Agreement will commence upon installation and delivery of the product and shall remain in force for the Initial Period. The parties may renew this Agreement for additional one (1) year periods (each, a "Renewal Term") upon mutually agreeable terms, provided that Customer indicates its desire to renew the Agreement at least thirty (30) days prior to the end of the Initial Period or a Renewal Term, as applicable.

4. Software Updates

A. Provided that Customer has paid for Software Maintenance, SCALA will deliver to Customer new releases of Software Updates on appropriate computer media or electronically, if and when they become available for general commercial release during the maintenance period for the modules purchased by and being supported for the Customer. A single copy of the Software Updates and pertinent documentation will be sent to the Customer for each affected Software product covered by this Agreement. Customer agrees that, unless otherwise agreed to in writing by SCALA and Customer, the installation and use of any Software Updates shall be governed by the underlying end user license agreement entered into by Customer and SCALA.

B. SCALA or a Support Organization may defer, postpone or withhold Software Maintenance pursuant to this Agreement in the event Customer unreasonably delays installation of any new Software release or upgrade delivered to Customer pursuant to the terms hereunder.

C. Customer acknowledges and agrees that Customer is solely responsible for the acquisition and maintenance of the computer hardware, firmware, telecommunications, and information technology systems necessary to use and operate the Software. The Software documentation includes information regarding recommended Customer hardware and software configurations for operation of the Software, and SCALA and/or the Support Organization may provide advice regarding appropriate operating system(s) configuration for use of the Software. NEITHER SCALA NOR ANY SUPPORT ORGANIZATION SHALL BE RESPONSIBLE FOR CORRECTING ERRORS OR MALFUNCTIONS OF THE SOFTWARE OR SOFTWARE UPGRADES RELATED TO OR ARISING AS A RESULT OF CUSTOMER'S FAILURE TO MAINTAIN COMPUTER SYSTEMS ADEQUATE TO OPERATE THE SOFTWARE, OR CUSTOMER'S USE OR OPERATION OF HARDWARE OR SOFTWARE SYSTEMS THAT ARE INCOMPATIBLE WITH OR DEGRADE THE PERFORMANCE OF THE SOFTWARE.

5. Software Support

A. The Support Organization will provide telephone and/or modem and/or facsimile and/or electronic mail support for problems associated with the routine use and operation of the software. This service is intended for users who have been trained in the Software and is not to be used as a substitute for basic training. The Scala Value Added Reseller ("VAR") shall be the Support Organization for first level Software Support. SCALA shall provide second-level support and shall also provide first-level Software Support in the event the VAR/Support Organization fails or refuses to provide first-level support. If the Software Support staff feels a customer is abusing the Software Support services, SCALA will notify the Customer in writing and suggest appropriate training, on-site assistance or other alternatives to meet the Customer's needs. SCALA reserves the right to qualify all customer sites before accepting an Agreement, and to refuse to provide Software Maintenance Services, or to adjust the fee based on the environment (hardware or operating systems) and/or age of the product(s) and current status of the product(s) respectively.

(i) The Support Organization will diligently investigate problems reported by the Customer. Subject to the exceptions set forth at Sections 4(C) and 6, if the Support Organization determines that the problem is the result of a reproducible error, defect, or malfunction in the supported Software, the Support Organization will make reasonable efforts to correct the problem. A Support Organization representative will provide Customer with a correction, a report/determination that further research is required, or confirmation that the system works per design specifications.

(a) If a reproducible error is not correctable, a Software performance report will be generated and sent to SCALA's engineering group. The correction for the error would be incorporated in the next release or software updates, if possible.

A. Customer is responsible for informing SCALA of the problem severity. Customer is encouraged to call the Support Organization for clarification or uncertainty as regards to Software. More severe problems will be given priority over general questions.

B. The Customer shall provide to the VAR or Support Organization the name and contact information of one (1) representative of Customer who, with SCALA's acknowledgement, shall have access to the Support Organization's telephone advice service. The representative may be changed from time to time by Agreement between the parties. The initial representative shall be as determined by Customer and communicated to the VAR or Support Organization during the Software registration process.

C. All services to be provided under this Agreement shall be provided Monday through Friday, excluding public holidays) between the hours of:

In the U.S.
9:00 a.m. to 8:00 p.m. EST

In Europe
9:00 to 17:00 CET

Service coverage required outside of these hours may be arranged by agreement with the Support Organization.

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The following services are not covered by this Agreement:

A. Maintenance of facilities external to the Software; hardware support; questions regarding hardware installation, support or maintenance, telecommunications systems.

B. Repair or damage resulting from malfunction of electrical power or heating, ventilation and air conditioning; water damage; fire damage; theft; integration of the Software with non-compatible systems or software, misuse or improper use of the Software (including without limitation any use not specifically authorized in the Software license agreement, documentation or manuals); vandalism; civil commotion or war; or any combination thereof.

C. Support or Maintenance Services for altered or modified Software other than that altered or modified by SCALA and/or authorized agents of SCALA; or support versions of Software that have been superseded by a new release (provided that SCALA will continue to support superseded versions for a reasonable period, not to exceed forty-five (45) days, sufficient for Customer to implement the newest version).

D. Supervision of repairs on associated equipment.

7. Customer Responsibilities

A. The Customer must have a valid license to use the Software from SCALA and be in material compliance with the terms and conditions of such license.

B. The Customer must be current in its payment obligations under this Agreement.

C. The Customer shall notify the Support Organization of any Software problem together with complete information concerning the failure, as soon as possible after the problem has occurred.

(i) The Customer shall provide as accurate and complete a description as possible to the Support Representative. The customer shall assist in problem resolution by providing copies of reports and/or files deemed necessary by the Support Services group.

D. The Customer will provide the Support Organization with the following:

(i) Name of nominated personnel (and their location) who are competent to use the Software;

(ii) Access to the Software and computer(s) on which it resides;

(iii) Adequate working facilities (such as communication devices/modems);

(iv) Access to and use of all information reasonably necessary to service the Software;

(v) The Customer shall be responsible for security of its confidential, proprietary and classified information as well as for the maintenance of adequate backup procedures for files, as SCALA will not be responsible for loss of or altered files, data or programs;

(vi) The Customer agrees to provide a safe and secure installation environment which meets the specified requirements of the computer system(s) on which the Software is running, including without limitation environmental controls, electric supply, service clearances, cable runs and, in the event that the Support Organization agrees to send personnel to the Customer's premises, safety of the Customer's and the Support Organization's personnel; and,

(vii) The Customer agrees to limit use of the Software Maintenance Services that are the subject of this Agreement to occasions when the Software fails to work as set forth in the user manuals or occasions where the user manuals are unclear.

8. Service Charges

A. Annual Maintenance Services for the Initial Period shall be provided without charge to Customer. Thereafter, Customer may elect to renew Maintenance Services for additional annual periods at SCALA's then-current standard annual fee for Maintenance Services. Annual fees may be invoiced thirty (30) days prior to the expiration of the previous period.

B. On-site service shall be provided at the reasonable discretion of the Support Organization. If on-site service is designated by SCALA as required or customer requested of which the Software is located at a distance beyond fifty miles (50 miles) from the Support Organization's office, a travel charge may be assessed by the Support Organization upon notice to and approval of Customer.

9. Changes or Waivers to Software Maintenance Agreement

A. During the term of the Agreement no changes and/or waivers by either party of its rights shall be made to the term and conditions contained herein other than by variation agreed to by authorized representatives of both parties and set forth in a writing duly executed by the parties. The non-enforcement or waiver of any provision of this Agreement on any occasion shall not constitute a waiver of such provision on any other occasions unless expressly so agreed in writing. It is agreed that no use of trade or other regular practice or method of dealing between the parties hereto shall be used to modify, interpret, supplement, or alter in any manner the terms of the Agreement.

B. SCALA has the right to vary the charges made hereunder if the Customer wishes to extend the service hours beyond normal working hours referred to in Clause 5.

C. If both parties agree in writing, additional Software to be supported may be included on this Agreement at a later date. The initial maintenance fee for the cost of supporting the additional Software will be prorated from the new Commencement Date to the original Initial Period or Renewal Term end date. An addendum form (attached) will be used to convey the additional Software to be included under this Agreement. The addendum form will be referred to as the "Addendum Page".

10. Non-Payment

The Support Organization reserves the right to decline to provide Software Maintenance if any amounts invoiced by the Support Organization have not been paid by the Customer as set forth in the customers' approved credit terms.

11. Extraordinary Expenses

The Support Organization reserves the right to charge for unusual or excessive telephone, shipping, handling, media or user manual expenses in connection with the Software Support to be provided hereunder. In all cases, the Support Organization will notify the Customer of these costs in advance.

12. Assignment

Customer may not assign this Agreement to a third party without the prior written consent of SCALA, which consent may be withheld in SCALA'S sole discretion. SCALA may assign or delegate its rights and responsibilities hereunder to a third party Support Organization upon notice to Customer, and may freely assign its rights and obligations hereunder in connection with the merger, acquisition or sale of all or substantially all of the assets of SCALA.

13. Force Majeure

SCALA shall not be responsible or liable for failure to perform or observe, or for delay in performing or observing any obligation under this Agreement where such failure or delay arises from any cause beyond the control of SCALA or the Support Organization (as applicable), including, but not limited to, strikes, lockouts, industrial action, acts of God, insurrection, terrorism, or civil commotion, or any other cause beyond the reasonable control of SCALA or the Support Organization (as applicable).

14. Limited Warranty

SCALA shall perform its services hereunder in a workmanlike manner. In the event that it is established to SCALA's satisfaction that any Software Maintenance or other service carried out by SCALA or a third party Support Organization under this Agreement was defective, Customer's sole remedy shall be the re-performance of such services without cost to the Customer. Notwithstanding the functionality or performance of any addition or release of error corrections, enhancements, or new releases to the Software program(s) in connection with the Maintenance Services, SCALA's obligation to correct errors in such additional releases shall be limited to the maintenance terms of this Agreement. EXCEPT AS EXPRESSLY SET FORTH IN THIS PARAGRAPH, SCALA SHALL HAVE NO LIABILITY FOR THE SOFTWARE OR ANY SERVICES PROVIDED, INCLUDING ANY LIABILITY FOR NEGLIGENCE; SCALA MAKES AND CUSTOMER RECEIVES NO WARRANTIES, EXPRESS, IMPLIED, OR STATUTORY, EXCEPT AS EXPLICITLY SET FORTH IN THIS AGREEMENT. SCALA SPECIFICALLY DISCLAIMS ANY WARRANTY OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE.

15. Limitation of Liability

Laws from time to time in force in the jurisdiction where any services are to be performed hereunder may imply warranties or liabilities which cannot be excluded or which can only be excluded to a limited extent. In which case, SCALA hereby limits its liability to the extent permitted by law. If SCALA cannot exclude or limit any warranty implied by law, this Agreement shall be read and construed subject to such statutory provisions. SCALA'S MAXIMUM LIABILITY TO CUSTOMER HEREUNDER SHALL BE LIMITED TO THE AMOUNTS ACTUALLY PAID BY CUSTOMER FOR THE MAINTENANCE SERVICES. SUBJECT TO THIS CLAUSE UNDER NO CIRCUMSTANCES WILL SCALA OR ITS RELATED PERSONS BE LIABLE FOR ANY CONSEQUENTIAL, INDIRECT, SPECIAL, PUNITIVE, OR INCIDENTAL DAMAGES, WHETHER FORESEEABLE OR UNFORESEEABLE, BASED ON CLAIMS OF CUSTOMER OR ITS CUSTOMERS, INCLUDING, BUT NOT LIMITED TO, CLAIMS FOR LOSS OF DATA, GOODWILL, PROFITS, USE OF MONEY OR USE OF THE SOFTWARE, INTERRUPTION IN USE OR AVAILABILITY OF DATA, STOPPAGE OF OTHER WORK OR IMPAIRMENT OF OTHER ASSETS, ARISING OUT OF BREACH OF EXPRESS OR IMPLIED WARRANTY, BREACH OF CONTRACT, MISREPRESENTATION, NEGLIGENCE, STRICT LIABILITY IN TORT OR OTHERWISE, EXCEPT ONLY IN THE CASE OF PERSONAL INJURY WHERE AND TO THE EXTENT THAT APPLICABLE LAW PROHIBITS EXCLUSION OF SUCH LIABILITY. IN NO EVENT WILL THE AGGREGATE LIABILITY WHICH SCALA AND ITS RELATED PERSONS MAY INCUR IN ANY ACTION OR PROCEEDING ARISING OUT OF PERFORMANCE OR NON PERFORMANCE OF THIS AGREEMENT EXCEED THE TOTAL AMOUNT ACTUALLY PAID TO SCALA BY CUSTOMER FOR THE SPECIFIC PRODUCT OR SERVICE THAT DIRECTLY CAUSED THE DAMAGE.

16. Applicable Law

This Agreement shall be governed and construed in accordance with the laws of the Commonwealth of Pennsylvania, without regard to its conflict of laws provisions.

17. Entire Agreement

This Agreement constitutes the entire agreement between the parties in respect of the Maintenance Services and supersede all proposals or prior agreements, whether oral or written, and all other communications between the parties relating to the subject matter hereof.

18. Notices

Any notice permitted or required under this Agreement shall be deemed given if in writing and personally served or sent by pre-paid registered or certified air mail, or by confirmed telex or facsimile, addressed (or as either Party may direct otherwise in writing) to the parties at the addresses provided during the Software registration process, marked for the attention of the Managing Director (in the event the Customer is a company).

Any notice given in accordance with this clause shall be deemed to be received by and served upon the other party on the date such airmail letter would in the ordinary course of post have reached such address or on the date such notice is served or left at the relevant address (as appropriate) and in the case of telex or facsimile shall be deemed to have been served on the day following the date of successful transmission.

19. Severability

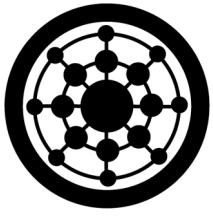
If any term, provision, covenant or condition of this Agreement is held by a court of competent jurisdiction to be invalid, void or unenforceable, it shall be severed herefrom and the remaining provisions of this Agreement will remain in full force and effect and will not be affected, impaired or invalidated.

Customer understands and agrees that the Software Maintenance Agreement fee is non-refundable.

Table of Contents

Introduction to InfoChannel Network Manager

1: Introduction to InfoChannel Network Manager



The next-generation multimedia networking tool from Scala® is called **InfoChannel® Network Manager 3 Enterprise Edition**. With Network Manager, you perform communication tasks to send scripts and multimedia content to InfoChannel Players.

Network Manager is a completely new piece of software designed to function with stability and long-term reliability as the prime goals. At the same time Network Manager is very simple and easy to use.

Communication scheme and network architecture

Network Manager is a separate application, not a part of the authoring software. In most working InfoChannel installations, Network Manager is expected to be installed on its own dedicated server.

In the InfoChannel Designer 3/Network Manager 3 world, scripts and content are *published* to the InfoChannel Network, meaning to a file server defined through Network Manager. Published files are then, in a separate step, transferred to Players using Network Manager.

The communications scheme in InfoChannel Networks supports large numbers of Players well. In addition, the way the Network Manager approach separates communication, storage, and authoring allows far greater flexibility in allocating resources for the different types of tasks and personnel involved.

Understanding the indirect approach

The efficiency of communication with Network Manager comes primarily from the indirect way content gets from the Network Manager server to the Players. Although the conceptual model is that scripts and their component files are “sent to the Players”, the actual operation is more complex.

Network Manager does not typically send anything to Players—the Players do all the work. Network Manager generates XML files that instruct the Players on what content they need. The Players regularly

contact Network Manager to check for the appearance of these files, then respond to them by independently contacting the Network Manager server and "pulling" the content files they need from it.

This scheme is more efficient than simply sending the content directly to the Players because the sequential, one-Player-at-a-time work that Network Manager has to do involves only depositing the small XML files in the appropriate locations to be picked up by the Players. The Players respond to their XML job files independently, and the Network Manager server can in turn respond to their requests for updated content files more or less simultaneously.

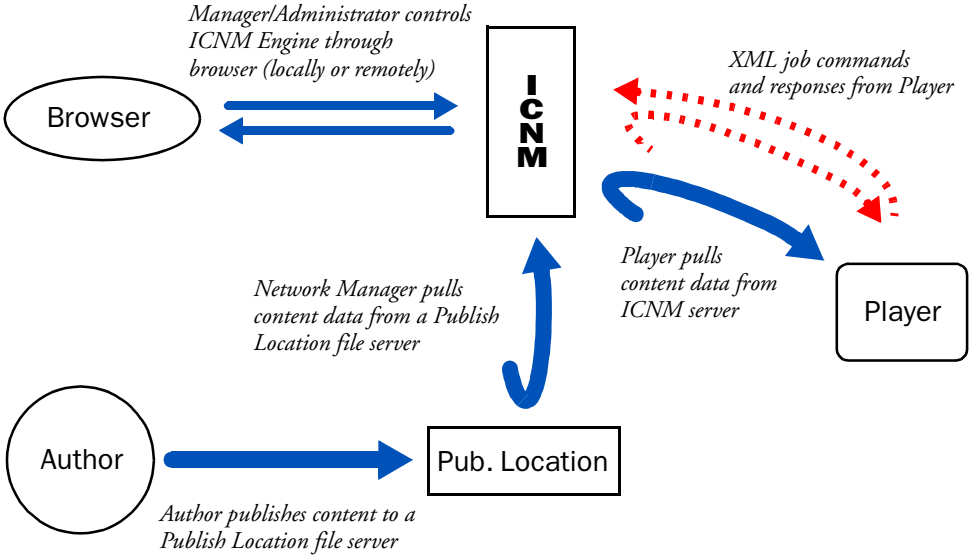


Fig. 1. InfoChannel Network Manager 3 communication scheme (typical)

Terminology

Note that most discussions in this documentation and the terminology within the Network Manager application still talk about communications taking place using the simple conceptual model: we say that Network Manager "sends content to" the Players. This is mainly a matter of convenience and common practice. In a properly set up and functioning installation, the underlying indirect method diagrammed

above is invisible to those using it, and it appears that content is simply being sent from Network Manager to the Player.

The fact that it is XML instruction files that Network Manager sends, and that the content is "pulled" (requested from the receiving end by the Players), is important to understand only in the planning and configuration stages, or when things are not operating correctly. Diagnosing problems that can occur during configuration and transmission does require the attention of an administrator who understands the actual indirect scheme used in Network Manager.

Once you understand this communication scheme, you can see how it can be expanded in various ways to accommodate the varying needs of different customers, as suggested by the following diagram.

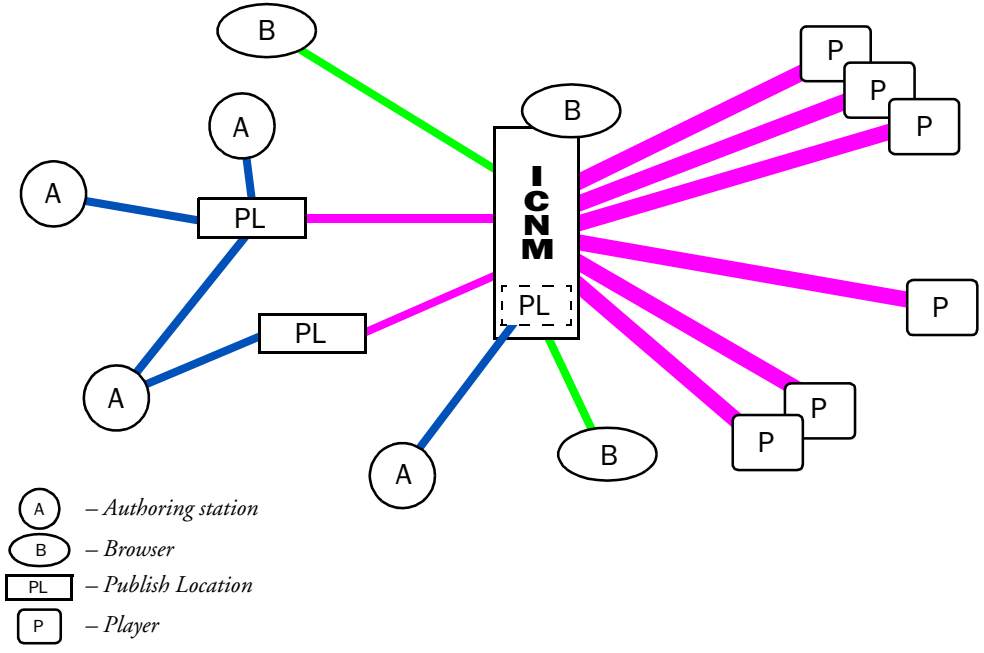


Fig. 2. Flexible, scalable layout of a larger InfoChannel installation

The diagram schematically illustrates various possible options in an InfoChannel Network layout:

- Multiple authoring stations can publish to a single Publish Location.
- A single authoring station can publish to multiple Publish Locations.
- Multiple Publish Locations can be accessible simultaneously to authoring stations and Network Manager.
- Publish Locations can be dedicated file servers, or can be hosted on the same machine as Network Manager.
- Network Manager provides centralized control from an easy-to-use browser interface.
- Web-based interface lets administrators use Network Manager locally or remotely from any Internet-connected computer with Microsoft® Internet Explorer 5.5 SP2 or better.
- Large numbers of Players are supported, and communications with them does not bog down authoring stations.
- Players can be arbitrarily grouped, to make administration of related Players in large installations simpler.

Robustness and security features

Network Manager has been designed with the utmost in reliability and security in mind, for stable round-the-clock use in a wide range of real-world environments.

- Network Manager uses standard communications protocols (TCP/IP, FTP, SMB).
- Player jobs automatically retry when communications attempts fail, so that temporary network difficulties are not insurmountable. Retry timeouts are configurable.
- Communication is secured by using password-protected FTP or access-restricted accounts for local connections.

- Transmissions are digitally signed to prevent unauthorized access.
- Transmissions utilize error checking.
- All activity is logged to logfiles in Network Manager and on each individual Player.
- Multiple Network Manager user accounts, with configurable access privileges.
- Back channel allows retrieval of log files, content from Players.
- Players can be rebooted remotely, on schedule.
- Separate playback and network processes on Players allow simultaneous, independent playback and content update.

Installation

2: Installation

If your InfoChannel Network installation does not consist of preconfigured machines with the software already installed, or if you should ever need to reinstall software, use the instructions in this chapter. It covers the installation of both Microsoft® Windows® operating system components and Scala InfoChannel 3 components.

Installation of Microsoft software

Scala InfoChannel Network Manager 3 Enterprise Edition requires Microsoft Windows 2000 or better. You should install Network Manager on a machine running Windows 2000 Professional or Windows 2000 Server (SP2 or higher).

Preliminary steps

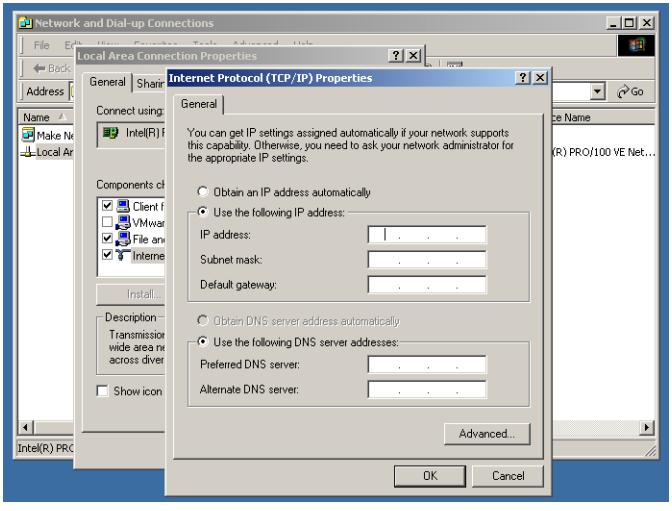
Although it is not strictly required, all instructions in this manual assume that you will dedicate a machine to Network Manager use. **We recommend a clean installation of Windows 2000 Professional or Windows 2000 Server on an NTFS 5 partition.** (This enables permissions to be set on files and folders.) So prepare an appropriate machine and create an NTFS 5 partition on it suitable for installation of the Windows operating system.

Windows Step 1: Install Windows 2000

1. Install Windows 2000 from the Microsoft Windows 2000 CD in its basic configuration. Refer to your Windows documentation for specific instructions.
2. After the installation is finished, you need to assign an IP address to the machine.
    a. Right-click on My Network Places and choose *Properties*.
    b. In the list, right-click on *Local Area Connection* and choose *Properties*.

c. In the Local Area Connection Properties dialog, double-click *Internet Protocol (TCP/IP)*.

d. In the resulting Properties dialog, enter the IP address for the machine in the *IP address:* box.



To ensure correct connectivity to the Network Manager server, the use of either "static" IP/DNS association or DDNS (DHCP-DNS "dynamic domain name server") assignments with long (99-year) leases is advised.

There are various other network-related settings here. Your system administrator will need to make sure all are set up appropriately for your particular network.

Windows Step 2: Install IIS

After the basic Windows 2000 installation, and before installing Network Manager, you need to add IIS (Internet Information Services) 5.0. This may require your Windows 2000 CD, so it's a good idea to keep it in the drive.

1. From the Start menu, choose *Settings* > *Control Panel*.
2. Choose *Add/Remove Programs*.

3. In the Add/Remove Programs dialog, click the *Add/Remove Windows Components* button on the left hand side of the dialog. This opens the Windows Components Wizard.
4. Using the Wizard, add the following items:
   - ❖ Internet Information Services
   - ❖ Management and Monitoring Tools
   - ❖ Networking Services
   - ❖ Script Debugger
5. To finish the installation, you need to reboot Windows.

Windows Step 3: Install service packs

After Windows has rebooted, you need to apply Windows 2000 Service Pack 2 or higher. SP 2 can be installed either using the Windows Update shortcut available from the Start menu, or by downloading it directly from Microsoft:

> ***InfoChannel Note***
> At this writing, Microsoft is in the late beta stages for SP3.

http://www.microsoft.com/windows2000/downloads/servicepacks/sp2/default.asp

1. Apply the service pack.
2. Reboot Windows again.

Windows Step 4: Update Internet Explorer

After installing Windows 2000 and the service packs, it's time to update Internet Explorer to 5.5 Service Pack 2 or better.

Again, you can update IE either by using the Windows Update shortcut from the Start menu, or by downloading SP2 directly from Microsoft:

http://www.microsoft.com/windows/ie/downloads/recommended/ie55sp2/default.asp

1. Apply IE 5.5 Service Pack 2.
2. Reboot Windows again.

Windows Step 5: Apply security patches

After you have updated Internet Explorer 5.5 to SP2 or better, you need to apply the security patches. It is recommended that you obtain them using the Windows Update shortcut, as it will let you install most if not all the critical and recommend patches at once.

If you prefer to obtain the patches separately, go to the following sites:

Windows 2000 patch locations

http://www.microsoft.com/windows2000/downloads/critical/default.asp

http://www.microsoft.com/windows2000/downloads/security/default.asp

http://www.microsoft.com/windows2000/downloads/recommended/default.asp

Internet Explorer patch locations

http://www.microsoft.com/windows/ie/downloads/critical/default.asp

http://www.microsoft.com/windows/ie/downloads/recommended/default.asp

(Note that not all the downloads available at these locations will apply to the installed version of Windows 2000 or Internet Explorer.)

1. Install Windows 2000 security patches.
2. Install Internet Explorer security patches.
3. Reboot Windows again.

Windows Step 6: Install XML parser

Because Network Manager's communication with Players involves XML files, software to work with XML is required. After the security patches are applied, and the computer has rebooted, install the XML parser from Microsoft, MSXML version 3.0, SP 1 or better.

At the time of this writing, the XML parser could be obtained from this location:

http://msdn.microsoft.com/downloads/default.asp?url=/downloads/sample.asp?url=/MSDN-FILES/027/001/591/msdncompositedoc.xml

We suggest that you retain the installation file for the XML parser because InfoChannel Network Manager 3, InfoChannel Designer 3, and InfoChannel Player 3 all require it.

Windows Step 7: Review device driver certification

Scala strongly recommends that all InfoChannel-related systems be configured with the most current WHQL-certified device drivers. This is necessary for stability of the FTP server and Network Manager.

Security notes

In this time of rampant computer viruses, the installation of a virus scanner on every machine on your network is becoming a necessity rather than an option. Viruses can be spread to Web servers by exploiting security flaws in Windows 2000 and by other means. It is crucial to keep your Web server and all other machines in your installation up to date with:

- all security patches regarding Windows 2000
- virus scanning software

Patches, service packs, and installation order

Note that the *order* in which you perform installation steps is significant. Almost all security patches can be overwritten if you update

something in the Windows 2000 installation. For example, suppose you took the following steps:

a. Installed Windows 2000 and IIS (without service packs) from CD-ROM.

b. Applied all security patches for Windows 2000 and IIS.

c. Applied Windows 2000 SP2.

If you followed these steps, you would *remove* the security patches applied in step (b).

Keep in mind that security patches tend to be released more often than service packs. Therefore it is not safe to assume that a given service pack contains all current patches—a patch may have been released after the most recent service pack.

So be careful when changing the Windows 2000 configuration, and diligent when applying security patches and virus scanner updates.

Installation of InfoChannel Network Manager 3

Make sure that the above steps have been completed before installing Network Manager. When they have been completed, you can then run the installer for Network Manager.

The installation process is extremely simple. It prompts you for an installation folder, which you may change from its default if desired. It also asks whether you want to have the Network Manager Engine run automatically when Windows starts, which is recommended.

Installation of InfoChannel Player 3 software

An InfoChannel Player machine requires the same installation of Windows 2000 and service packs as described for the Network Manager machine at the beginning of this chapter.

Once the installation of Microsoft software is complete on the Player machine, it is possible to install the InfoChannel Player 3 software.

The InfoChannel Player 3 software is sold separately from Network Manager. You install it using the installer on the CD-ROM that comes in the InfoChannel Player 3 package.

The installation process for the InfoChannel Player 3 software is also extremely simple. Insert the InfoChannel Player 3 CD in the Player machine's CD-ROM drive. The Player software installer prompts you for an installation folder, which you may change from its default if desired. It also asks whether you want to have the InfoChannel Player Engine run automatically when Windows starts, which is recommended.

When all software has been copied to the Player machine, the installer asks whether you want to configure the Player. If you leave the option on, the InfoChannel Player Configuration utility runs when you click *Finish.*

If you have not already configured Network Manager and defined Players there, however, you may wish to run the Player Configuration utility later. Completing the Player configuration requires knowing the Player's job folder location, which is generally determined during the Network Manager configuration process.

You can re-run the Player Configuration utility at any time by choosing *InfoChannel Player 3* > *Configure InfoChannel Player 3* from the Player machine's Start menu.

Overview of InfoChannel Network Manager

3: Overview of InfoChannel Network Manager

Scala InfoChannel Network Manager Enterprise Edition is a database-driven application that makes it possible for you to set up and maintain an InfoChannel Network of any size and complexity.

Starting Network Manager

Once the installation process is complete, you should log out of the Administrator account under which you installed the software, and log back in to Windows 2000 using the account under which you will be operating Network Manager.

If you have not inserted the Scala Key for Network Manager in the machine's parallel or USB port, do so. Without the Key inserted, Network Manager will not run.

Then you can start Network Manager. There are two steps to this: starting the Network Manager Engine, and starting the Network Manager application itself, which provides the user interface.

The Network Manager installer offers to automatically start the Engine when Windows boots, so it may already be running. If it is not, you can run it from the Start menu.

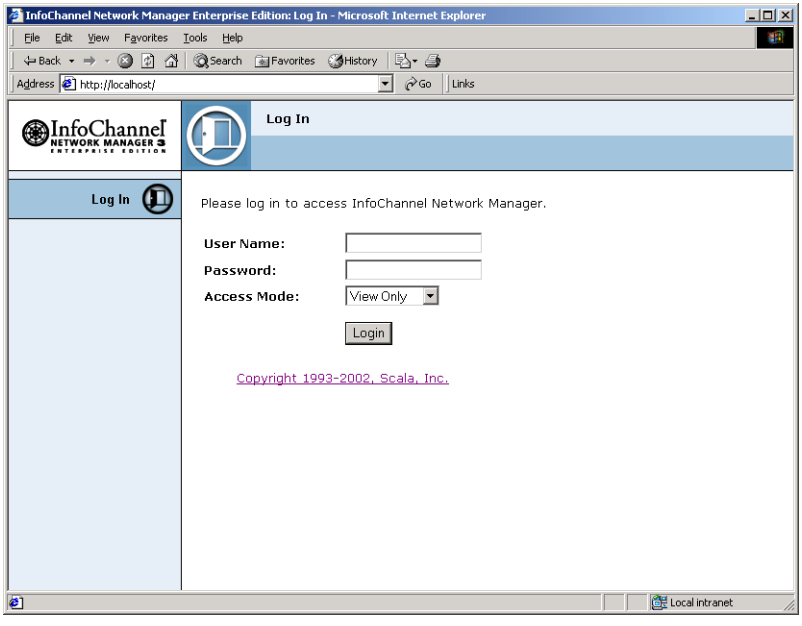
1. From the Start menu, choose *Programs* > *Scala InfoChannel Network Manager 3 Enterprise Edition*> *Start InfoChannel Network Manager 3 Enterprise Edition Engine*. The Network Manager Engine runs continuously in the background, handling communications with the Players. It it thus generally left running at all times.

   When the Engine is running, you see its icon in the System Tray.

2. Start Network Manager itself by choosing *Programs* > *Scala InfoChannel Network Manager 3 Enterprise Edition* > *InfoChannel Network Manager 3 Enterprise Edition* from the Start menu. It provides your user interface for the Engine, allowing you to configure the program, define Players, create jobs, and so on.

Network Manager is now running. You see the **Log In** page.



Local login

The Network Manager Start menu shortcut is simply a Web link to the URL:

```
http://localhost
```

When you choose the shortcut, Internet Explorer starts if it is not already running. If it is running, the IE window is brought to the front. You can also enter the `http://localhost` URL in Internet Explorer manually. This URL, when entered on the local machine on which Network Manager is running, lets you log in to the system without the need to enter a username and password.

You therefore can leave the *User Name:* and *Password:* fields blank on this page when it has been opened using the `http://localhost` URL.

Just click the *Log In* button to get to the Network Manager **Home** page.

> **CAUTION**
>
> Because using the "localhost" URL does not require a username and password, the local machine is a critical security point. In any working installation, the physical Network Manager server must be secured by other means, such as being installed in a locked or closely monitored location.

Remote login

Anyone on a remote machine must run Internet Explorer 5.5 SP2 or better and in the *Address* field enter the Network Manager server machine's HTTP URL. This is the DNS name you entered in Windows Step 1, for example

```
http://netman.scala.com
```

or

```
http://192.168.0.10
```

Entering the Network Manager server machine's HTTP URL opens the Network Manager **Log In** page. There a valid username and password must be entered to get to the Network Manager **Home** page.

Logging out

Log out of Network Manager by clicking the *Log Out* icon at the bottom of the control frame. You are logged out. You see the **Logged Out** page, which has a *Back to Log In* icon in its control frame.

Automatic logout

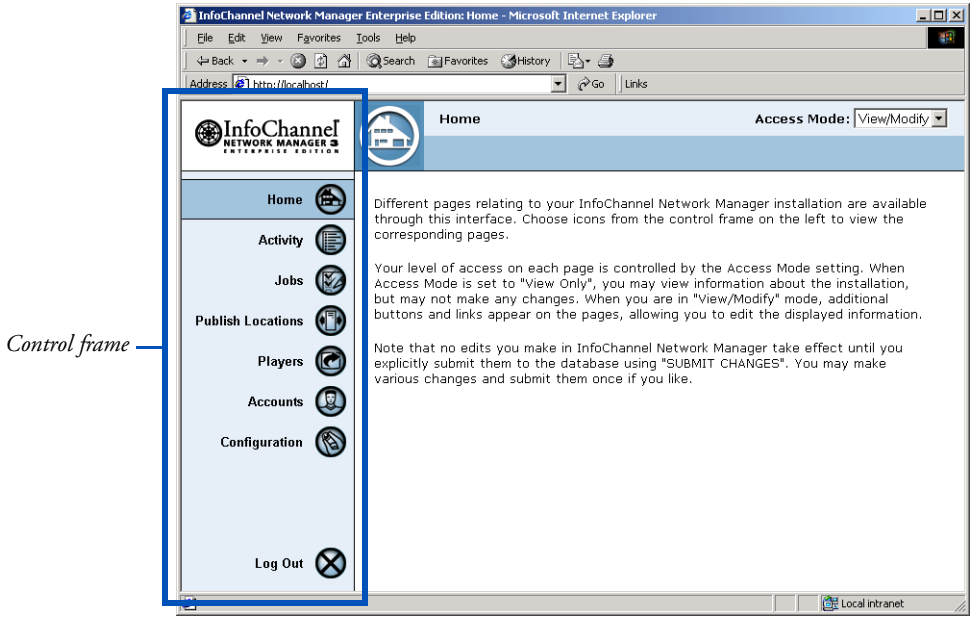
To help prevent unauthorized access, Network Manager automatically logs a user out if it detects no user activity for fifteen minutes.

There is no immediate evidence that this has happened, but after automatic logout, an attempt to manipulate any control on the visible page

brings up the **Logged Out** page, with a message indicating that the user was logged out due to inactivity.

The Network Manager interface

A series of icons is in the control frame that runs along the left-hand side of the page. These provide access to the various pages that let you control different areas of the application:



- *Home* – introductory text
- *Activity* – a continually updated listing of messages noting Network Manager activity (chapter 8)
- *Jobs* – lists defined Network Manager jobs and lets you create, schedule, and run jobs (chapter 8)
- *Publish Locations* – lists defined Publish Locations and lets you define new ones (chapter 6)

- *Players* – lists defined Players and lets you define new ones (chapter 7)
- *Accounts* – lists defined user accounts and lets you define new ones (chapter 5)
- *Configuration* – lists configuration settings and lets you adjust them (chapter 4)
- *Log Out* – logs out of Network Manager

A single click on any of these choices opens its page.

General remarks about working on these pages can be found in the remainder of this chapter. For more specific information on each subject, see the listed chapters.

Access levels in Network Manager

For an application that is accessible via the Internet, it is crucial for security reasons to be able to control who has access to the system. Network Manager has a multi-leveled access scheme, to offer security within a flexible framework.

Network Manager provides three access levels:

- Administrator – can view and modify any Network Manager database information
- Manager – can view and modify Network Manager database information other than configuration and accounts
- Observer – can only view information

An access level is part of a user account definition. Accounts and access levels are discussed more thoroughly in chapter 5.

Access locking and contacting other users

To prevent confusion and conflicting changes, only one person at a time can be logged in to Network Manager in its "View/Modify" editing mode. Other users can be logged in at the same time, but only in the "View Only" mode, which does not allow any changes to be made.

When someone is logged in to Network Manager in View/Modify mode, that person is said to be "locking" Network Manager—no one else can enter View/Modify mode and make changes. Any other users who log in are put in View Only mode, and cannot change the mode. They see the legend *Locked By:* in the upper right corner of the page, followed by the full name of the user who is currently editing the Network Manager databases.

The full name flashes, and is actually a link. Clicking on the flashing link opens a small dialog that allows a brief instant message requesting access to be sent to the locking user. The locking user can then either log out or switch to View Only mode, allowing the message sender to then switch to View/Modify mode and start working.

Submitting changes to the databases

At times you also see *SUBMIT CHANGES* and *RELOAD DATABASES* choices in the control frame below the icons. They appear whenever you have made any changes to information you see on Network Manager pages. Those changes are considered tentative until you choose *SUBMIT CHANGES*, which stores and activates them.

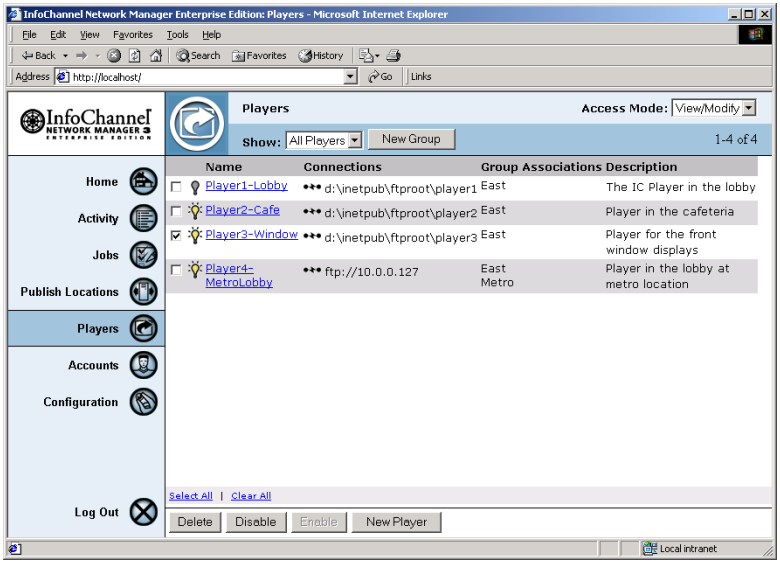
It is not necessary to submit your changes after each individual database change. You can continue to make changes while the *SUBMIT CHANGES* choice is visible, and submit them all at once when you have finished.

When you submit changes and click *Yes* in the confirmation dialog, the body of the page you are currently in clears, and the message "Working..." appears for several seconds, as the databases are updated. Then the current page is redisplayed.

If you have made changes and decide you don't want to keep them, you can choose *RELOAD DATABASES* to reset the displayed information to its last-submitted state. When you have used either of these two choices, they disappear until the next time any database information has been modified.

Working on Network Manager pages

The Network Manager **Jobs**, **Publish Locations**, **Players**, and **User Accounts** pages all list items defined in them in a similar table-like format. Each item—job, location, Player, or account—appears as a single row on its page, with columns that display information about the item. The items are listed alphabetically by name, and alternate rows are shaded, to help separate the rows.



At the bottom of each page is a series of buttons for working with items, including *Delete*, *Disable*, *Enable*, and a *New* item button. Certain other controls appear in the page when there are too many items to view all at once.

Working on any of these pages, you use the same basic techniques for selection and editing.

Enabled and disabled items

Any items can be either enabled or disabled. The lightbulb icon to the right of the checkbox indicates an item's current state. A dark lightbulb indicates a disabled item.

Disabled items can still be seen, selected, and worked with just as when they are enabled. Disabling an item only affects what the Network Manager Engine does with it. A disabled job will not run automatically from a schedule or file change trigger. (It can still be run manually.) Disabled Publish Locations cannot have content or files retrieved from them. Disabled Players are not addressed by jobs that reference them. Disabled accounts cannot be used to log in.

To disable an enabled item, select the checkbox next to its yellow lightbulb icon, then click *Disable*.

To enable a disabled item, select the checkbox next to its dark lightbulb icon, then click *Enable*.

Selecting items

To select an item you want to work with, click in the checkbox to the left of the item's name, so that it is marked with a check (✓).

To select all the items in the list, click the *Select All* link in the bottom left corner of the page.

To clear any selected checkboxes on the page, click the *Clear All* link.

Editing items

The leftmost column is the *Name* column, and the name for each item is a link (blue, underlined). Clicking the name link opens an edit form for that item that allows you to modify its definition.

Make any changes necessary on the form, then click *OK* to return to the main page.

Whenever you have made a change on an edit form, you see the *SUBMIT CHANGES* and *RELOAD DATABASES* choices appear in the control frame. The edits you made are visible on the page, but are still tentative. Click *SUBMIT CHANGES* to store your edits in the database. Or, if you have second thoughts about changes you made, click *RELOAD DATABASES* to clear the changes and return to the last stored database values.

In either case, the *SUBMIT CHANGES* and *RELOAD DATABASES* choices disappear from the control frame until the next time you make any edits.

Creating new items

Each of the four pages has a button to allow to create a new item: *New Job*, *New Publish Location*, *New Player* or *New Account*. Clicking a New button opens an empty form for you to fill in with the appropriate information.

Deleting items you no longer need

If you are sure you will not need an item again, you can delete it. Select it, then click the *Delete* button.

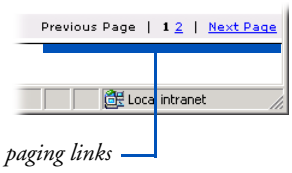
When you submit the change, the item is permanently removed from the database. Note that only the Network Manager database is affected by deletions. Deleting a Player or Publish Location definition has no effect on Player machines or Publish file servers.

Viewing large amounts of data

When there are too many items to view at once, Network Manager presents items in paged format. A legend in the right-hand side of the page header shows the total number of items, and the range of items currently visible—for example, *11-20 of 27*.

When there are more items than can be seen at once, a *Records per Page* pop-up control appears next to the legend, allowing you to choose how many items should be displayed per page.

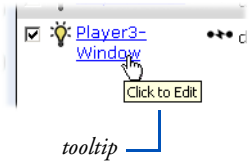
controls number of items shown per page



In the bottom right of the page, link-style controls let you page forward and backward through multi-page listings, or choose any arbitrary page to view.

You can also enlarge the Network Manager window to let you see more information at a time. Occasionally it may be necessary to make the window wider to enable you to see all parts of some forms.

Getting help on features of Network Manager



Every field label and control in Network Manager has a tooltip associated with it. Just hold the mouse pointer over any functional item in the Network Manager window for a few seconds to see a brief description of what to do with that item.

Configuration needs

If this is the first time you have run Network Manager, there is a certain amount of configuration that needs to be done before you can start doing useful work with the program. The most logical order of the configuration tasks is:

1. Configure Network Manager itself
2. Define Accounts
3. Define Publish Locations
4. Define Players
5. Configure Player machines
6. Define Jobs

Planning your InfoChannel Network

Before you can configure Network Manager and the Players it will be communicating with, you need to make certain decisions about the

layout of your InfoChannel Network. The main topics you need to consider are:

- How the various functions required in an InfoChannel Network (ICDesigner authoring, Publish Locations, Network Manager, Players) are to be allocated among physical machines
- How these different parts of the Network will communicate with each other—via FTP or via UNC

Machine allocation

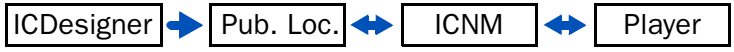
Players are by definition separate machines dedicated to running InfoChannel Player software. The only allocation-related decision you might need to make with relation to Players is whether it would be practical for a given Player machine to drive more than one display device.

Authoring is also normally done on machines dedicated to that purpose. Although there is nothing to prevent the installation and use of ICDesigner on the same machine that runs Network Manager, in a working environment it might be impractical. The processing and I/O loads of an active Network Manager machine would make simultaneous authoring work in ICDesigner problematic. The descriptions in this manual all assume that ICDesigner authoring stations and Network Manager machines are separate.

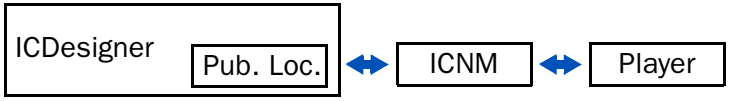
This leaves you to consider how the Network Manager and Publish Locations should be arranged. For simplicity assuming a single ICDe-

signer station, a single Publish Location, and a single Player, these are the possible arrangements:

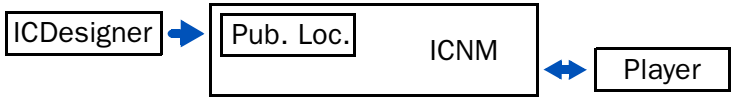
All separate machines:



ICDesigner machine hosts Publish Location:



Network Manager machine hosts Publish Location:



Hosting the Publish Location on an authoring machine can make authoring response occasionally sluggish.

Hosting the Publish Location on the Network Manager machine is operationally efficient, but calls for copious hard drive space, as all content is stored in both the Publish Location and in the Network Manager workspace.

Dedicating separate machines for everything distributes the processing and I/O loads optimally.

Any of these arrangements can work well. Which one you choose may be based largely on hardware availability and cost.

Communication protocol

Once you have determine the general arrangement of the InfoChannel Network, you need to decide how each part will communicate with the other.

Regardless of whether your Publish Location is hosted on an ICDesigner or Network Manager machine, there are three communication links to consider:

1. Designer(s) to Publish Location(s)
2. Publish Location(s) to Network Manager
3. Network Manager to Player(s)

For each of these links, you need to choose a protocol, either UNC or FTP.

All Players on the network must share the same protocol. ICDesigner and Publish Location machines can have individually configured protocols.

Setup and configuration of your InfoChannel Network is considerably simplified if you use UNC (direct network access over a LAN or WAN) where possible. UNC communication is also more secure.

Having your ICDesigner, Publish Location, and Network Manager machines all on the same LAN is a likely scenario. Player machines, however, are often located far from a central location, making direct access to them impractical. When UNC access is not possible, FTP is the only option.

Using FTP

To use FTP in an InfoChannel Network, machines must have an Internet connection, either directly or through an ISP.

Any machine that will be on the receiving end of an FTP communication link must have FTP server software installed and configured on it.

The FTP service that comes as part of IIS in Windows 2000 can be used. Third-party FTP server products can also be used. Instructions

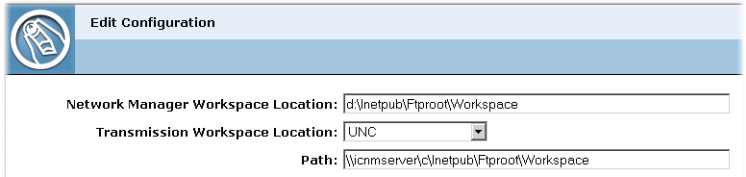
in this manual cover FTP configuration using the Windows IIS FTP service only.

> ***Network Manager Note***
>
> The FTP service that is part of Windows 2000 Professional allows a maximum of ten simultaneous FTP connections. If you have a larger InfoChannel Network installation and anticipate the possibility of more than ten FTP communication attempts at the same time, you should consider installing Windows 2000 Server on that machine.

Scala recommends that you locate your Network Manager workspace folder within the FTP Home Directory folder if you will be using FTP at all. Assuming that you use the Windows IIS FTP service, the default for this location is `<systemroot>:\Inetpub\Ftproot`.

Using an offsite workspace

On the Network Manager **Configuration** page, there are settings to be made for specifying the locations of the Network Manager Workspace folder and the Transmission Workspace folder.

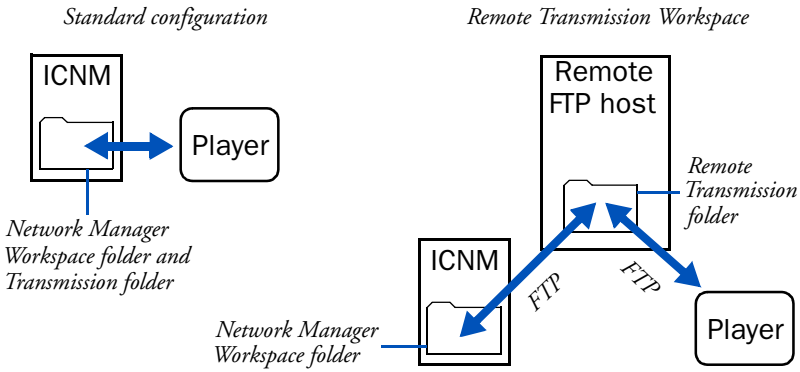


The Network Manager Workspace folder is a place locally accessible to the Network Manager server, where Network Manager stores and manipulates all the files it deals with. The Transmission Workspace folder is the place from which Players retrieve content and other files. It is also where Players send log files and any other files to be returned to Network Manager.

The recommended setup is for these two settings to refer to the same location, a folder local to the Network Manager machine. However, it

is not required that the two settings be the same. They can refer to different folders, even on different machines, and there are in fact certain situations in which this can be advantageous.

In particular, depending on relative costs for telecommunication service, Internet storage, and FTP hosting in your region, it might be beneficial for the Transmission folder to be externally located on a remote FTP host. In such a case, *Transmission Workspace Location* is set to refer to a folder on the remote FTP host.

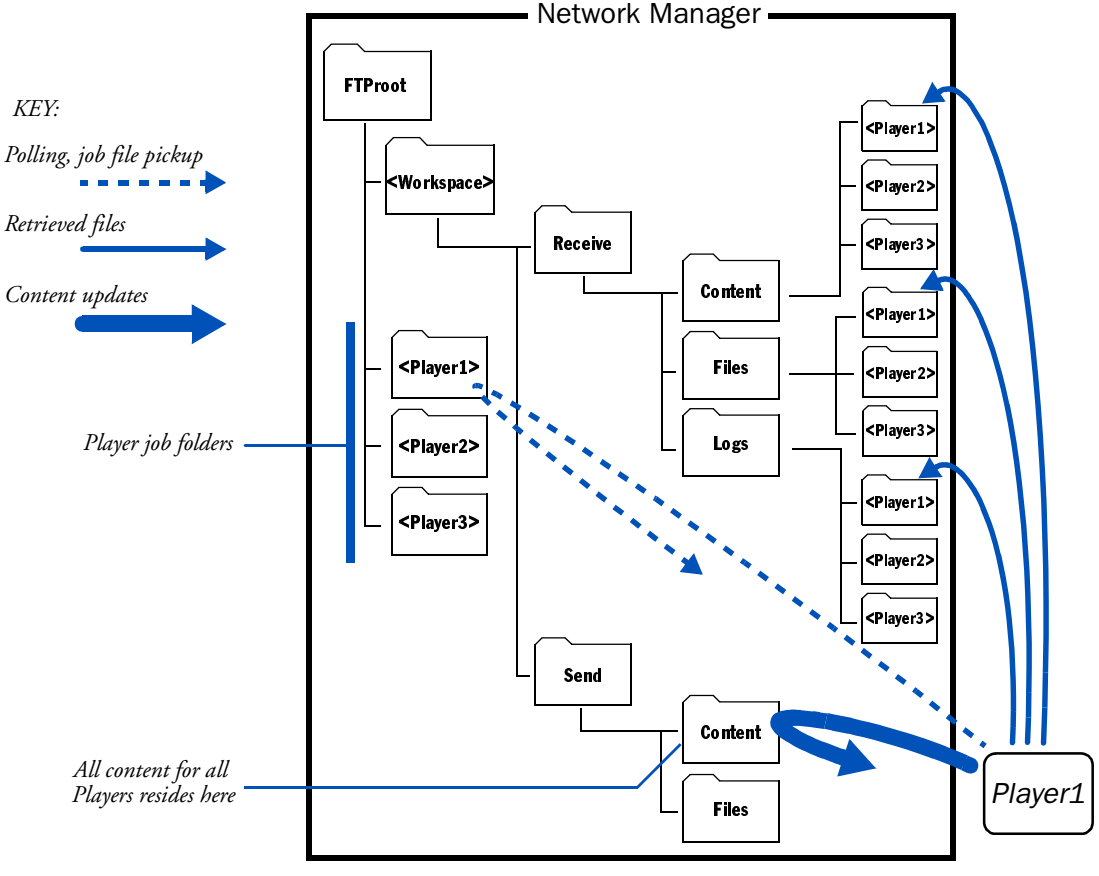


Although the offsite transmission folder arrangement can be worthwhile from a cost perspective, its downside is that it increases communication bandwidth requirements significantly. To use an offsite Transmission folder, everything that is in the local workspace folder on the Network Manager machine—which includes all scripts and content going to or coming from all Players—must be transferred between the Network Manager workspace folder and the remote FTP site, an extra communication step that is unnecessary when the local workspace and Transmission folders are the same location. Moreover, the extra step introduces additional points of vulnerability to network security.

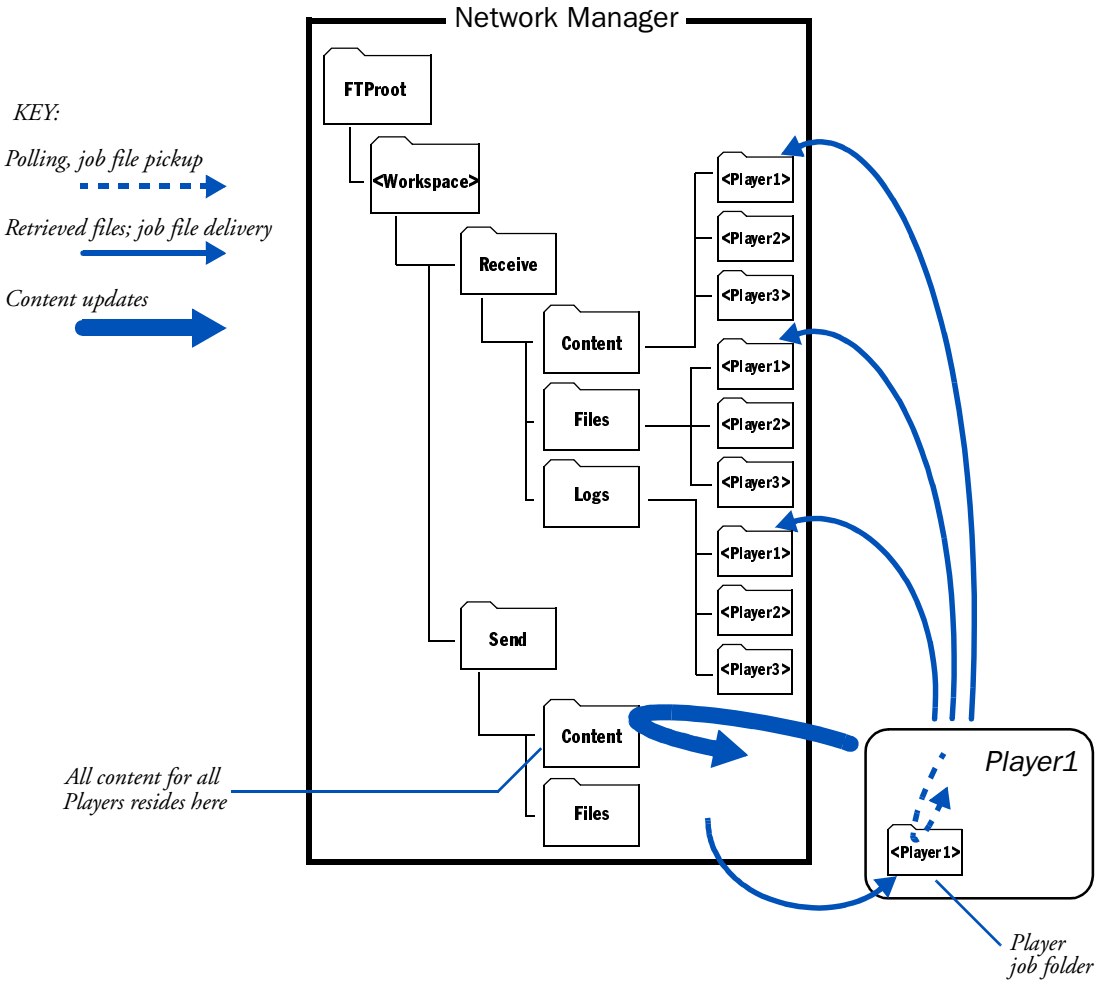
For these reasons, using an offsite transmission folder/remote FTP hosting is discouraged unless there is an overriding advantage to doing so.

Mapping an InfoChannel installation

The following diagram illustrates the folder structure of the Network Manager machine on a typically configured three-Player InfoChannel Network and how a Player named "Player1" interacts with those folders. (Folders with names in angle brackets are those that need to be defined within Network Manager.)



The diagram below illustrates the structure of an InfoChannel Network similar to the one diagrammed on the preceding page but configured with the Player job folders on the Player machines themselves. In this type of installation, Network Manager contacts the Players directly to deliver job files.



The operation of such a network is really no different from one in which the job folders are on the Network Manager machine. A

Player's job folder is simply created in a different location, and the path in the Player definition is configured accordingly.

This architecture can be preferable for installations in which the network bandwidth and/or dial-up phone line charges incurred by Players polling remote job folders would make operation costs prohibitive. Since the polling is internal to the Player when job folders are located there, that source of communication traffic is eliminated. The Players' response to new jobs can also be faster, as the job file polling interval can be short (by default 30 seconds) without any bandwidth penalty.

Communication sequence of events

The following sequence of events for a *Send Content* job illustrates the typical communication flow among the various stations of an InfoChannel Network:

1. Author publishes to InfoChannel Network
2. Published script deposited in Publish Location
3. Network Manager, monitoring Publish Location, copies published script to its workspace folder
4. Network Manager *Send Content* job is run, creating XML job file specifying the published script
5. Job file is placed in job folder of Player named in job
6. Player, polling its job folder, sees job file and downloads it
7. Player reads job file, determining required content and content location
8. Player contacts Network Manager, downloads content
9. New content is seamlessly swapped in
10. Player generates log entry for job, uploads it to Network Manager
11. Network Manager appends job log entry to its log file, displays it on its **Activity** page

For jobs other than *Send Content*, the fundamental communication operations in steps 4–11 are the same. Steps 8 and 9 would be omitted if the job is one that does not involve downloading.

Closing InfoChannel Network Manager

When Network Manager is running, you can close the interface portion of the application at any time if you do not need to work with it actively. The Network Manager Engine continues to run unless explicitly stopped, monitoring Publish Locations, running scheduled jobs and handling communication with Players.

Shutting down InfoChannel Network Manager

If you need to shut down Network Manager completely, it is, like starting the program, a two-step process. Both Network Manager and the underlying network engine must be stopped.

To shut down the Network Manager application:

1. Exit Network Manager if it is running by clicking the close button in its window's upper right corner.
2. Right-click on the Network Manager icon in the System Tray. This produces a pop-up menu with just one choice, *Stop InfoChannel Network Manager Engine*. Choose this to shut down the network engine.

Any in-progress jobs are aborted by a shutdown.

Configuration

4: Configuration

Correct configuration is the key to a smoothly functioning InfoChannel Network.

Thorough planning of the layout and communication pathways of your InfoChannel Network is in turn the key to a smooth configuration process. It will help greatly if you have mapped out the system before you start to configure the Network Manager, Publish Location, and Player machines that make up your network.

Configuring InfoChannel Network Manager

Since InfoChannel Network Manager is Web-based, the machine running it needs to be configured as a Web server using Microsoft's Internet Information Services (IIS). If you are not familiar with configuring a Web server, then you will probably need the assistance of a Webmaster or IT manager/system administrator. The IIS Web server configuration is not inherently difficult, but it is time-consuming and requires attention to certain critical details.

For initial configuration of Network Manager, you must log in to the local machine on which you performed the preceding installation.

Many of the configuration tasks in Network Manager relate to the use of FTP. If you will not be using FTP to communicate with Players or Publish Locations, you do not need to bother with FTP configuration, and can skip to Step 2.

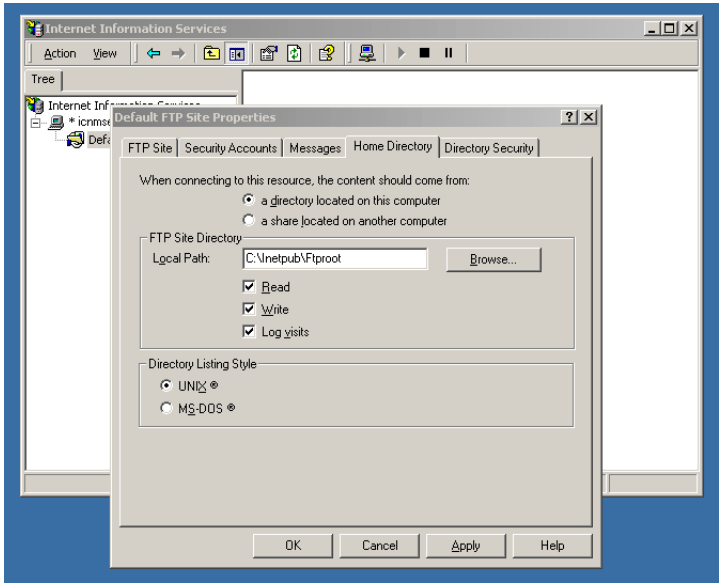
Step 1: Establishing the FTP Home Directory

The default home directory for FTP is located at <*system_root*>\InetPub\ftproot, where <*system_root*> is the letter of the drive where Windows 2000 is installed.

Setup tasks and general administration are simpler if you leave the FTP Home Directory at its default, and Scala recommends that you do so if you have no compelling reason to change it. If you will retain the default, skip to Step 2.

However, if for example you want to have the FTP Home Directory on a drive different from the Windows drive, you need to change this:

1. From the Start menu, choose *Programs* > *Administrative Tools* > *Internet Services Manager*.
2. Expand the tree on the left-hand side of the Internet Information Services tool so that the *Default FTP Site* tree is visible.
3. Right-click on *Default FTP Site* and choose *Properties*. You should see the Default FTP Site Properties dialog.
4. Select the *Home Directory* tab.



5. Change the path in *Local Path:* to your desired location.

The defaults on the remaining tabs do not need to be changed.

6. Click *OK*.
7. Close the Internet Information Services window.

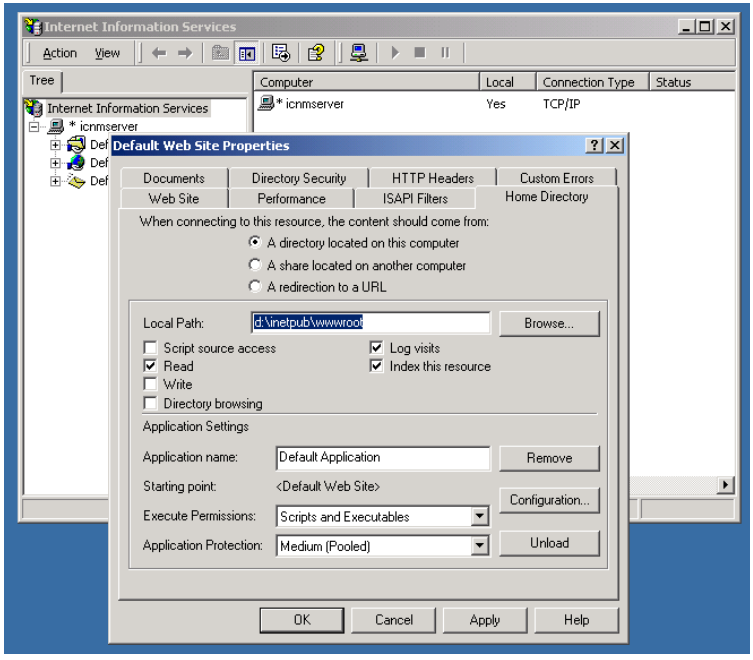
Step 2: Establishing the Web Home Directory

The default home directory for the Web is located at <*system_root*>\InetPub\wwwroot, where <*system_root*> is the letter of the drive where Windows 2000 is installed.

If you will retain the default, skip to Step 3.

However, if for example you want to have the Web Home Directory on a drive different from the Windows drive, you need to change this:

1. From the Start menu, choose *Programs* > *Administrative Tools* > *Internet Services Manager*.
2. Expand the tree on the left-hand side of the Internet Information Services tool so that the *Default Web Site* tree is visible.
3. Right-click on *Default Web Site* and choose *Properties*. You should see the Default Web Site Properties dialog.
4. Select the *Home Directory* tab.



5. Change the path in *Local Path:* to your desired location.

The defaults on the remaining tabs do not need to be changed.

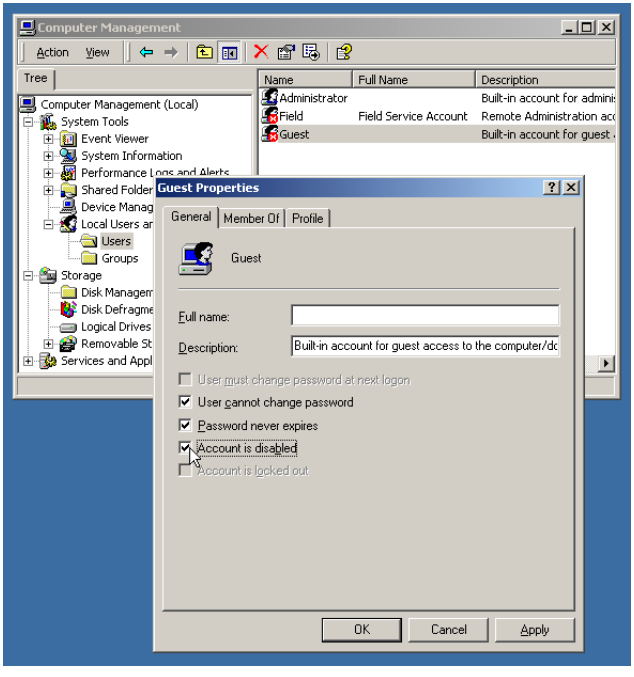
6. Click *OK*.
7. Close the Internet Information Services window.

Step 3: Edit accounts

In order for the system to be secure, you need to disable the Guest user account, and a create new user account that doesn't have Administrator privileges. This is necessary to prevent ignorant or malicious users from gaining access to your FTP or Web server.

1. From the Start menu, choose *Programs* > *Administrative Tools* > *Computer Management*.
2. On the left-hand side of the Computer Management dialog, expand the *Local users and Groups* tree.
3. Select the *Users* folder.
4. Select the Guest account in the right-hand pane.
5. Choose *Properties* from the *Action* menu.

6. You need to disable the Guest account. In the Guest Properties dialog, turn on the *Account is disabled* option.



7. Click *OK*.

If all Players will access the Network Manager server via UNC connections, it is assumed that accounts and appropriate permissions have been set to allow Network Manager and Players to access each other. In this case, you are done with this Step, and can proceed to Step 4.

8. If you plan for the Players to access the Network Manager server via FTP, you should create a special account for the Players. We recommend these steps:

   a. Select the *Users* Group on the left-hand side of the Computer Management dialog.

   b. To create a new account, from the *Action* menu, choose *New User...*.

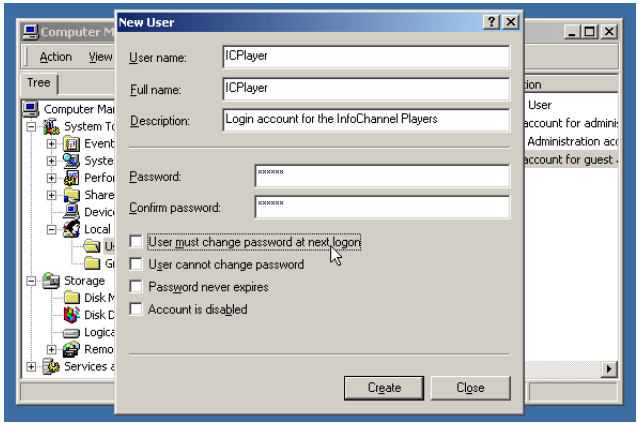
c. In the New User dialog, enter “ICPlayer” (without quotes) in *User Name:*.

d. Optionally, make appropriate entries for *Full Name:* and/or *Description:*.

e. Enter a meaningful password in the *Password:* field.

f. Type the password again in the *Confirm Password:* field.

g. Turn off the *User must change password at next logon* option.



h. Click *Create*, then *Close*.

This account should be used to access the FTP root on this machine from all Players in the field.

9. Since Players need Read/Write and Modify access, you’ll need to add this user to the FTP root on this machine. We recommend these steps:

a. Navigate via Windows Explorer to the FTP root location on the Network Manager machine.

b. Right-click on the FTP root folder and choose *Properties*.

c. Click the *Security* tab.

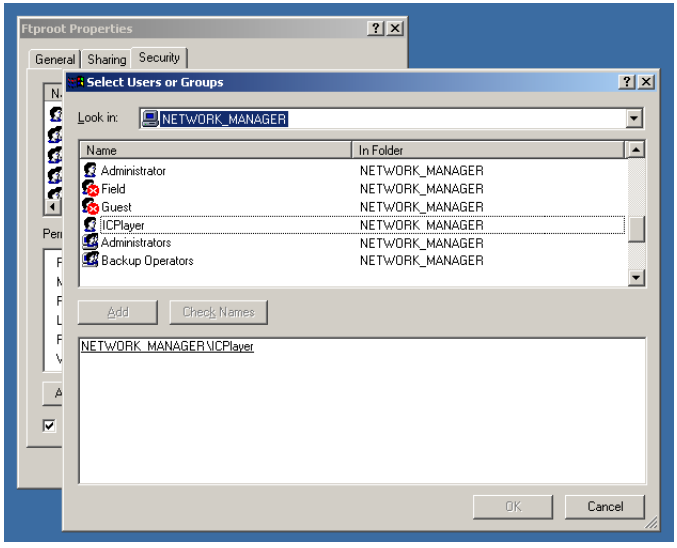
d. Click the *Add...* button.

e. In the *Select Users or Groups* dialog, use the *Look In* drop-down menu to select the name of the local machine.

f. Find the "ICPlayer" account in the list of users.

g. Select the "ICPlayer" account.

h. Click *Add*, then click *OK*.



10. Select the ICPlayer account in the Ftproot *Properties* dialog.

11. Make sure that the following permissions are turned on in the *Allow* column:

    - *Modify*
    - *Read and Execute*
    - *List folder contents*
    - *Read*
    - *Write*

    It is not necessary to turn on the *Deny* option for the *Full Control* item.

Additional steps for dial-up FTP

If you will be using dial-up FTP, there are certain steps to follow that are specific to dial-up use. See "*Dial-up FTP access configuration*" on page 71.

Step 4: Delete unnecessary files

Some of the files left by the default IIS installation are unnecessary and could pose a security risk. They should be deleted.

1. Navigate via My Computer or Windows Explorer to the location of your Web site's root directory.
2. Delete the files located in the root directory.
3. Delete the Iissamples and Adminscripts folders in the Inetpub folder.

Step 5: Creating a workspace folder

Next you need to create a Network Manager Workspace folder and make it shared.

> ***InfoChannel Network Manager Note***
>
> The Network Manager Workspace folder is where all content and other data related to all connected Players will reside. For this reason, you must be sure that the folder is located on a large-capacity drive with plenty of empty space.

1. Using My Computer or the Windows Explorer, create a new folder. The folder can be located anywhere, even on a different machine, provided that it is accessible by a UNC or local path.

   If any of your InfoChannel Network machines will be using FTP to access Network Manager, Scala recommends that you create the workspace folder in the default FTP Home Directory folder. Doing so makes configuration and general administration simpler.

The default home directory for FTP is located at <*system_root*>:\Inetpub\FTProot, where <*system_root*> is the letter of the drive where Windows 2000 is installed.

You can give the folder that you create any name you like.

So, for example, you might create the folder as `D:\Inetpub\FTProot\Workspace`.

Whatever its name and location, record the full path to the folder, because you will need to enter the path into Network Manager shortly.

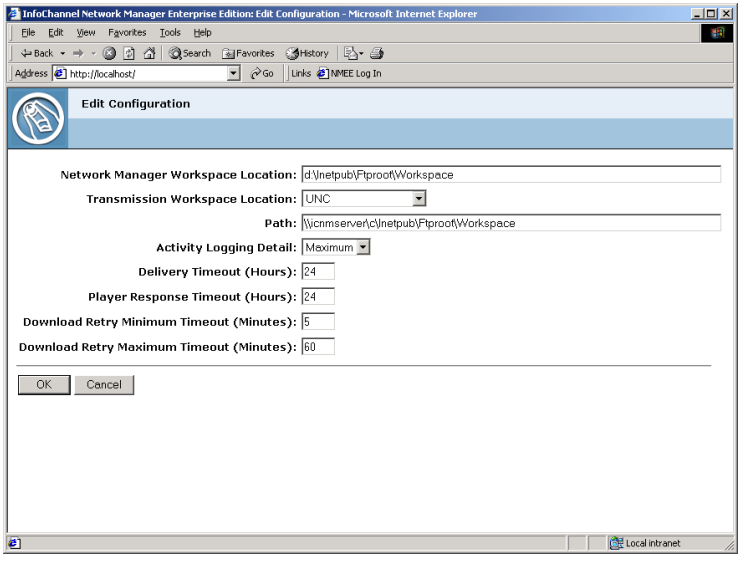
2. Right-click on the folder within which you created the workspace folder (in the above example, this would be the FTProot folder) and choose *Sharing*. Make this folder shared. If necessary, adjust permissions on the folder so that the appropriate users—in particular, the "ICPlayer" user—can access this folder before you exit the folder Properties dialog.

Step 6: Configuration within Network Manager

1. In Network Manager, click on the *Configuration* icon in the control frame.

   You see the **Configuration** page, which displays the current settings of its options.

2. Click the *Edit Configuration* button to open the following form:



3. In *Network Manager Workspace Location*, enter the path to the location of the folder you created in Step 5 on page 57, in either UNC or local format.

   For our example, either

   `\\ICNMserver\FTProot\Workspace`

   or

   `D:\Inetpub\FTProot\Workspace`

   would work.

4. The *Transmission Workspace Location* setting determines how the Players communicate with Network Manager, either via FTP or UNC. If the location specified under the protocol is different from the *Network Manager Workspace Location* setting, it also determines how Network Manager reaches this location.

   Choose either *FTP* or *UNC* from the pop-up list.

5. Make settings specific to the access protocol.

   Depending on which access method you choose, a different set of options appears below on the page. Enter the indicated information in the resulting form, which has the following fields:

   FTP protocol

   a. *URL* – Enter the FTP address of the Transmission Workspace location.

      For example, `ftp://192.168.0.10/Workspace` or `ftp://ICNM-server.com/Workspace`

      This URL typically points to the same workspace folder as in step 3 above, but can be different. (See "*Using an offsite workspace*" on page 43 for a description of how and why you might have it point to a different location.)

   b. *User Name* – Enter the username to gain access to the FTP server. If you have set up the workspace on the Network Manager server and followed the account setup suggestions given previously, this would be "ICPlayer".

   c. *Password* – Enter the password needed for the username. (Only asterisks appear.)

   d. *Confirm* – Enter the password again (to ensure you didn't type it wrong).

   OR:

   UNC protocol

   a. *Path* – Enter the UNC path to the transmission workspace location.

      For example, `\\ICNMserver\FTProot\Workspace`

6. Choose the level of information you want in your logs of Network Manager activity using the *Activity Logging Detail* pop-up.

   You can choose from *None*, *Minimum*, *Moderate*, and *Maximum*.

Network Manager Note

The four Timeout configuration options have default values that rarely need to be adjusted, and can be left as is for now.

The activity information is visible on the Network Manager **Activity** page.

7. Click *OK* to accept your changes on the *Edit Configuration* page.
8. Finally, click the *SUBMIT CHANGES* choice that appears in the control frame. This is what actually stores your changes in the database.

Step 7: Set up Publish Locations and Players

Before you can configure individual Player machines, you need to do further setup work within Network Manager to define Publish Locations and Players.

Defining Publish Locations is covered in chapter 6, starting on page 92.

Defining Players is covered in chapter 7, starting on page 100.

Configuring an InfoChannel Player machine

On each Player machine in your InfoChannel network, the InfoChannel Player 3 software must be installed and configured.

The configuration on the Player end is complementary to the Network Manager Player definition, identifying the folder that the Player refers to for its job files. In addition, there are settings to be made within the Player software governing how the Player physically accesses its folder on the Network Manager end, as well as playback-related settings.

Outside the Player software, in Windows, there may be further configuration tasks to enable the Player and Network Manager to communicate securely and reliably.

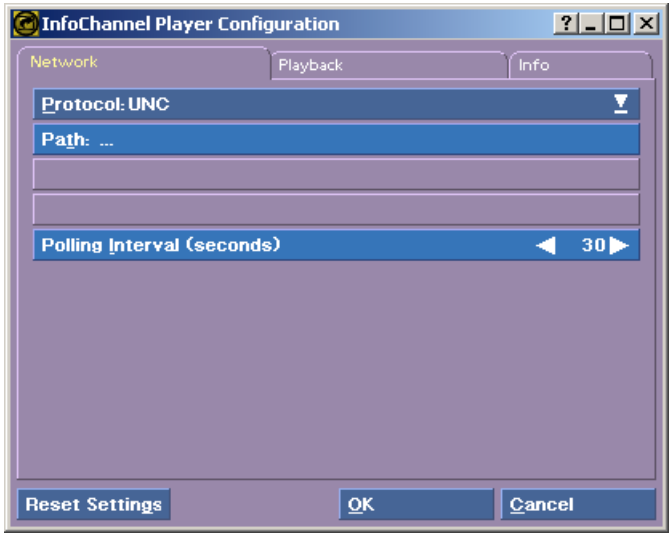
Using the InfoChannel Player Configuration utility

The InfoChannel Player Configuration utility is the tool you use to set up the InfoChannel Player software on a Player machine. Every Player

in an InfoChannel Network must be individually configured using this utility.

Configuration of Player machines should be done after the definition of the Players in the Network Manager application. The Player folder location specified in Step 2 of chapter 7 (page 101) also must be entered in the Player Configuration utility.

Run the Player Config utility from the Start menu by choosing *Programs* > *Scala InfoChannel Player 3* > *Configure InfoChannel Player 3*. You see the InfoChannel Player Configuration dialog.



Network options

The *Network* panel of the dialog contains options related to how the Player monitors the folder in which Network Manager places its job files.

Protocol

Each Player has a folder assigned to it into which Network Manager places its job files. A Player needs to be able to access its job folder, so that it can poll for the appearance of job files to download for instructions.

The *Protocol:* pop-up lets you specify whether the Player has direct access to its job folder via a UNC path, or polls its folder via FTP. There are three possibilities:

UNC – the Player can reach the job folder through a UNC path.

Use this if the job folder is located on the Player itself, or (with the job folder on the Network Manager machine) if the Player and Network Manager machine are accessible to each other over a LAN/WAN.

When you choose *UNC*, you see the *Path:* button below the pop-up. Click it to open the File dialog, and navigate to the location you defined for the Player folder in Network Manager.

If you cannot access the job folder through the File dialog, the folder needs to be made Shared.

Click *OK* in the File dialog, and you should end up with the path to the folder in either local or UNC format. For example:

`C:\Inetpub\Ftproot\Jobs` (job folder is on the Player itself)

OR

`\\ICNMserver\Ftproot\Player1`

FTP – the Player checks the jobs folder via FTP.

FTP dial-up – the Player checks the jobs folder via FTP dial-up.

The options you see for either FTP choice are the same:

URL: – Enter the FTP location that this machine would use to access its job folder.

For example, `ftp://192.168.0.10/Player1` or `ftp://ICNM-server.com/Player1`

User Name: – Enter the username to gain access to the FTP server on the Network Manager machine. If you have followed the default setup recommendations starting on page 54, this would be "ICPlayer".

Password: – Enter the password needed for the username. (Only asterisks appear.) This would be the password you gave for the account that you created for the Player as described on page 55.

Password Confirm: – Enter the password again for confirmation.

The only difference between choosing *FTP* and *FTP dial-up* is in the default *Polling Interval* setting (see below). A dial-up FTP connection is given a much longer interval. Using FTP dial-up does require important additional configuration tasks in Windows. See the section starting on page 71 for details.

Polling Interval
The Player regularly checks its job folder for pending jobs. The *Polling Interval* control lets you specify how long the Player waits between each check.

Each Protocol setting has its own Polling Interval value, which can be either in seconds (the *UNC* setting) or minutes (the *FTP* and *FTP dial-up* settings).

You can adjust the interval value from the defaults if necessary to balance timeliness of Players receiving their jobs against network bandwidth/cost constraints.

Playback options

The contents of the *Playback* panel mirror options available on the *Playback* and *EXes* panels of the Options dialog in InfoChannel Designer 3.

The *Playback* panel lets you decide how you want scripts to play back on your system. The primary things for you to decide are whether scripts should play back in a window or fill the screen, and what display mode is used for playback.

You can choose one of two ways to make these decisions on the *Playback Mode:* pop-up, by picking either *Standard* or *Custom*. The options below change depending on which mode you choose.

Players normally use full screen playback.

To ensure that scripts fill the screen:

1. Set *Playback Mode:* to *Standard*, if it is not already.
2. Make sure the *Always Play Back Full Screen?* option is on (✓).
3. To keep the display mode from changing from the standard Windows setting, make sure *Adapt Resolution to Script?* is off.

Using Standard mode does not let you choose a specific resolution for all your scripts to play back, or a particular color depth (number of colors) or monitor refresh rate.

It may be preferable to use Custom mode to make sure all scripts play back in a particular resolution, color depth, and refresh rate, so that display mode switching is avoided.

To ensure that display mode switches do not disrupt playback:

1. Set *Playback Mode:* to *Custom*, if it is not already.
2. Click the *Full Screen Display:* button to open a display mode dialog.
3. Choose the size, color depth and refresh rate you prefer for script playback.

EX options

The lower part of the *Playback* panel is devoted to EXes. EXes used by scripts must be enabled and configured just as they were on the systems from which they were authored in order to play back correctly.

When EXes that have configuration options are turned on in the *Optional EXes* column, buttons for them appear in the *EX Settings* column. Click a button in this column to display an Options dialog for that EX.

How to configure the Timing and Launch EXes, and remarks about the Scala EX system in general, can be found in chapter 15 of the "*Basic Authoring*" User's Guide. Configuring the optional EXes that ship with Network Manager is covered in chapter 7 of the "*Extended Authoring*" User's Guide. Separately-available EXes come with their own documentation.

Version information

You can view version information on the various software modules that make up the InfoChannel Player software on the *Info* panel.

Resetting to defaults

You can reset the settings in the Player Config dialog to their defaults by clicking *Reset Settings*.

Storing your changes

When you have finished configuring this Player in the *Network* and *Playback* panels, click *OK* to save the changes and exit the utility.

The changes you make do not actually take effect until the next time the InfoChannel Player Engine is restarted.

Windows configuration settings for Players

The only configuration steps required within Windows on a Player machine relate to use of FTP. If your Network Manager/Player communication is entirely by UNC, you are finished with Player configuration and can skip this section.

If your installation is configured with the Player's job folder on the Player machine itself, rather than on the Network Manager machine, and the Network Manager will access the folder by FTP, you need to enable FTP on the Player. This is described in Steps 1–3 immediately below.

If you are planning to have the Player use FTP dial-up in either direction (from Network Manager to Player or from Player to Network Manager), you also need consult the next section, "*Dial-up FTP access configuration*" on page 71.

Step 1: Enable FTP

If the Network Manager machine will be depositing job files on the Player itself by FTP (Internet or dial-up), you need to enable FTP on the Player, so that the Player is an FTP server. The FTP setup steps for Players are essentially identical to those for the Network Manager machine.

1. From the Start menu, choose *Settings* > *Control Panel*.
2. In the Control Panel window, open *Add/Remove Programs*.
3. In the Add/Remove Programs dialog, click *Add/Remove Windows Components*.
4. In the Windows Components Wizard, select *Internet Information Services (IIS)* and click *Details*.

5. In the Internet Information Services dialog, turn on (✓) *File Transfer Protocol (FTP) Server*. This automatically also turns on *Common Files* and *Internet Information Services Snap-In*.
6. Click *OK* to exit the IIS dialog.
7. Click *Next*, then *Finish* to exit the Wizard.
8. Click *Close* to exit Add/Remove Programs.

Step 2: Establishing the FTP Home Directory

The default home directory for FTP is located at <*system_root*>\InetPub\ftproot, where <*system_root*> is the letter of the drive where Windows 2000 is installed.

Setup tasks and general administration are simpler if you leave the FTP Home Directory at its default, and Scala recommends that you do so if you have no compelling reason to change it. If you will retain the default, skip to Step 3.

However, if for example you want to have the FTP Home Directory on a drive different from the Windows drive, this is how to change it:

1. From the Start menu, choose *Programs* > *Administrative Tools* > *Internet Services Manager*.
2. Expand the tree on the left-hand side of the Internet Information Services tool so that the *Default FTP Site* tree is visible.
3. Right-click on *Default FTP Site* and choose *Properties*. You should see the Default Web Site Properties dialog.
4. Select the *Home Directory* tab.
5. Change the path in *Local Path:* to your desired location.

The defaults on the remaining tabs do not need to be changed.

6. Click *OK*.
7. Close the Internet Information Services window.

Step 3: Edit accounts

In order for the system to be secure, you need to modify the Guest user account. This is necessary to prevent ignorant or malicious users from gaining access to the Player FTP server.

You need to create an account on the Player only if the Player job folder is configured to be on the Player itself, and is accessed by FTP or FTP dial-up.

1. From the Start menu, choose *Programs* > *Administrative Tools* > *Computer Management*.
2. On the left-hand side of the Computer Management dialog, expand the *Local users and Groups* tree.
3. Select the *Users* folder.
4. Select the Guest account in the right-hand pane.
5. Choose *Properties* from the *Action* menu.
6. You need to disable the Guest account. In the Guest Properties dialog, select the *Account is disabled* option.
7. Click *OK*.

Now you must make sure there is an FTP account for the Network Manager machine to log in to.

8. Select the *Users* Group on the left-hand side of the Computer Management dialog.
9. To create a new account, choose *New User...* from the *Action* menu.
10. In the New User dialog, enter "NetManager" (without quotes) in *User Name:*.
11. Optionally, make appropriate entries for *Full Name:* and/or *Description:*.
12. Enter a meaningful password in the *Password:* field.
13. Type the password again in the *Confirm Password:* field.

14. Turn off the *User must change password at next logon* option.
15. Click *Create*, then *Close*.

    This account should be used to access the FTP root on a Player from the Network Manager machine.

Since the Network Manager machine needs Read/Write and Modify access, you'll need to add this user to the FTP root on this machine. We recommend these steps:

16. Navigate via Windows Explorer to the FTP root location on the Player machine.
17. Right-click on the FTP root folder and choose *Properties*.
18. Click the *Security* tab.
19. Click the *Add...* button.
20. In the *Select Users or Groups* dialog, use the *Look In* drop-down menu to select the name of the local machine.
21. Find the "NetManager" account in the list of users.
22. Select the "NetManager" account.
23. Click *Add*, then click *OK*.
24. Select the NetManager account in the Ftproot *Properties* dialog.
25. Make sure that the following permissions are turned on in the *Allow* column:

    - *Modify*
    - *Read and Execute*
    - *List folder contents*
    - *Read*
    - *Write*

    It is not necessary to turn on the *Deny* option for the *Full Control* item.

Dial-up FTP access configuration

FTP communications in an InfoChannel Network can use modems rather than Ethernet cards, by taking advantage of the dial-up networking (RASdial) capabilities in the Windows operating system.

Using dial-up FTP requires the same basic setup steps as FTP via LAN/Internet—enabling the FTP server on the receiving end, creating user accounts and setting appropriate permissions—plus some additional steps.

The additional steps required to configure FTP dial-up are mainly a matter of creating connections in Windows Dial-up Networking. The steps you need to follow are different depending on whether the InfoChannel Network is configured with job folders on the Players themselves, or on the Network Manager server.

The one dial-up related setting within the InfoChannel software is the *Protocol: FTP dial-up* setting in Player Configuration. Its only effect is to increase the default Polling Interval value.

Job folders on the Player

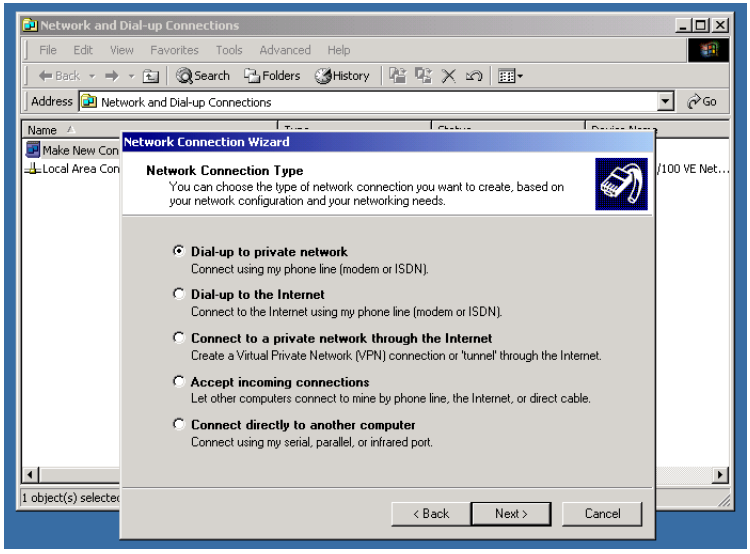
Follow the steps in this section if your InfoChannel Network is configured with job folders on the Players themselves. If Player job folders are located on the Network Manager server, skip to "*Job folders on the Network Manager server*" on page 75.

Step 1: Create a connection on Network Manager

If Network Manager will be delivering job files to a job folder on the Player through a dial-up connection (RASdial) rather than through a direct Internet connection, you need to create a connection on the Network Manager to dial the Player.

1. From the Network Manager server's Start menu, choose *Settings* > *Control Panel*.
2. Open *Network and Dial-up Connections*.
3. Double-click *Make New Connection* to open the Make New Connection Wizard and click *Next*.

4. For *Network Connection Type*, choose *Dial-up to private network* and click *Next*.



5. Select the modem that Network Manager will use to call the Player and click *Next*.

6. Enter a phone number to dial. The number is only a placeholder, so it can be anything, such as 555-5555.

   You do not need to enter a real Player phone number in this connection, because the real phone number is specified in the Player definition (see page 101). This phone number is passed to the connection and automatically substituted for the placeholder number when the call is made.

   Click *Next*.

7. Under *Connection Availability*, select *For all users* and click *Next*.

8. Finally, you must give the connection a name. In order for the phone number substitution to work, you must name the connection “InfoChannel Network Manager” (without quotes).

9. Click *Finish*.

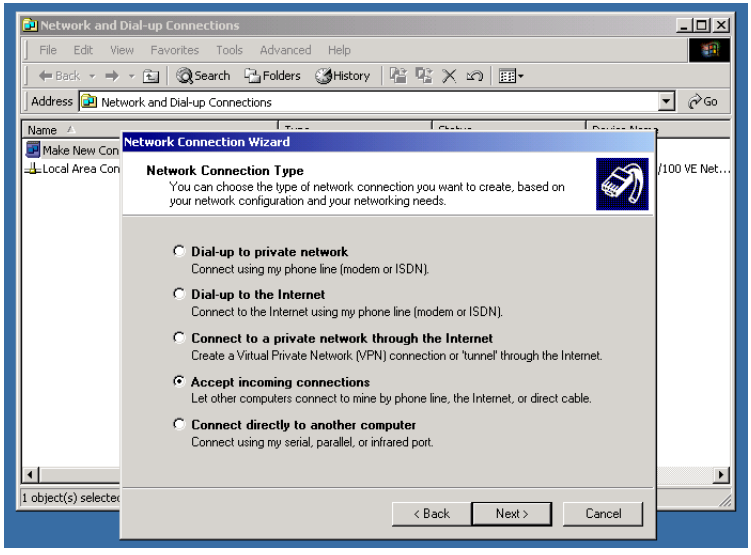
When you click *Finish*, you see a connection dialog that allows you to test the connection you have just created. You will not be able to successfully complete the connection test until you have completed all the necessary FTP, account, and connection configuration steps on a Player machine, as documented beginning on page 67.

Once you have done so, you should test the InfoChannel Network Manager connection. Pick a Player to connect to, then use the "Net-Manager" user name and the password you configured on that Player, plus its real phone number.

Step 2: Create an Incoming connection

Now you need to create an Incoming connection on the Player to accept Network Manager's communication.

1. From the Player's Start menu, choose *Settings* > *Control Panel*.
2. Open *Network and Dial-up Connections*.
3. Double-click *Make New Connection* to open the Make New Connection Wizard and click *Next*.
4. For *Network Connection Type*, choose *Accept incoming connections* and click *Next*.



5. Select the modem device that the Player uses for communication and click *Next*.
6. Under *Incoming Virtual Private Connections*, select the *Do not allow* option and click *Next*.
7. For *Allowed Users*, select the accounts to which you wish to give incoming connection access on the Player.

   One of these should be the "NetManager" account you created in Step 3 (see page 69). You may also wish to enable an Administrator account for maintenance purposes. Generally, the number of allowed users should be as few as needed, to reduce security vulnerability.

   Click *Next*.
8. Under *Networking Components*, be sure that at least *Internet Protocol (TCP/IP), File and Printer Sharing for Microsoft Networks,* and *Client for Microsoft Networks* are turned on.

   If your Player is connected to a LAN, you should disallow incoming caller access to the network for security reasons.

   a. Select *Internet Protocol* and click *Properties*.

   b. In the Incoming TCP/IP Properties sheet, turn off *Allow callers to access by local area network*. The *DHCP* address assignment option should be selected.

   c. Click *OK*.

   Click *Next*.
9. Click *Finish*.

You see "Incoming Connections" listed as a connection in the Network and Dial-up Connections window.

Job folders on the Network Manager server

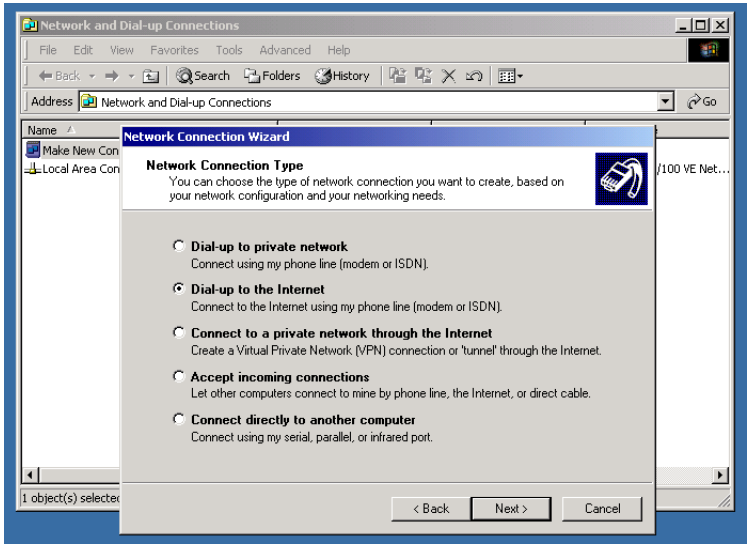
Use these steps if Player job folders are located on the Network Manager server and Players access them via dial-up to an ISP that offers FTP service.

> ***InfoChannel Configuration Note***
>
> This procedure assumes that you have a modem connected to your Player system and properly configured in Windows. You also must have an ISP account that offers FTP service, with the dial-up phone number, account username, and password handy.

Step 1: Create the dial-up connection on the Player

1. From the Start menu of the Player machine, choose *Settings* > *Control Panel*.
2. Open *Network and Dial-up Connections*.
3. Double-click *Make New Connection* to open the Make New Connection Wizard and click *Next*.

4. For *Network Connection Type*, choose *Dial-up to the Internet* and click *Next*.

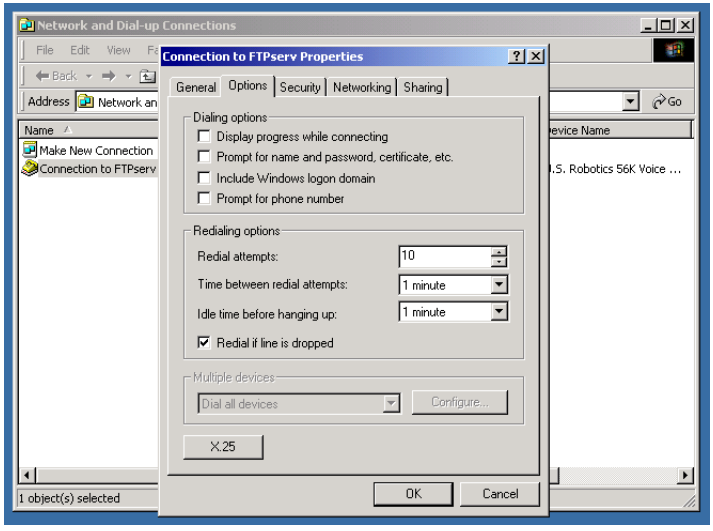


5. You see the Internet Connection Wizard. Choose *I want to set up my Internet connection manually* and click *Next*.
6. Choose *I connect through a phone and a modem* and click *Next*.
7. Enter your FTP service provider's dial-up access number.
8. If necessary, click *Advanced* to make any changes to default connection settings that your ISP may require.
9. Click *Next*.
10. Enter the username and password your ISP has directed you to use for your account and click *Next*.
11. Give the connection a name and click *Next*.
12. Choose *No* when asked if you want to set up a mail account and click *Next*.
13. Turn off the *Connect to the Internet immediately* option and click *Finish*.

Step 2: Configure the new connection

You see the new connection listed under the name you gave, and now must configure it.

1. Right-click on the new connection and choose *Properties*.
2. In the *General* panel of the Properties sheet, turn off the option *Show icon in taskbar when connected*.
3. Click the *Options* tab to display that panel.
4. Make sure all four choices in the *Dialing Options* section are turned off. This is important to prevent Windows dialogs from disrupting playback.
5. In the *Redialing Options* section, recommended settings are 10 redial attempts, 1 minute between redial attempts, 1 minute idle time before hangup, and turn on *Redial if line is dropped*.



The settings on other Properties panels can generally be left at their defaults, although this can vary depending on the ISP.

6. Click *OK* to exit the connection Properties sheet.

7. You should immediately test the new connection. If there is something wrong with the setup that prevents successful login, it will be more difficult to notice later, since you have disabled all dialogs and other visual evidence of connection progress.

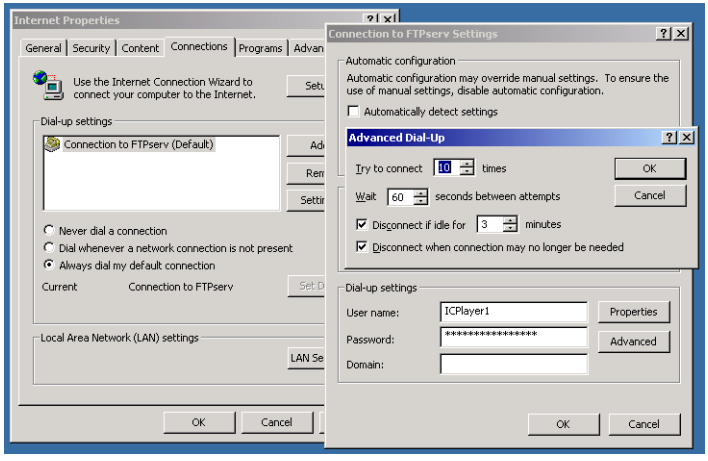
   To test, double-click on the connection name and look for "Connected" to appear in the *Status* column. If no connection is made, try re-enabling the *Display progress while connecting* option to help you diagnose the problem.

Step 3: Configure Internet Explorer

Now you need to configure the Player's Internet properties to always use this connection to reach the Internet.

1. Right-click on the Internet Explorer icon on the Player desktop.
2. In the Internet Properties sheet, go to the *Connections* panel.
3. Select the connection you created and click *Set Default* to make it the default connection.
4. Select *Always dial my default connection*.
5. Click *Settings*. In the Settings dialog, you should see the dial-up account username in the *Dial-up settings* section.

6. Click *Advanced*. The settings in this dialog override the similar settings you made when you created the connection.



   Set *Try to connect* to 10, *Wait* to 60 seconds, turn on both *Disconnect* options, and set *Disconnect if idle* to 3 minutes.

7. Click *OK* and *OK* to confirm all your settings and exit the Settings dialog.

   The Player should now be set up to dial your ISP and connect to an account there, from which the FTP connection to the Network Manager machine can be established.

The last thing to do is to test the FTP dial-up connection through Internet Explorer.

8. Click the *Advanced* tab on the Internet Properties sheet.
9. Make sure that the *Enable folder view for FTP sites* option is enabled.
10. Click *OK* to exit the Internet Properties sheet.
11. Enter the FTP URL in the Internet Explorer address bar. This should cause IE to dial up, connect, and display the FTP folder. If this does not happen, review your settings to try to diagnose the problem.

Dial-up practicality

One factor to keep in mind if you are considering using FTP dial-up is that the connections take much more time than through direct Internet connection. The process of modems dialing and establishing a connection is inherently slow—allow a minimum of roughly a minute to complete a job file transmission, as opposed to a few seconds for a direct connection. This makes the dial-up approach less attractive for large networks. The process of just delivering job files to all the Players in a 500-Player network via dial-up would take many hours.

Then there is the matter of downloading content at modem speeds. Updates that include multi-gigabyte media files would probably be impractical in a modem-based system.

Miscellaneous Player issues

Virus scanning on Players

Although the use of virus scanning software is strongly recommended for security maintenance in an InfoChannel Network installation, Scala does *not* recommend that such software be installed on Players.

Testing by Scala has shown that even virus scanning products by the most reputable companies are a stability hazard on computers for which 24-hour, 7-day-a-week reliability is crucial.

The first line of defense in preventing virus infection of Players is simply not allowing them to become compromised:

- Players should remain dedicated systems, never used for email, Web surfing, or other high-risk activities
- Software other than Windows and InfoChannel Player software should be installed on a Player only if absolutely necessary, and should be scanned before installation
- The Network Manager workspace folder should be frequently virus-scanned, so that all files transmitted to Players are verified as clean

Scala does recommend that Player machines be scanned for viruses periodically. Ideally, the scan should be done from a virus scanner running on a remote machine with a network connection to the Player.

If remote scanning is not possible, virus checking software should be *temporarily* installed on the Player. After being used to perform a thorough scan, the virus software should then be uninstalled from the Player.

Player software and Windows services

You should be aware that the message dialog boxes that can be put up by certain standard Windows services can disrupt Player operation. For example, the Messenger service puts up dialogs for certain events.

When the Player is running a script in full-screen mode, as it normally is, it must be "switched out" to allow the dialog box to appear, interrupting normal playback.

The InfoChannel Player software attempts to intercept as many system dialogs as possible, but not every situation can be anticipated. A system administrator knowledgeable in Windows can attempt to disable services that may cause disruptive dialogs. For operation as a Player, these services may not be necessary. If the problem services cannot be disabled, it is a matter of finding a way to prevent the dialog boxes from having to appear.

Defining accounts

5: Defining accounts

To be able to access InfoChannel Network Manager 3 over the Internet, or from any machine other than the local machine on which the Network Manager software is installed, login to a user account is required.

As with any network system, you need to set up accounts that distribute access privileges appropriately, to prevent unauthorized or inadvertent alteration of critical information.

An account definition consists of a username, a password, an email address, and an access level.

Access levels

Network Manager provides three access levels:

- Administrator

  Someone with an Administrator account in Network Manager can view and modify any Network Manager database information. All Network Manager pages are available, and the access mode can be switched between *View/Modify* and *View Only* at any time.

- Manager

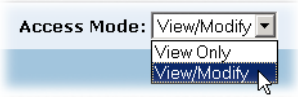
  Someone with a Manager account in Network Manager can view and modify most Network Manager information, but cannot edit configuration settings or accounts. The icons for the **Configuration** and **User Accounts** pages do not appear in the control frame for Managers. The access mode can be switched between *View/Modify* and *View Only* at any time.

- Observer

  Someone with an Observer account in Network Manager can only view information. The icons for the **Configuration** and **User Accounts** pages do not appear in the control frame for Observers.

The *Access Mode:* control also does not appear. All pages are implicitly in *View Only* mode—there are no action buttons or links to editing pages.

Using the Access Mode control



The *Access Mode:* pop-up on **Log In** page and in the header bar of most other pages provides the choices *View/Modify* and *View Only*.

This control is necessary to allow several users to be logged in to Network Manager at once. Because only one user may edit information at a time, there must be a way for other logged in users to adjust their access levels so that only one can actually be able to edit the databases at a given moment.

The *Access Mode:* pop-up makes it possible for a Manager or Administrator who is working in Network Manager to relinquish control to another user who needs to edit the databases, by switching to *View Only* mode. In *View Only* mode, the *Delete*, *Enable*, *Disable*, and *New* item buttons disappear, and the links in the *Name* column that open an item's **Edit** form become plain text. All database information can still be viewed, but the only controls that remain are those that have no potential to affect the databases.

When the other user finishes editing and either logs out or switches to *View Only* mode, another user can switch to *View/Modify* mode.

While someone is using Network Manager in *View/Modify* mode, any other Manager or Administrator who logs in is automatically put in *View Only* mode, even if he or she specified *View/Modify* on the **Log In** page. The message *Locked By: <username>* appears in the page header to inform anyone else of the reason that edit access is currently denied.

Using the instant messaging feature

Network Manager provides an instant messaging feature to make it easier for users who are locked out to contact the locking user and request access.

To request access or send any other message to another logged-in Network Manager user:

1. Click the locking user's username shown after *Locked By:* to open an instant message window.
2. Type your message in the window.

   The prompts in the window identify your messages and the other user's responses by their full name. Any other Network Manager users who may be currently logged in or who log in while you are messaging are also identified.
3. Click *Send* to send your message.

   An instant message window opens on the other user's screen showing your message. You can message back and forth as long as you like.
4. When you are finished messaging, click *Exit Chat*.

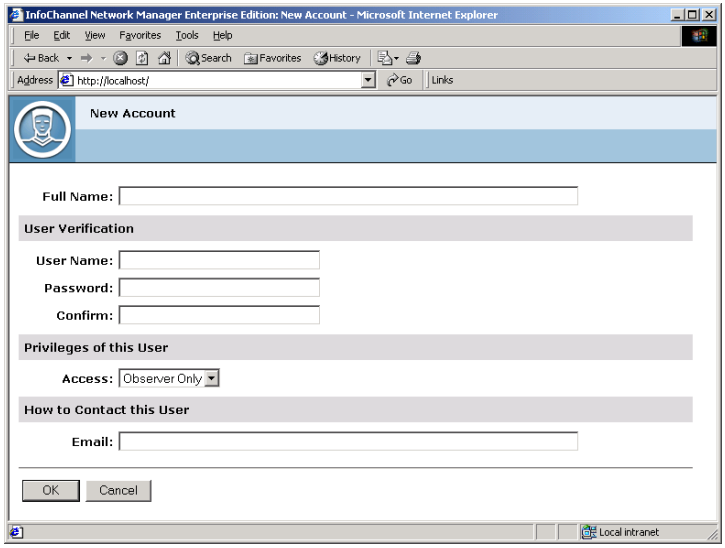
Creating an account

To create an account:

1. Click the *Accounts* icon in the control frame.

   You see the **User Accounts** page. Normally all user accounts that have been created for this system are listed here. Initially it is blank.

2. Click the *New Account* button. You see the **New Account** form:



3. Enter the indicated information in the form, which has the following fields:

   a. *Full Name:* – Enter the user's full name. The name you enter must be unique.

   b. *User Name:* – Enter the username that the person would enter on the **Login** page. The name you enter must be unique.

   c. *Description:* – Enter a brief description of the user (optional).

   d. *Password:* – Enter the password for this user.

   e. *Confirm:* – Enter the password again (to ensure you didn't type it wrong).

   f. *Access:* – Choose *Administrator*, *Manager*, or *Observer* from the pop-up to set the access level that this user will have when logging into Network Manager.

   g. *Email:* – Enter the email address for this user.

4. Click *OK* to close the form.

You see the **User Accounts** page again with the information you just entered listed. The *Name* column gives what you entered for Full Name as a link, which allows the editing of the user's account information.

The *Email* column gives the email address as a "mailto:" link. You might use it to send email to inform the account user that the account has been enabled or disabled.

Enter as many new accounts as you need. When you've finished, click *SUBMIT CHANGES* to store the new accounts in the database.

Editing an account

The names in the *Name* column of the **User Accounts** page are links that open the **Edit Account** form. This form is identical to the **New Account** form described in the preceding section.

To edit an account:

1. Click its *Full Name* link on the **User Accounts** page.

2. Make any changes necessary to the Account settings on the **Edit Account** form.
3. Click *OK*.
4. Click *SUBMIT CHANGES*.

Your changes are reflected in the listing.

Enabling and disabling accounts

Occasionally you may need to temporarily prevent accounts from being accessible. For example, you might have a Customer account with Observer access that allows a customer to keep track of how script updates are scheduled and executed. For security purposes, you would not want that account to be accessible at all times.

Doing so is possible without having to delete and then re-create the accounts when you later need them by disabling them.

When you disable an account, its definition remains unchanged. It can later be re-enabled to allow access to the users that know its username and password.

To disable an enabled account:

1. Select it by clicking the checkbox next to its lightbulb icon.
2. Click the *Disable* button. You see its lightbulb darken.
3. Click *SUBMIT CHANGES*.

Login under the account username is no longer possible.

To enable a disabled account:

1. Select it by clicking the checkbox next to its darkened lightbulb icon.
2. Click the *Enable* button. You see its lightbulb light up.
3. Click *SUBMIT CHANGES*.

Users with the correct access information can once again log in to Network Manager using the account.

Deleting an account

If you are sure you will never need an existing account again, you can delete it.

To delete an account:

1. Select it by clicking the checkbox next to its lightbulb icon.
2. Click the *Delete* button. You see a confirmation dialog.
3. Click *OK* in the dialog.
4. Click *SUBMIT CHANGES*.

The account is deleted from the Network Manager databases and is no longer listed. No jobs or other Network Manager database contents created by the account user(s) are affected.

Defining Publish Locations

6: Defining Publish Locations

Publish Locations are definable central locations accessible to Network Manager. A Publish Location is really just a path to a directory/folder on a particular machine. Script content is published to Publish Locations from InfoChannel Designer 3 authoring stations. Network Manager in turn retrieves the content from Publish Locations and stores it locally, ready to be sent to Players under control of a job.

The path you provide in defining a Publish Location is where content (published scripts and their media files intended for transmission to Players) must be placed. Content is published directly to this location from ICDesigner during a Publish to InfoChannel Network operation. Network Manager refers to this path to retrieve content when you run Send Content/Send Files jobs.

The Publish Location machine

There is no special software installation to be done on a Publish Location. A Publish Location is simply a file server, and only needs to be a computer accessible through a network or FTP connection to the Network Manager machine. It does not even have to run Windows; a UNIX® file server would function just as well.

The only configuration steps necessary on the Publish Location server are possibly to create a folder, and then whatever is needed to enable access to it:

- For FTP access: running FTP server software and setup of an appropriate FTP user account and password

  See Steps 1–3 on page 50 of chapter 4 regarding FTP setup on the Network Manager machine for details on enabling the FTP server component of IIS on a Windows 2000 file server.

- For UNC access: making sure the defined folder is shared, and that accounts and permissions are set appropriately to allow Network Manager to access the folder

One or more Publish Locations might be located on the same physical machine as Network Manager itself. However, Publish Locations can be located on any machines that are accessible to Network Manager.

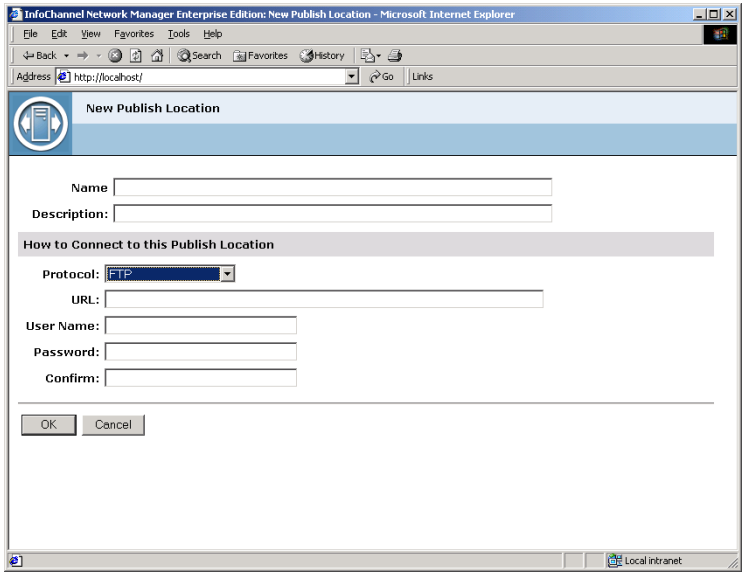
The folder you define as the actual Publish destination can be anywhere, even the root of its own partition. Wherever it is, there needs to be plenty of empty space on the drive to hold all the published content that it will receive from ICDesigner stations.

Adding a Publish Location

To add a Publish Location:

1. In Network Manager, click the *Publish Locations* icon on the control frame. You see the **Publish Locations** page. Normally all Publish Locations that have been created for this system are listed here. Initially it is blank.

2. Click the *New Publish Location* button. Enter the indicated information in the resulting form.



The **New Publish Location** form has the following fields:

a. *Name* – Enter a name for the Publish Location. It can be anything, as long as it is unique.

b. *Description:* – Enter a brief description for the Publish Location (optional).

c. *Protocol:* – Choose the protocol by which you access the Publish Location from the Network Manager machine, either *FTP* or *UNC*.

3. Make settings specific to the protocol. Depending on which protocol you choose, a different set of options appears below in the form:

FTP protocol

a. *URL:* – Enter the FTP location that this machine would use to get data from the Publish Location.

   For example, `ftp://192.168.0.10/PubContent` or `ftp://PublishServer.com/PubContent`

b. *User Name:* – Enter the username to gain access to the FTP server.

c. *Password:* – Enter the password needed for the username. (Only asterisks appear.)

d. *Confirm:* – Enter the password again (to ensure you didn't type it wrong).

OR:

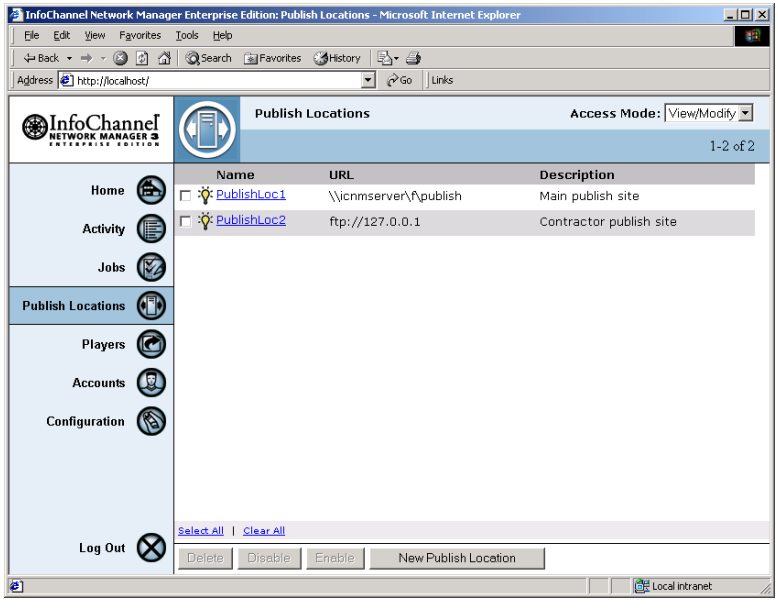
UNC protocol

a. *Path:* – Enter the UNC path to the Publish Location from this machine.

   For example, `\\publishserver\d\pubcontent`

4. Click the *OK* button to close the form.

The new Publish Location is listed on the **Publish Locations** page. Any number of Publish Locations can be defined; enter as many new ones as you need.



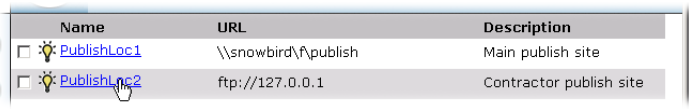
When you have finished, click *SUBMIT CHANGES* to store the new Publish Location(s) in the database.

Editing a Publish Location

The names in the *Name* column of the **Publish Locations** page are links that open the **Edit Publish Location** form. This form is identical to the **New Publish Location** form described in the preceding section.

To edit a Publish Location:

1. Click its *Name* link on the **Publish Locations** page.



2. Make any changes necessary to the Publish Location settings on the **Edit Publish Location** form.
3. Click *OK*.
4. Click *SUBMIT CHANGES*.

Your changes are reflected in the listing.

Enabling and disabling Publish Locations

Occasionally you may need to temporarily prevent Publish Locations from being accessible to jobs. For example, you might use one Publish Location for new, experimental scripts, and enable it only for testing purposes.

Doing so is possible without having to delete and then re-create the Publish Locations when you later need them by disabling them.

When you disable a Publish Location, its definition remains unchanged. It can still be selected in the creation and editing of jobs. However, when a job that uses a disabled Publish Location runs, content from that location is not actually sent.

To disable an enabled Publish Location:

1. Select it by clicking the checkbox next to its lightbulb icon.
2. Click the *Disable* button. You see its lightbulb darken.
3. Click *SUBMIT CHANGES*.

Content on the Publish Location will no longer be available to running jobs. The name of a disabled Publish Location shows up in red on the **Create Job/Edit Job** forms' *Source* pop-up.

To enable a disabled Publish Location:

1. Select it by clicking the checkbox next to its darkened lightbulb icon.
2. Click the *Enable* button. You see its lightbulb light up.
3. Click *SUBMIT CHANGES*.

Content on the Publish Location is again available to jobs.

Deleting a Publish Location

If you are sure you will never need an existing Publish Location again, you can delete it.

To delete a Publish Location:

1. Select it by clicking the checkbox next to its lightbulb icon.
2. Click the *Delete* button. You see a confirmation dialog.
3. Click *OK* in the dialog.
4. Click *SUBMIT CHANGES*.

The Publish Location is deleted from the Network Manager databases and no longer listed. Nothing on the Publish Location itself is affected.

Defining and working with Players

7: Defining and working with Players

Every Player in your installation needs to be defined within the InfoChannel Network Manager 3 database. A Player definition is a path to a unique folder associated with that Player. It may be local or remote. This folder is used by Network Manager when it creates a job for the Player.

Every Player polls (looks in) this folder at regular intervals, checking for pending jobs. Player definitions let you refer to your Players by name when defining Network Manager jobs.

Creating a Player

There are two basic steps to creating a Player on the Network Manager end:

- Creating the Player job folder in Windows
- Defining the Player in Network Manager

Step 1: Creating Player job folders

Every Player needs to have its own unique job folder. You must create these folders yourself in Windows.

The folders can be located anywhere that is accessible both to Network Manager and to the Players—on the Network Manager machine, on a separate file server, or on the Players themselves.

For simplicity and ease of administration, it makes sense to create all your Player job folders in the folder that is the FTP root for the machine where you are placing the job folder. According to the default installation recommendations, that is the `Inetpub\Ftproot` folder, as described here:

1. In Windows Explorer, select the drive on which the Inetpub\Ftproot folder is located.

Usually this is the drive where Windows is installed, but if you have modified the FTP Home Directory location (see "*Step 1: Establishing the FTP Home Directory*" on page 50 in chapter 4) it could be a different drive.

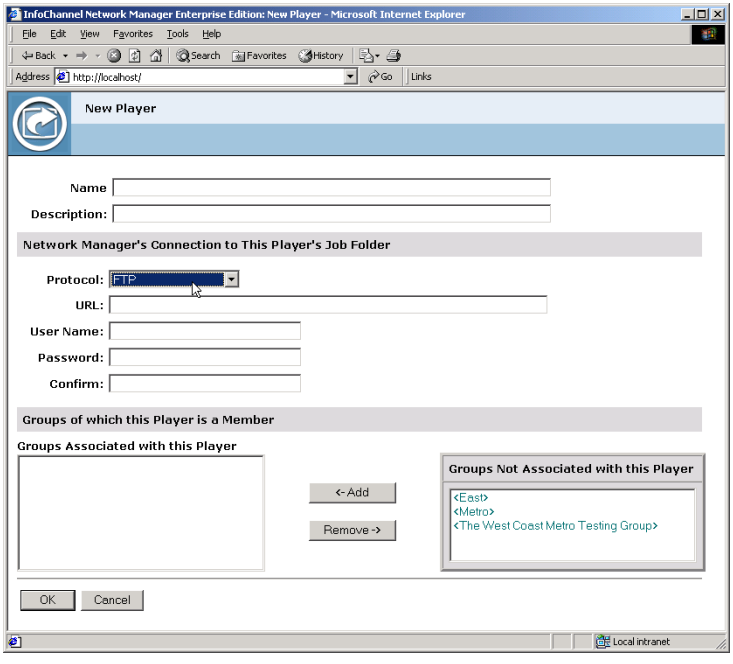
2. Open the Inetpub\Ftproot folder.
3. From the Explorer **File** menu, choose *New* > *Folder*.
4. For a job folder on the Network Manager server, use a name that clearly and uniquely identifies the particular Player, such as "LobbyPlayer".

   If you are creating the job folder on the Player machine itself, a name like "Jobs" is sufficient because there is only one job folder in that location.
5. Repeat steps 3 and 4 for each Player machine in your InfoChannel Network, giving each a name.

Step 2: Defining a Player in Network Manager

1. On the control frame, click the *Players* icon. You see the **Players** page. Normally all Players that have been created for this system are listed here. Initially it is blank.

2. Click the *New Player* button. You see the **New Player** form:



3. Enter identifying information about the new Player in the following fields:

   a. *Name* – Enter a name for the Player. It can be anything, as long as it is unique.

   b. *Description:* – Enter a brief description for the Player (optional).

4. Using the *Protocol:* pop-up, choose how Network Manager gets to the Player's job folder, either *FTP* or *UNC*.

5. Make settings specific to the protocol. Depending on which protocol you choose, a different set of options appears below in the form.

FTP protocol

a. *URL:* – Enter the FTP location that this machine would use to access the Player's job folder.

   For example, `ftp://192.168.0.10/LobbyPlayer` or `ftp://ICNMserver.com/LobbyPlayer`

> Note that there are special ways to enter the URL if you are using dial-up FTP to send jobs to job folders located on the Players themselves. See "*FTP dial-up approaches*" on page 105.

b. *User Name:* – Enter the username to gain access to the FTP server.

c. *Password:* – Enter the password needed for the username. (Only asterisks appear.)

d. *Confirm:* – Enter the password again (to ensure you didn't type it wrong).

OR:

UNC protocol

a. *Path:* – Enter the UNC path that this machine would use to access the Player's job folder.

   For example, `\\ICNMserver\FTProot\LobbyPlayer`

6. If desired, associate the Player with one or more Groups.

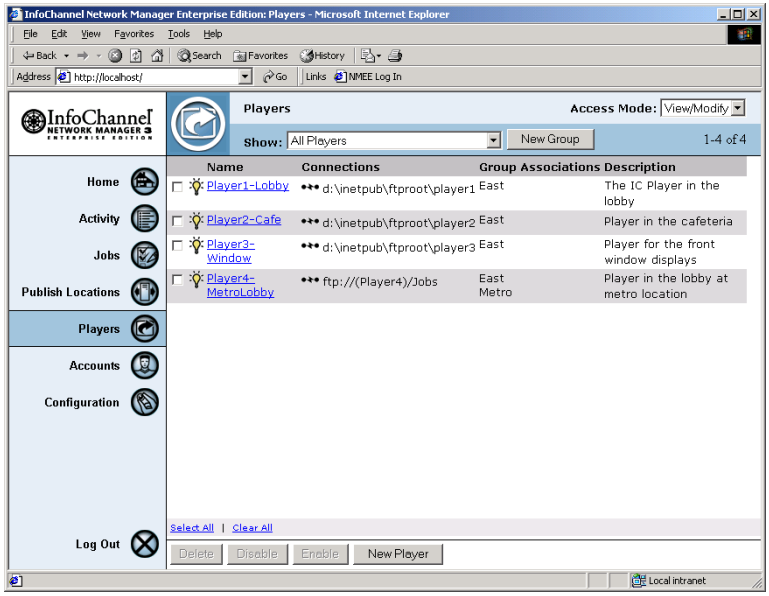
   In the *Groups Not Associated with this Player* list are the names of any Groups you have created. The names are enclosed in angle brackets (<>) and displayed in green. Click on as many as you wish to associate with this Player to select them, then click <- *Add*. The Groups you selected move to the left hand list.

   Associating a Player with a Group is optional. Group associations can be changed at any time.

If you are creating your first Player, there are no Groups yet. In any case, you can associate Players with Groups either during the Group creation process, described in the section "*Using Groups*" on page 109, or during the Player creation process as described here.

7. Click the *OK* button to close the **New Player** form.

You see the Player you just created listed on the **Players** page with any other Players.



Any number of Players can be defined.

When you have finished, click *SUBMIT CHANGES* to store the new Player(s) in the database.

FTP dial-up approaches

Using FTP dial-up (RASdial) has certain configuration prerequisites:

- create the "InfoChannel Network Manager" connection, (Step 1 on page 71)
- create the "NetManager" account on the Player (Step 3 on page 69)
- create the "Incoming Connections" connection on the Player (Step 2, page 73)

Use "NetManager" in the *User Name:* field and that account's password in the *Password:* field (steps 5b and 5c when defining a Player).

If the Player's job folder is located on the Player itself and Network Manager will use FTP dial-up to access it, there is a special format to use for the FTP URL. Network Manager uses variations in this format to allow for alternative approaches to FTP dial-up. (See below for details.)

The simplest approach uses the following format:

`ftp://(phonenumber)/<path>`

In the place of the IP address or server name in a normal URL, you substitute the Player's dial-up phone number **in parentheses** (). Follow this with a forward slash and the path from the FTP root of the Player to the job folder. A typical dial-up FTP *URL:* entry of this type would be

`ftp://(6105556666)/Jobs`

When Network Manager begins to transmit a job and sees a phone number in parentheses in the FTP URL instead of an IP address or domain, this is a signal that FTP dial-up is to be used. Network Manager extracts the phone number, looks for the connection named "InfoChannel Network Manager" and passes the number to the connection to dial.

Other dial-up approaches

A number of other possible approaches to FTP dial-up job transmission might be used depending on the needs of a given InfoChannel Network.

The procedure described above covers the simplest approach, which uses a single "generic" connection on the Network Manager server for all Players.

FTP dial-up alternatives supported in Network Manager are:

- individual connections for each Player
- accessing the Players through a dial-up router
- specifying a custom FTP port number

Using individual Player connections

Creating an individual connection for each Player is very labor-intensive if the system has many Players. However, it offers the advantages of allowing custom connection parameters per Player, and the additional security of a unique username/password for each Player.

To use this approach, you need to create connections on the Network Manager server for each Player in essentially the same way as described in creating the "InfoChannel Network Manager" connection (Step 1 on page 71). However, instead of a placeholder phone number, enter the actual Player phone number and give the connection a unique name.

Then, in the FTP URL field of the Player definition form, put the Player's unique connection name in the parentheses instead of its phone number:

```
ftp://(LobbyPlayer)/Jobs
```

To have a unique username and password for the Player, enter them in the Player definition form, and edit the "NetManager" account on that Player, giving it the name and password that you entered in the form.

Do this for each Player for which you want an individual connection.

It is possible to have individual connections for some Players and to let other Players use the generic connection. Any Players that have their phone number rather than a connection name between the parentheses in the FTP URL "fall through" and get the "InfoChannel Network Manager" connection.

Using a dial-up router

If Network Manager needs to go through a dial-up router to get to one of several Players at a site, that is easily accommodated. Create a connection to the dial-up router as you would for an individual Player (see preceding section). Put the connection name between the parentheses in the URL field. Then, immediately following the close parenthesis, put the IP address or machine name of the target Player. For example:

```
ftp://(MetroRASserver)12.38.104.57/Jobs
```

```
ftp://(MetroRASserver)Lobby1/Jobs
```

Using custom FTP port numbers

If you need to use an FTP port number other than the default (21), you can do so for any of the dial-up FTP approaches. Precede the forward slash that begins the job folder path with a colon and an alternative port number. For example:

```
ftp://(6105556666):12345/Jobs
```

```
ftp://(LobbyPlayer):12345/Jobs
```

```
ftp://(MetroRASserver)12.38.104.57:12345/Jobs
```

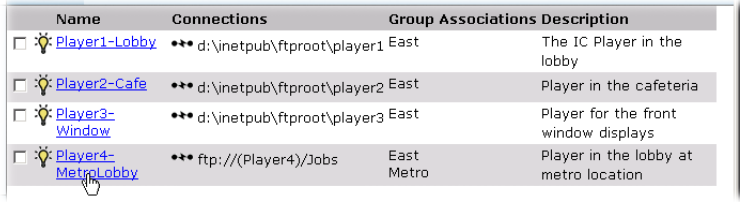
```
ftp://(MetroRASserver)Lobby1:12345/Jobs
```

Editing a Player

The names in the *Name* column of the **Players** page are links that open the **Edit Player** form. This form is identical to the **New Player** form described in the preceding section.

To edit a Player:

1. Click its *Name* link on the **Players** page.



2. Make any changes necessary to the Player settings on the **Edit Player** form.
3. Click *OK*.
4. Click *SUBMIT CHANGES*.

Your changes are reflected in the listing.

Enabling and disabling Players

Occasionally you may need to temporarily prevent Players from being accessible to jobs. For example, you might use one Player for new, experimental scripts, and enable it only for testing purposes.

Doing so is possible without having to delete and then re-create the Players when you later need them by disabling them.

When you disable a Player, its definition remains unchanged. It can still be selected in the creation and editing of jobs. However, when a job that uses a disabled Player runs, no job file is placed in that Player's folder, so the Player is not affected.

To disable an enabled Player:

1. Select it by clicking the checkbox next to its lightbulb icon.
2. Click the *Disable* button. You see its lightbulb darken.
3. Click *SUBMIT CHANGES*.

The Player will no longer be affected by running jobs that include it as a target. The name of a disabled Player shows up in red in the Where section of the **Create Job/Edit Job** forms.

To enable a disabled Player:

1. Select it by clicking the checkbox next to its darkened lightbulb icon.
2. Click the *Enable* button. You see its lightbulb light up.
3. Click *SUBMIT CHANGES*.

The Player once again responds to jobs that target it.

Deleting a Player

If you are sure you will never need an existing Player again, you can delete it.

To delete a Player:

1. Select it by clicking the checkbox next to its lightbulb icon.
2. Click the *Delete* button. You see a confirmation dialog.
3. Click *OK* in the dialog.
4. Click *SUBMIT CHANGES*.

The Player is deleted from the Network Manager databases and no longer listed. Nothing on the Player machine itself is affected.

Using Groups

Groups in Network Manager are a way to make it easier to manage your Players, particularly in large installations.

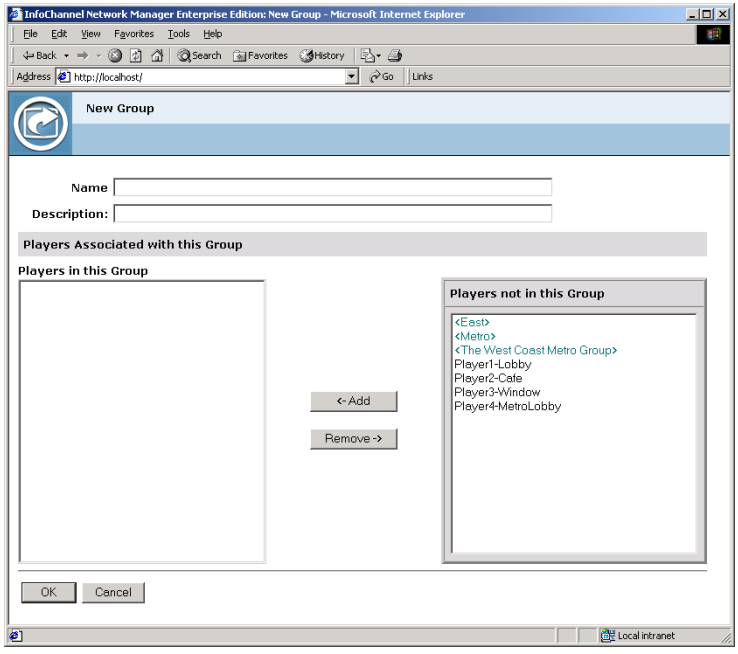
Grouping your Players makes it easier to refer to many Players at once in a single job command. In installations that comprise hundreds, even thousands of Players, this allows a dramatic saving in effort for InfoChannel Network administrators when specifying jobs. Addition-

ally, Groups give you a way to organize Players according to the factors that are meaningful to you.

Players can be associated with Groups in any manner you choose. You might associate Players with Groups based on geographic proximity of the Players, by their usual connection to particular Publish Sources, by client, by corporate division, and/or other criteria. Players can belong to no Group, or to more than one Group. Groups themselves can be grouped.

To create a Group:

1. If you are not already on the **Players** page, click the *Players* icon.
2. Click the *New Group* button at the top of the page.
3. Enter the indicated information in the **New Group** form.



The form has the following fields:

a. *Name* – Enter a name for the Group. It can be anything, as long as it is unique.

b. *Description:* – Enter a brief description for the Group (optional).

Associating Players with Groups

Under the heading *Players Associated with this Group*, on the right-hand side of the form is a list of the existing Players and Groups. To add Players (or Groups) to the new Group:

a. Select them in the *Players Not in this Group* list

b. Click the *<-Add* button. The selected item(s) are moved to the *Players in this Group* list. You can add as many Players or Groups to the new Group as you like.

4. Click the *OK* button to close the **New Group** form.

You see the Group you just created listed in the *Show:* pop-up list at the top of the **Players** page. Any listed Players that you added to the Group reflect this in their *Group Associations* column. The new Group is now available in the **New Player** and **Edit Player** forms as well.

Any number of Groups can be defined; enter as many new ones as you need.

When you have finished, click *SUBMIT CHANGES* to store the new Group in the database.

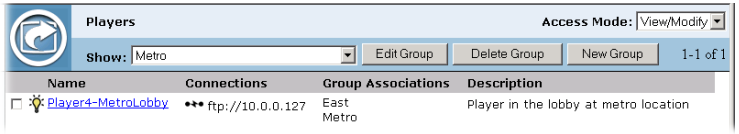
Editing a Group

If you decide you need to change the name, description or associations of a Group:

1. Make sure you are on the **Players** page.

2. Select the Group name in the *Show:* pop-up.

Just the Players and Groups in the selected Group are listed.



3. Click *Edit Group* to open the **Edit Group** form.

   The form is the same as the **New Groups** form. Make any necessary changes.

4. Click the *OK* button to close the form.

5. Click *SUBMIT CHANGES*.

Deleting a Group

If you decide you need to delete a Group:

1. Make sure you are on the **Players** page.

2. Select the Group name in the *Show:* pop-up.

   Just the Players and Groups in the selected Group are listed.

3. Click *Delete Group*.

   You see a confirmation dialog.

4. Click the *OK* button to confirm the deletion.

5. Click *SUBMIT CHANGES*.

Deleting a Group only deletes the Group definition from the database, dissolving its associations. Any Players or Groups that were part of the deleted Group are unaffected.

Associating a Player definition with an actual Player

The Player definition in Network Manager is nothing more than a path to its job folder location. Associating this definition with a physical Player requires running the InfoChannel Player Configuration utility on that Player to point the Player at its job folder.

See page 61 for details on this configuration task.

It is vital that whoever performs the configuration on the Player machines knows the folder name (established in Step 1, page 100) that corresponds to the physical Player, so that the two can be correctly matched up.

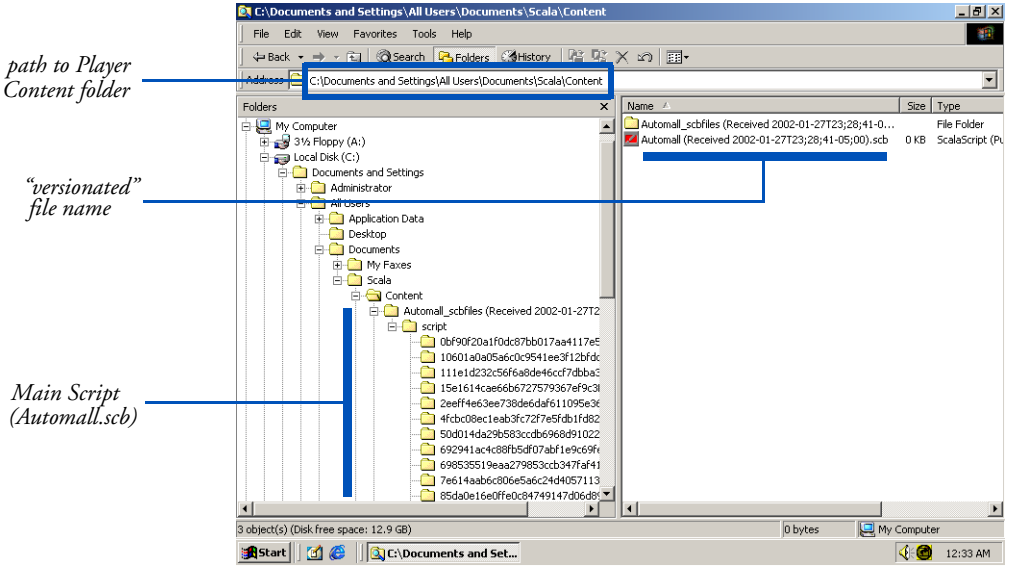
How content is stored on a Player

In normal operation it is not necessary to be concerned about what happens to content once it is sent to a Player. The InfoChannel Player software unpacks the transmitted file "package" and places it where it needs to be on the Player's hard drive automatically; the process is invisible from the Network Manager end.

However, because administrators must occasionally perform maintenance and diagnostic tasks on Players in the field, and because the filing scheme used for script content on Players is somewhat arcane, it can be valuable to understand how things are arranged.

All content files sent to a Player are stored in the Content folder located in <*systemroot*>:\Documents and Settings\All Users\Documents\Scala, where <*systemroot*> is the system root drive letter, typically C.

This illustration shows the layout of files and folders within Content for a Player that has been sent a script named "Automall.scb":



In the Content folder are one folder and one file named for the script. However the filenames of both are "versionated", containing the word "Received" and a UTC timestamp string in the following format:

(Received *yyyy-mm-dd*T*hh;mm;ss*<*hhGMToffset*>;<*mmGMToffset*>)

In the illustration above, the versionated rendering of the name "Automall.scb" is

```
Automall (Received 2002-01-27T23;28;41-05;00).scb
```

The versionation string is generated and applied when the Player receives a content file, and is the means by which the Player distinguishes efficiently between updated versions of the same content during the update process.

Notice that the "Automall <*timestamp*>.scb" file is 0 bytes in length. This is normal. This file is not the actual script file, but serves as a placeholder. The "Automall_scbfiles <*timestamp*>" folder contains the actual script and all content files for it.

Within the "_scbfiles" folder for a script are a folder named "Script", a file named "Contents.xml", and the actual script file, the name of which is prefixed by a long alphanumeric string. This string is MD5 encoding, which is a way of uniquely tagging content items to ensure that newer content can be smoothly and reliably swapped for older content of the same base name.

The "Script" folder in turn contains a series of MD5-named folders, one for each content file in the script. The actual content files are in the folders, one file per folder.

If any linked content is sent to the Player, is placed in the Content folder, at the same level as the Main Script "_scbfiles" folder. The file-names of linked content are also versionated.

Setting up jobs

8: Setting up jobs

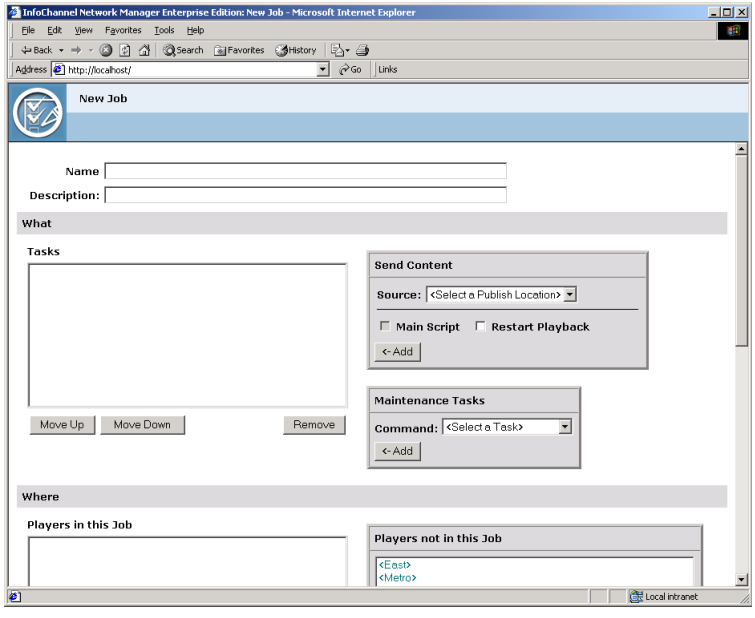
A *job* in InfoChannel Network Manager 3 is a definable action that the program takes regarding one or more Players. A job consists of one or more *tasks*. A task consists of one of the basic *commands*, usually with certain options, which specify the actual action to be taken. Jobs can be run by running them "manually", or triggering them automatically according to a regular schedule.

The most typical job is one that updates a Player's main script, by sending new content to the Player. Another example would be a job that sends a Player a new MPEG file of a radar weather map every hour. Or you could tell a set of Players to return a particular file to the Network Manager server. These are just a few examples of the many things that Network Manager can do.

Creating a job

1. Click the *Jobs* icon on the control frame. You see the **Jobs** page. Normally all jobs that have been created for this system are listed here. Initially it is blank.

2. Click the *New Job* button. You see the **New Job** form.



3. On this form, identify the job using the following fields:

   a. *Name* – Enter a name for the job. It can be anything, as long as it is unique.

   b. *Description:* – Enter a brief description for the job (optional).

The **Jobs** page below is divided into three sections:

- *What* – lets you define the action(s) that the job should perform
- *Where* – lets you define the Player(s) affected by the job
- *When* – lets you specify a schedule or other means of triggering the job automatically

4. Define the job's Task(s) under the *What* heading:

   a. Choose a command.

   This area of the page has a *Send Content* section just for that command. The *Maintenance Tasks* section has a *Command:* pop-up

that lets you choose from among the remainder of the job commands.

See the section "*Job commands*" on page 124 for information on individual commands. Follow the steps described there for each command, after which you can resume this job setup procedure.

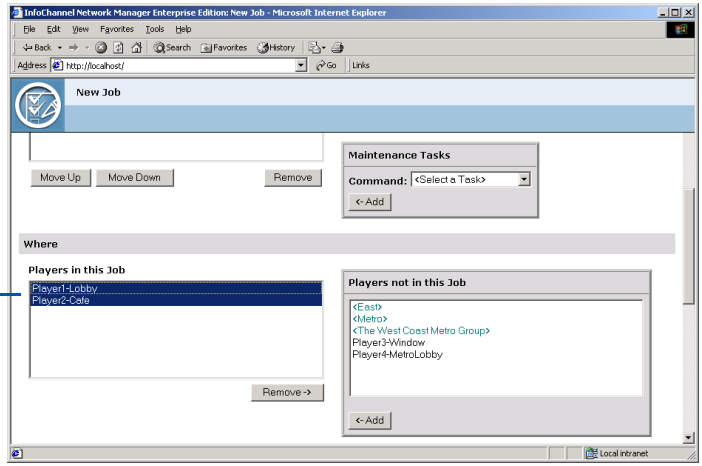
5. You can include more than one task in a job. If desired, return to step 4.

   If you have more than one task in the *Tasks* list, you can change their order by selecting them and using the *Move Up* and *Move Down* buttons.

   You can remove a task by selecting it and clicking the *Remove* button.

6. Select the Players this command should affect under the *Where* heading:

   a. The *Players not in this Job* list shows all Players and Groups. Group names are green and enclosed in angle brackets (<>). Select Players and Groups to send the content to. You can select several at once. (Players listed in red are currently disabled, and will not be affected by this job until they are re-enabled on the **Players** page.)

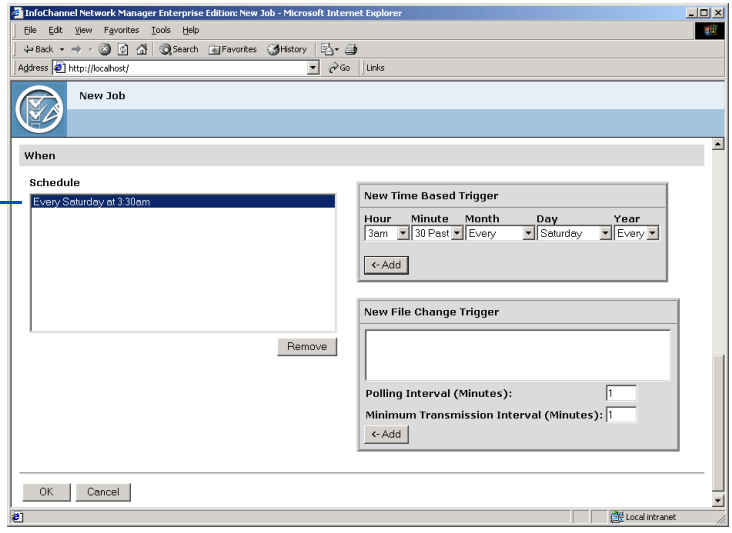


Players targeted for job

b. Click the <- *Add* button. The Player(s) you selected are moved to the *Players in this Job* list.

To remove Player names from the job, select them and click the *Remove* -> button. The selected items return to the *Players not in this Job* list.

7. Optionally, choose a way to trigger the execution of the job automatically under the *When* heading.



time based job trigger

There are three distinct ways to trigger a job:

- triggering manually
- scheduling a regular time
- detecting a change in a particular file

If you intend to trigger this job manually only, you can skip to step 8, leaving the *Schedule* list empty. For details on manual triggering, see "*Running a job manually*" on page 133.

However, it can be invaluable to have Network Manager automatically issue a job trigger event. Scheduling jobs this way increases the consistency and reliability of operations, especially in large installations. Plus it provides the flexibility of performing updates

at any time of day or night, without a human needing to be present and awake to trigger them.

You can create complex schedules by adding multiple triggers for each job, and can combine the time-based and file-based types of trigger.

Any job, scheduled or not, can still be manually triggered at any time.

To create a time-based trigger:

In the *New Trigger* section, you use the pop-ups for *Hour, Month*, *Day*, and *Year* essentially as "filters". Choosing anything from these controls limits the job trigger to occur only within the time span that they collectively specify. Choosing *Every* for any of these removes their limiting function.

The *Minute* pop-up does not have an *Every* choice. It specifies the number of minutes past the specified hour(s) that the job runs. It is not possible to specify, in a single trigger, an interval shorter than one hour. Multiple triggers, with different *Minutes* values set, are required to do that.

For example, you could choose to trigger a job on the fifteenth of every month, and/or 5 minutes past 3 am every weekday in February 2002. To trigger a job every 15 minutes, you would need to add four triggers, with *Minutes* values of *00 Past*, *15 Past*, *30 Past* and *45 Past*.

Once done, click the <- *Add* button. A description of the time trigger setting appears as a line in the *Schedule* list. Create and add other time-based triggers if desired.

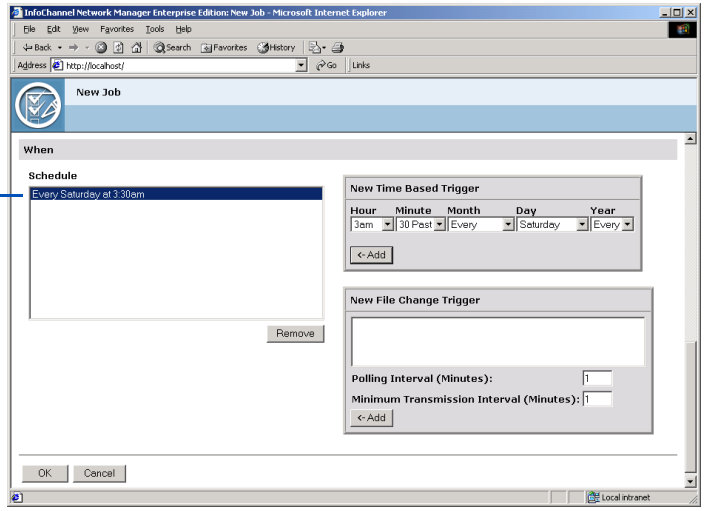
To create a file-based trigger:

In the *New File Change Trigger* section, you can select a file, and specify how often Network Manager automatically checks it on its Publish Location for changes.

For example, you could check every five minutes to see if the script has changed; if it has been re-published, Network Manager would notice and could automatically trigger a *Send Content* job to update the Players.

a. Select the name of the file to check from those listed. (Typically this is a content file, but it could also be a file sent with *Install File* or *Install System File*.) To be listed here, the file must be named in a *Send Content*, *Install File*, or *Install System File* task in this job.

file change job trigger



b. If desired, change the default *Polling Frequency (Minutes):* setting. This option determines how often the file is checked.

c. If desired, change the default *Maximum Transmission Frequency (Minutes):* setting. This option determines how often a file—having been polled and found to have changed—may be transmitted. It lets you limit the maximum frequency that this job will be triggered even if the file changes more often.

Once done, click the <- *Add* button. A description of the file trigger setting appears as a line in the *Schedule* list. Create and add other file-based triggers if desired.

8. Click the *OK* button at the bottom of the form.
9. Choose *SUBMIT CHANGES* to store your changes in the database.

The jobs you have created on the **New Job** form are listed on the **Jobs** page under the names you gave, with summary information in the *What*, *Where*, and *When* columns.

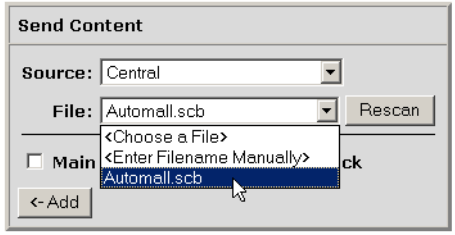
Job commands

Sending Content

The *Send Content* command transfers content (script files and/or media files) to one or more Players.

a. Choose the Publish Location from which to get the content using the *Source:* pop-up. This lists all the Publish Locations that you have already defined. (How to define a Publish Location is described in chapter 6 of this guide.)

When you choose a Publish Location, a *File:* pop-up appears. Network Manager scans the selected Publish Location for files, and lists in the pop-up everything it finds in the defined Publish Location folder. The *Rescan* button next to it lets you scan the Publish Location again, if you want to refresh the list to pick up the names of new files that have just arrived at the Publish Location. (Publish Locations listed in red are currently disabled, and will not be accessed by this job until they are re-enabled on the **Publish Locations** page.)



b. From the *File:* pop-up list, choose from the content files available on the Publish Location.

   Or, if the content file does not currently exist on the Publish Location, but you expect it to at a later time and know its name, you can enter a name by choosing <*Enter Filename Manually*> from the pop-up. Type the name into the *File Name:* field that appears.

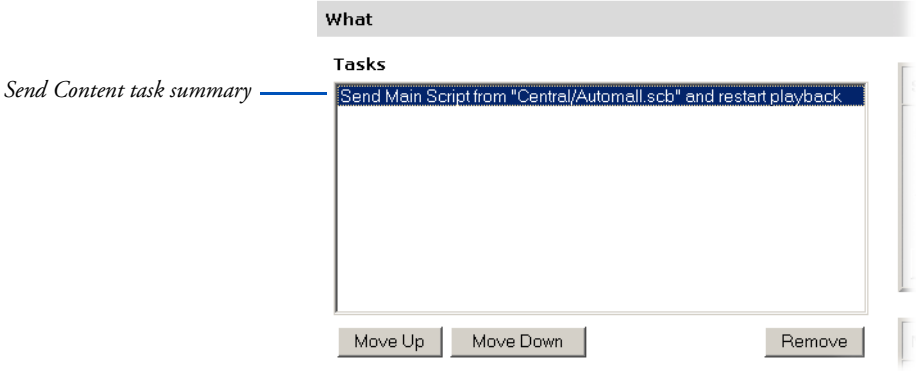
   If the filename you choose or type ends in ".SCB" (is a published script file), the *Main Script* option is enabled.

c. If the content is the Player's Main Script, turn on the *Main Script* option. Otherwise, the content is linked content, and the *Main Script* option should be left off.

d. If the change in content is urgent, or if the script does not regularly loop back to the beginning, turn on the *Restart Playback* option. This causes the current Main Script to exit and the new script to start playback as soon as it is received.

   Leaving *Restart Playback* off allows the current Main Script to continue playing. The new Main Script is not swapped in until the old one has ended and is about to restart.

e. Click the <- *Add* button to add this task to the job. A summary of the task information appears as a line in the *Tasks* list.



f. Resume the procedure with step 5 in the "*Creating a job*" section on page 120.

Maintenance Commands

The maintenance commands available from the *Command:* pop-up are:

- *Install File* – places a file other than a content file on the Player
- *Retrieve Content* – returns a specified content file from the Player to Network Manager
- *Retrieve File* – returns a specified non-content file from the Player to Network Manager
- *Install System File* – places a system file on the Player and reboots to ensure that the file is used by the system
- *Delete Files* – deletes specified files on the Player
- *Delete Unused Content* – deletes content files that are no longer being used by the Player's scripts
- *Reboot* – reboots the Player
- *Run Command* – runs a command line on the Player, such as a batch file, to accomplish miscellaneous work

The maintenance commands are discussed individually below. The way you make the *Where* and *When* settings for any of these commands is the same as the descriptions given in the "*Creating a job*" section on page 120.

Install File

The *Install File* command works much the same as *Send Content*. The primary difference is that Install File requires you to specify the destination path on the Player.

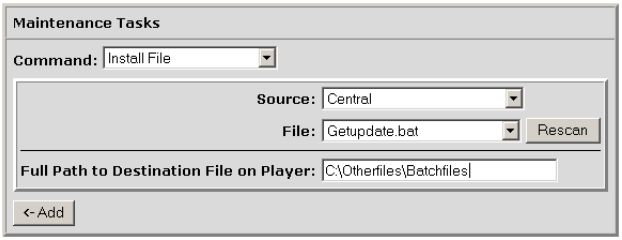
a. Choose a Publish Location from the *Source:* pop-up.

Network Manager scans the Publish Location file server for files in its content folder just as for Send Content, and provides a list of what it found in the *File:* pop-up.

b. Choose one of the listed files, or choose <*Enter Filename Manually*> and type a filename in the *File Name:* field that appears.

   Of course, if you type in a filename that is not currently listed in the *File:* pop-up, that file must exist in the folder on the selected Publish Location at the time the job is run, or the job will fail.

c. Type the path to the location where the file should be installed on the Player in the *Full Path to Destination File on Player:* field. For example, `C:\Otherfiles\Batchfiles`.



d. Click the <- *Add* button to add this task to the job. A summary of the task information appears as a line in the *Tasks* list.

e. Resume the procedure with step 5 in the "*Creating a job*" section on page 120.

Retrieve Content

The *Retrieve Content* command gets a particular content file from a Player and returns it to the Network Manager server. This can be useful as a way of restoring a script or other content file that was accidentally deleted or corrupted at the authoring end, or to check what is actually being shown on a Player when questionable content playback has been reported from the field.

a. In the *Content Name:* field, type the name of the content file that you wish to be returned to the Network Manager server. You must know the name of the file. The command looks in the Content folder on the Player so only the name is required, not a full path.

b. Click the <- *Add* button to add this task to the job. A summary of the task information appears as a line in the *Tasks* list.

c. Resume the procedure with step 5 in the "*Creating a job*" section on page 120.

Retrieved content files are placed in the following location within the Network Manager workspace folder:

```
...\Receive\Content\<playername>
```

Retrieve File

The *Retrieve File* command is similar to *Retrieve Content*, but it can get any file from a Player to return it to the Network Manager server, not just a content file. This command can be useful in verifying proper Player configuration (checking device driver versions, for example).

a. In the *Full Path to File on Player:* field, type the path to the file that you wish to be returned to the Network Manager server. You must know the file's location and name.

b. Click the <- *Add* button to add this task to the job. A summary of the task information appears as a line in the *Tasks* list.

c. Resume the procedure with step 5 in the "*Creating a job*" section on page 120.

Most retrieved files are placed in the following location within the Network Manager workspace folder:

```
...\Receive\Files\<playername>
```

If the retrieved file is a log file, however, it is placed in this location within the Network Manager workspace folder instead:

```
...\Receive\Logs\<playername>
```

Install System File

The *Install System File* command lets you send a file to the Player and then reboot the Player, in single operation. The intended use is for updating files, such as device drivers or other system files, that might be in continual use on the Player. Files that are in use ("locked") cannot be updated seamlessly—a reboot is required to stop and expunge the file, so that the newer file can be installed in its place and activated.

Using the command is identical to *Install File*:

a. Choose a Publish Location from the *Source:* pop-up.

   Network Manager scans the Publish Location file server for files in its content folder just as for Send Content, and provides a list of what it found in the *File:* pop-up.

b. Choose one of the listed files, or choose <Enter Filename Manually> and type a filename in the *File Name:* field that appears.

   Of course, if you type in a filename that is not currently listed in the *File:* pop-up, that file must exist in the content folder on the selected Publish Location at the time the job is run, or the job will fail.

c. Type the path to the location where the file should be installed on the Player in the *Full Path to Destination File on Player:* field. For example, `C:\Program Files\Windows Media Player\Mplayer2.exe`.

   When the job runs, the system file is transferred to the Player, then the Player is rebooted. After the reboot, the new system file runs from the destination location you specified.

d. Click the <- *Add* button to add this task to the job. A summary of the task information appears as a line in the *Tasks* list.

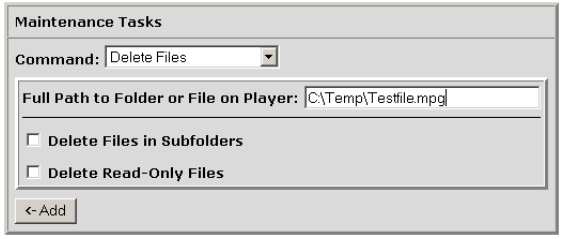
e. Resume the procedure with step 5 in the "*Creating a job*" section on page 120.

Delete Files

At times you may need to delete files on a Player. The *Delete Files* command allows you to do so. You can delete any non-locked file or folder on a Player with this command, provided that you know the full path to the item.

Note, however, that for the common Player maintenance task of deleting old content that is no longer needed, the *Delete Unused Content* command (discussed in the following section) is preferable, as it is both simpler to use and safer.

a. In the *Full Path to Folder or File on Player:* field, type the path to the item you want to delete, beginning with its drive letter. For example, `C:\Temp\Testfile.mpg`.



b. If the item is a folder and you want to also delete the contents of any subfolders, select the *Delete Files in Subfolders* option.

c. If you want the deletion to include files with the Read-Only attribute set, select the *Delete Read-Only Files* option.

d. Click the <- *Add* button to add this task to the job. A summary of the task information appears as a line in the *Tasks* list.

e. Resume the procedure with step 5 in the "*Creating a job*" section on page 120.

Delete Unused Content

As scripts on the Player are continually updated, older scripts and their files that are no longer in use will accumulate. Unneeded files can fill the Player's hard drive, leaving insufficient room for further updates

and general operation. This can happen quickly when much content is in the form of large digital video files.

The *Delete Unused Content* command provides a simple way to reclaim drive space from outdated files. It identifies any content that is no longer in use and deletes it from the Player. Scripts and media files are deleted only if the Main Script and its sub-scripts, if any, make no use of them.

a. The *Delete Unused Content* command has no options. Just choose it from the *Command:* pop-up.

b. Click the <- *Add* button to add this task to the job. The command appears as a line in the *Tasks* list.

c. Resume the procedure with step 5 in the "*Creating a job*" section on page 120.

Reboot

A Player that is not responding or not operating normally can sometimes be revived by rebooting it. Regular reboots of Players (generally weekly, at the least conspicuous time) are recommended as general maintenance practice to keep the Player functioning smoothly.

a. The *Reboot* command has no options. Just choose it from the *Command:* pop-up.

b. Click the <- *Add* button to add this task to the job. The command appears as a line in the *Tasks* list.

c. Resume the procedure with step 5 in the "*Creating a job*" section on page 120.

Run Command

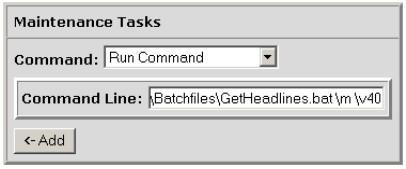
Using the *Run Command* maintenance command, you can run almost any program on the Player that can be executed from a command line, provided that it is not something that interferes with normal Player operation. It is similar to using a Launch EX event within a script.

Typically, this command would be used to do something like run a batch file that fetches content from some source external to Network

Manager Publish Locations. However, the range of possible applications for this command is limitless.

a. Type the command in the *Command Line:* field just as you would in a Windows Command Prompt window, with whatever paths and switches are appropriate. For example,

```
C:\Otherfiles\Batchfiles\GetHeadlines.bat \m \v40
```



To prevent the possibility of script playback being disrupted, the command you enter will automatically be forced to run minimized. The Player software is designed to block attempts by any other software to switch out the InfoChannel Player application.

b. Click the <- *Add* button to add this task to the job. A summary of the task information appears as a line in the *Tasks* list.

c. Resume the procedure with step 5 in the "*Creating a job*" section on page 120.

Editing a job

The job names in the *Name* column of the **Jobs** page are links that open the **Edit Job** form. This form is identical to the **New Job** form described in the preceding section.

To edit a job:

1. Click its *Name* link on the **Jobs** page.

2. Make any changes necessary to the job settings on the **Edit Job** form.
3. Click *OK*.
4. Click *SUBMIT CHANGES*.

Your changes are reflected in the listing.

Running a job manually

In addition to automatic, scheduled execution, jobs can be run manually whenever necessary by the Network Manager manager.

To run a job manually:

1. Select it by clicking the checkbox next to its lightbulb icon.
2. Click the *Run Now* button. You see the **Jobs** page go blank except for the word "Working..." in the center. When the job has finished executing, you see the **Jobs** page again.

There is no need to submit changes, because running manually does not change anything in the Network Manager databases. If changes do exist, you see a dialog asking if you want to save them.

Enabling and disabling jobs

Occasionally you may need to temporarily prevent scheduled jobs from running. If you know that a Player is malfunctioning or otherwise unable to communicate, for example, you can avoid repeated error messages in the activity logs by keeping its jobs from running.

Doing so is possible without having to delete and then re-create the jobs when you later need them by disabling them.

When you disable a job, its definition remains unchanged. It only stops responding to time based or file change triggers that would cause it to run.

A disabled job can still be run manually using the *Run Now* button.

To disable an enabled job:

1. Select it by clicking the checkbox next to its lightbulb icon.
2. Click the *Disable* button. You see its lightbulb darken.
3. Click *SUBMIT CHANGES*.

The job will no longer run when scheduled. It still can be run manually.

To enable a disabled job:

1. Select it by clicking the checkbox next to its darkened lightbulb icon.
2. Click the *Enable* button. You see its lightbulb light up.
3. Click *SUBMIT CHANGES*.

The job will resume its run schedule.

Deleting a job

If you are sure you will never need an existing job again, you can delete it.

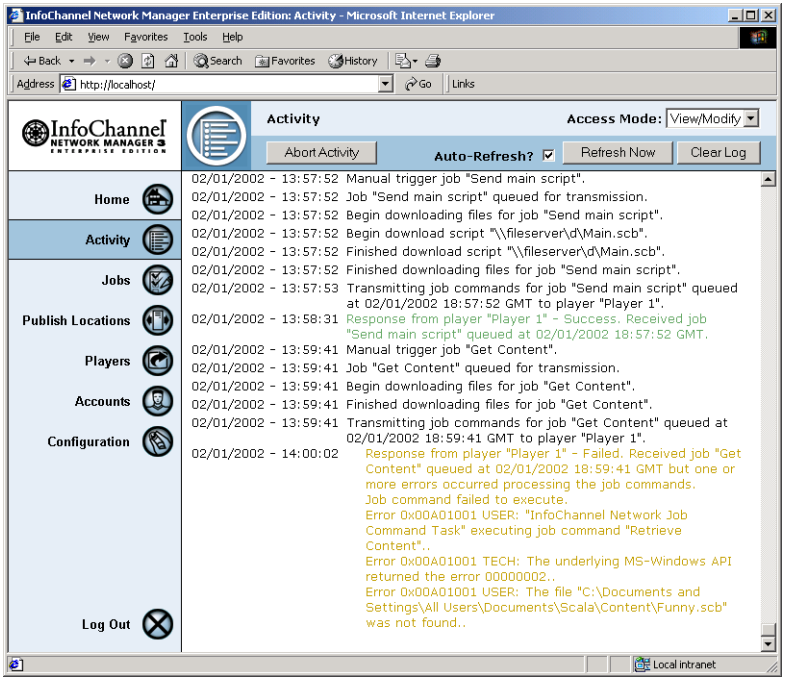
To delete a job:

1. Select it by clicking the checkbox next to its lightbulb icon.
2. Click the *Delete* button. You see a confirmation dialog.
3. Click *OK* in the dialog.
4. Click *SUBMIT CHANGES*.

The job is deleted and no longer listed.

Monitoring job activity

The **Activity** page, accessible by clicking the *Activity* icon in the control frame, lets you view messages that Network Manager outputs as it is performing job-related activity.



This is the same information that is recorded in the log files, and can be useful in tracking down problems with your installation, as well as helping Scala identify and eliminate any problems in the software.

Job activity can be displayed with varying degrees of detail. The detail setting is made on the **Configuration** page. Lower levels of detail omit messages about less-significant steps in the job process.

All entries are timestamped, and the Activity page uses different colors to help you distinguish different types of entries:

- Black: Network Manager actions
- Green: Job success responses from Players
- Amber: Unsuccessful job responses from Players
- Red: Errors in communication or other Network Manager server errors

On this page, you can automatically refresh the page, displaying the most recent messages at the bottom. When *Auto-Refresh?* is turned on, the refresh occurs every five seconds. If you turn this option off to avoid the constant replotting of the page, you can update the display manually by clicking the *Refresh Now* button.

To make the **Activity** page easier to read, you can clear the display of previous messages so that new activity messages start appearing from the top down. Click *Clear Log* to do this. *Clear Log* only clears the display; the activity log file is not affected.

If the messages on the **Activity** page indicate that a job is "stuck", for example continually retrying to send a job to a machine that is down, you can stop the retries by clicking the *Abort Activity* button.

Working in InfoChannel Network Manager

9: Working in InfoChannel Network Manager

Chapter 8 of this User's Guide covered creating jobs, detailing the setup of jobs using the individual job commands.

This chapter discusses how you work in InfoChannel Network Manager from a task-oriented perspective. It will help you to understand how best to accomplish the various tasks that will take up the bulk of the time you spend in Network Manager.

In an operating InfoChannel Network, the work you do in InfoChannel Network Manager falls into two general categories:

- Content update tasks
- Maintenance tasks

Updating Player content

The most common Network Manager job is the *Send Content* job, covered on page 124 of chapter 8.

The nature of InfoChannel Network applications is that content (scripts and/or their constituent media files) constantly need to be updated. You update content on Players by sending newer content files using a Send Content job.

There are three ways to update content:

- Sending a new script as the Main Script
- Sending a content file for use as linked content
- By a custom-programmed process external to Network Manager

Sending Main Scripts

When you send a script as a Main Script, it completely replaces the Main Script currently playing on the Player.

Restarting

One decision for you to make is whether the updated script replaces the current one immediately (interrupting the current script's playback) or waits until the current script comes to its natural end before being swapped in.

Turn on the *Restart Playback* option if the update is urgent (for example, late-breaking news, or a fix for an embarrassing script mistake). Another reason for using the Restart option is if the script contains an internal loop such that it never normally restarts from the beginning.

Atomic scripts

An ICDesigner script is published and transmitted "atomically", as a single file containing the script itself and all its media files. When scripts are received by a Player, they are unpacked into separate folders and files according to a special naming scheme and structure (see "*How content is stored on a Player*" on page 113 in chapter 7). However, it is not possible to independently update constituent media files of a script unless those files were authored as "linked content" (see "*Sending linked content*" on page 140).

Storage of content on the Player

When new, updated content is sent to the Player, older versions of the same files with the same file names are automatically deleted. However, some content files that outlive their usefulness are not replaced, they simply are no longer referenced. When this happens, the unused content files are not automatically deleted; they remain on the Player.

If scripts change frequently, and/or they contain large media files, such as MPEG digital video, the Player hard drive can start to fill with files that are no longer used. If the hard drive becomes too full with such accumulated files, system performance is impaired, and further script updates may not succeed.

This is the reason for the Network Manager *Delete Unused Content* command (see "*Deleting unused content*" on page 143).

Sending linked content

Linked content is the InfoChannel Network approach to allowing content files—sub-scripts or media files—to be independently updated. The benefits of using linked content are considerable:

- Transmission bandwidth savings—linked files can be updated without having to re-send the entire script
- Flexibility in scheduling updates—linked content can be updated more frequently or less frequently than the full script
- Smooth file replacement—even files that are locked (in use) can be transparently and efficiently replaced
- Worry-free updating—timestamp versionation means the latest version of a linked file is guaranteed to be used the next time it is displayed
- Flexibility in the source of the content—files do not have to come through Network Manager at all

A linked script is stored on the Player alongside the Main Script, in the same layout. All linked individual media files are placed in the Content folder at the same level as the "_scbfiles" folders, and have their filenames versionated with a "Received" UTC timestamp.

From Network Manager

Sending linked content using Network Manager is basically the same as sending the Main Script: just select it from the *File:* pop-up in the *Send Content* section of the **Edit Job** form. However, if it is a script, make sure the *Main Script* option is off. (Scripts sent as linked content are by definition sub-scripts.)

To be available from the *File:* pop-up, individual files must be manually placed on a Publish Location machine in the same folder as the .scb files of published scripts.

From external sources

Sending or obtaining linked content from external sources takes more doing than using Network Manager, but it can be a very powerful way

to expand the range of content in your scripts. Some typical examples of how this approach could be used:

- a news headline MPEG file is uploaded hourly from a national news service Web site
- Financial data is parsed from a database, uploaded as text and streamed into a cued Text Crawl
- Local traffic information is downloaded by the Player

Doing this requires a third-party utility and/or custom programming that can access the desired data and perform the communication tasks involved. A detailed description of how to accomplish this is beyond the scope of this guide, but these tasks are not fundamentally difficult for someone with technical expertise.

The key to success is that at the Player end, the linked file must end up in the right place with the right name.

How linked content works

To manage and work with linked content, it is important to understand what it is and isn't.

Linked content is not a special type of content. Files designated as "linked" are ordinary script or media files, no different from what they were before they were linked, with the exception that when they reach the Player, their filenames have a UTC timestamp string inserted into them to correctly "versionate" them.

The filename is the crucial factor in making linked content work. The name of the linked file on the Player must match the name that was used as the link in authoring the script—say, "Headlines.mpg"—but with a versionation timestamp string inserted into it. For example:

Headlines (Received 2002-01-23T22;50;16-04;00).mpg

As long as a file by this base name exists in the Content folder on the Player, then any script that was authored using linked content named "Headlines.mpg" would link to this file. If there is more than one "Headlines <*timestamp*>.mpg" file in the Player's Content folder, the

one with the latest timestamp in the filename is the one linked to. If, while a linked file is in the process of playback, a newer version of that linked file arrives at the Player, the script is not interrupted. The next time the script needs to play back that file, the newest one is used.

Files become links during script authoring by being loaded into the script from the Linked Content folder, a special location defined on the InfoChannel Designer 3 authoring station.

Files loaded from the Linked Content folder look and feel no different from ordinary files to script authors. However, the files that the authors see function only as placeholders for preview positioning and timing purposes. When a script with linked content is published to the InfoChannel Network, the linked content files the authors saw are not included with the script—only references to their names.

Making sure linked content works

The InfoChannel Network administrator's responsibilities to ensure that linked content works properly include:

- Giving script authors appropriate files to use as placeholders

  Files placed in the Linked Content folder for authoring purposes should be representative in size, running time, etc., of the actual content files that will be linked to. The ICDesigner Start menu has a shortcut to the Linked Content folder to make it easy to drop files there.

- Making sure script authors know where to use the Linked Content files

- Sending the actual content files to the Players

  The names of the content files sent must match the names of the files used in authoring exactly. (The timestamping of the filenames is done automatically by the Player software when the files are received. Files that have been retrieved from a Player and are thus already timestamped can be used as linked content like any file; the timestamp is ignored for purposes of matching the file name, and is updated when the file is received on the Player.)

Performing Player maintenance

Aside from updating content, an InfoChannel Network administrator's other primary work within Network Manager is Player maintenance. Keeping up with maintenance tasks help ensure that the Network continues to function smoothly and reliably.

Maintenance can be divided into regular and occasional categories.

Regular maintenance tasks

There are three maintenance tasks that need to be done on a regular basis on any InfoChannel Network installation:

- Rebooting the Players
- Deleting unused content
- Reviewing log files

Rebooting the Players

Scala recommends that all Players be rebooted weekly. In a world of bulletproof, bug-free device drivers and system software, this would not be necessary, but in the real world, it is only prudent. Planned reboots are far less disruptive than crashes due to memory leaks or corrupted files.

Set up a *Reboot* job with a time-based trigger for the least noticeable time, for example, Every Sunday at 10 minutes past 4 am.

Deleting unused content

As noted in chapter 7, unused content is not automatically deleted from a Player. Old content that is no longer used can build up, eventually filling the Player's hard drive and preventing it from functioning.

The solution to this problem is to schedule regular *Delete Unused Content* jobs for all Players. This command examines the Content folder on the Player. Any scripts or linked content that is not referenced directly or indirectly by the Main Script is deleted by this command.

How often you need to run a *Delete Unused Content* job will depend on the frequency of content updates, the degree of script changes in the updates, and the amount of free space on the Player's hard drive.

Reviewing Network Manager log files

Part of an InfoChannel Network administrator's daily routine should be a review of the Network Manager **Activity** page. It lists all Player jobs issued and the results of the jobs. Errors, listed in red, indicate problems that must be investigated and resolved.

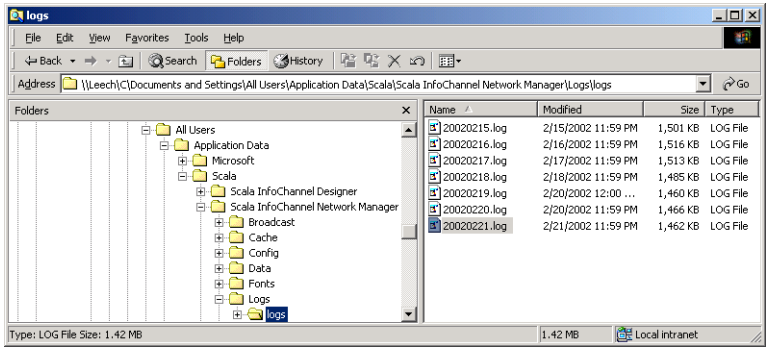
If you want to examine the activity record in more detail than simply scrolling through a list of messages, you can open the file Ic.log, which is a text file version of what appears in the **Activity** page. By opening Ic.log in a text editor, for example, you could use a text search to quick scan through all messages pertaining to a specific Player.

The Ic.log file for the Network Manager machine is located in:

```
<systemroot>:\Documents and Settings\All Users\Application
Data\Scala\Scala InfoChannel Network Manager\Logs
```

where <*systemroot*> is the drive letter where Windows is installed.

Ic.log contains the activity messages for the current day. At midnight each day (assuming the Network Manager Engine is running) the Ic.log file is renamed with a datestamp to "<*yyyymmdd*>.log" and placed in a folder named "logs" that is within the Logs folder named above, as illustrated here:



Then a new Ic.log is begun. A week of archived log files is retained in this folder. Every day the oldest file is deleted after the newest one is added.

Reviewing Player log files

Per-Player log files are also maintained on each Player. If you are having problems with a particular Player and want to study its activity record in detail without having to wade through the messages pertaining to other Players, you can retrieve Player log files.

On a Player, log files are stored in the following location:

```
<systemroot>:\Documents and Settings\All Users\Application
Data\Scala\Scala InfoChannel Player\Logs
```

The log generation and archiving scheme on the Players is the same as on the Network Manager machine: an Ic.log file for the current day, and the previous week's datestamped .log files stored in the Logs\logs folder.

Use a *Retrieve File* job to return a log file from a specific Player, or from several Players at once. Use the above path, substituting the correct drive letter for <*systemroot*> and appending "\Ic.log" or "\logs\ <*logdate*>.log".

Retrieved log files are placed in the following location within the Network Manager workspace folder:

```
...\Receive\Logs\<playername>
```

Occasional maintenance tasks

Various other tasks that are periodically necessary to keep Players running smoothly can be performed remotely using Network Manager jobs.

Bear in mind that the *Install System Files*, *Install Files*, *Delete Files*, and *Run Command* job commands should be used with care, as they are potentially hazardous.

If you overwrite, delete, or run a file on a remote computer, you cannot directly and immediately observe the results. Unexpected results

could include freezing or crashing the machine. Beyond that point, Network Manager would not be of any use until the Player could be rebooted manually.

Installing files

To send files to a Player that are something other than script content, use an *Install File* job. The *Install File* command allows you to specify a full path, so you can put the file anywhere on the Player.

Use this kind of job to send batch files, software archives to be installed, and other types of files.

If a file by the same name already exists in the location given in the command, that file is overwritten by the file you send, so be careful.

Installing system files

At times you may need to install a new driver, restore a corrupted DLL, or replace some other system-level file on a Player. Since such files are normally in constant use, just overwriting the file is not enough. The Player must be rebooted for the new file to be activated.

An *Install System File* job is what you should use in such cases. This command is essentially the same as *Install File*, except that it forces a reboot of the Player after it installs the file. You can include as many *Install System File* tasks in a single job as you need to install multiple system files; the Player is rebooted only once, after all files have been installed.

If a file by the same name already exists in the location given in the command, that file is overwritten by the file you send, so be careful.

Retrieving content

Generally, content flows from Network Manager to Players. However, it is sometimes useful to get content from Players. The most typical reasons:

- to restore script or other media files mistakenly deleted from the Network Manager machine or authoring machine
- to check linked content that was sent to Players from an outside source, to be sure that the content is what it is supposed to be

Use a *Retrieve Content* job for this task. You only need to know the name of the script or linked file, since all content files reside in the Content folder on the Player.

A retrieved script remains in its published form—a 0-byte <*scriptname*>.scb files accompanied by a <*scriptname*>_scbfiles folder containing all the content. The retrieved script can be loaded back into ICDesigner by loading the 0-byte .scb file, and can be edited, played back, and republished like any script. However, the paths to the original content files on the authoring station will no longer be valid, as the published script references the content in its _scbfiles folder.

Retrieving files

Previously mentioned regarding retrieving log files from Player, *Retrieve File* job can have other uses:

- checking file versions
- getting a Player-specific batch file or Windows script file back for editing

If for any reason you need to get a file other than a content file from a Player, use a *Retrieve File* job.

Deleting files

Files other than content on a Player occasionally need to be deleted. Use a *Delete File* job for this. You need to know the exact path to the file.

Because the *Delete File* command can be particularly hazardous, it has options that allow you to decide whether to exclude sub-folder contents, read-only files, and locked files from its action.

Running commands

A *Run Command* job lets you execute an arbitrary command line on the Player. Thus you can run any program or batch file that does not

require interactive input. Among many potential uses, some likely ones would be:

- running a batch file that downloaded linked content from an external site
- running a disk defragmenting utility
- unpacking and running a software installer

Troubleshooting tips

10: Troubleshooting tips

General tips

If you are having trouble with Network Manager, the first thing to do is to double-check your installation of the software, starting with the Windows pieces. Did you deviate in some way from the instructions here? Or, if you followed the installation instructions faithfully, did you later modify the system in some way—install/reinstall a patch, driver, or update of some kind? Did you change your system configuration from what is specified here?

The surest way to begin with a working system is to follow the installation and configuration steps as closely as possible. If your particular system happened to require some special custom steps, chances are good that the problems are in some way related to them.

Assuming your software was installed and configured sufficiently correctly that you can run jobs, the next place to look is the **Activity** page in Network Manager. Running any job produces descriptive output on this page.

If you are having problems running jobs, make sure that the Activity logging detail option is set to Maximum on the Configuration page. Then run a problem job and look at the output on the Activity page. Every step of the job execution process is described. Errors are highlighted in red and describe the nature of the failure. The error messages should serve to point out the where the problem is occurring.

Problem:	**Network Manager does not appear to function**
Reason and possible solutions:	Cgi-bin permissions may not be set correctly. 1. Right-click on the cgi-bin directory and choose *Properties*. 2. Choose the *Security* tab. 3. Make sure that for the listed users, that Read and Execute permissions are set. This is necessary for the Network Manager application. If this permission is not set, the application will not function. The installation process should set this property automatically.

Problem:	**Player is not responding**
Reasons and possible solutions:	There are many potential reasons that a Player might not be responding to jobs targeted at it. 1. The Player cannot reach its job folder. There are several possible causes: ❖ A job folder with the specified name does not exist in the FTP or UNC location in the Player's definition. A folder of the correct name must be created in the correct location. ❖ The FTP or UNC location for the job folder in the Player's definition does not match the location configured on the Player machine. The Player Configuration utility must be run on the Player and the location corrected. ❖ The Player cannot reach its job folder via UNC because the permissions set on the folder for the Player user are not sufficient. The Player user account on the Network Manager machine must have "Change" permission. ❖ The Player cannot reach its job folder via UNC because the folder is not shared. The folder must be made shared.

Problem: (continued)	Player is not responding
Reasons and possible solutions: (continued)	❖ The Player cannot reach its job folder via FTP because the username and/or password configured on the Player do not match what the FTP account for Players on the Network Manager machine specifies. The Player Configuration utility must be run on the Player and the login information corrected. ❖ The Player cannot reach its job folder via FTP because the permissions set for the FTP account are not Read/Write/Modify. The Player FTP account permissions on the Network Manager machine must be made Read/Write/Modify. 2. The Network Manager cannot reach the Player's job folder ❖ The Network Manager cannot reach the Player's job folder via UNC because the permissions set on the folder for the Network Manager user are not sufficient. The Network Manager user account on the machine hosting the folder location must have "Change" permission. ❖ The Network Manager cannot reach the Player's job folder via UNC because the folder is not shared. The folder must be made shared. ❖ The Network Manager cannot reach the Player's job folder via FTP because the username and/or password configured on job folder location do not match what the FTP account on the Network Manager machine specifies. The Computer Management tool must be run on the machine hosting the folder location and the FTP login information corrected. ❖ The Network Manager cannot reach the Player's job folder via FTP because the permissions set for the FTP account are not Read/Write/Modify. The Network Manager's FTP account permissions on the machine hosting the folder location must be made Read/Write/Modify.

Problem: (continued)	Player is not responding
Reasons and possible solutions (continued):	3. The Player is disabled. Enable the Player on the Network Manager **Players** page. 4. The Player is not actually targeted. Check the job definitions on the Network Manager **Jobs** page to make sure that all desired Players have been added to the *Players in this Job* list for each. 5. Communications hardware failure. A network card, modem, cable, or other related hardware connecting the Player to the Network Manager machine is faulty. Hardware problems must be diagnosed and fixed. 6. Communications infrastructure failure. A phone company trunk line, Internet router, network server, ISP, or other intermediary device or service is down. Try to diagnose the location of the failure and contact whoever is responsible to find out how long repairs will take. 7. Player software failure. If the Player has crashed, you may be able to revive it by sending a Reboot job. If the crash was so severe that the Player Engine is no longer functioning, rebooting the Player manually will be necessary. A diagnosis of the cause of the crash (full hard disk, corrupted driver, virus infection, etc.) should be made and the situation remedied. 8. Player hardware failure. The Player machine itself may have had a hardware failure, or had its power or communications inadvertently disconnected. A visit from a field technician will be necessary.

Problem:	Linked content not appearing as expected on Player
Reasons and possible solutions:	1. Linked content referenced by a script may not have been sent to the Player. Run a *Send Content* job to send the referenced content files, or execute some external process that accomplishes the same purpose (a batch file or custom program). 2. Linked content referenced by a script may be on the Player but not have the correct name. The base name of the linked content files on the Player must match the file names referenced in the script. The file names of linked content on the Player must also contain a "versionation" string in the correct format, with an accurate timestamp. 3. Linked content referenced by a script may not be on the Player in the correct location. All linked content files must be in the Content folder, and not in subfolders within Content. 4. Linked content files placed on a Player may not match, in appearance or duration, the placeholder files used to represent them during authoring. Care must be taken to ensure that updates of linked content are consistent with their placeholders, or that authoring techniques are adjusted to account for possible variations.

Problem:	Poor Player performance
Reasons and possible solutions:	1. The Player hard disk may be full. Run a *Delete Unused Content* job. 2. Shoddy device drivers or other third party software may be filling up free memory. Update the software with an *Install System File* job. If the problem software cannot be replaced, scheduling more frequent *Reboot* jobs may help. 3. The file system may be fragmented. Defragment the Player hard drive. Consider moving the FTP root location to a location other than the one on which Windows is installed.

Problem:	**Content is not being updated**
Reasons and possible solutions:	1. The Publish Location specified in *Send Content* jobs is disabled. It must be re-enabled before content on it will be sent. 2. The Publish Location from which *Send Content* jobs are drawing is not the Publish Location to which updated scripts are being published. Either script authors must adjust the location to which they are publishing, or the defined path to the Publish Location in Network Manager must be changed to reflect the actual location where updated scripts are being put. 3. *Send Content* job is disabled. Re-enable the job on the **Jobs** page. 4. A time-based trigger for the *Send Content* job was not set up correctly. Review the scheduling on the **Jobs** page to be sure that it is triggering at the intended times.

Problem:	**Can't edit databases**
Reason and possible solution:	If you do not see icons for certain Network Manager pages, or the controls that allow you to edit Network Manager items seem to be missing, the problem is that you do not currently have editing access. There are two possible reasons: 1. You are in *View Only* mode. With the *Access Mode:* pop-up, switch to *View/Modify* mode. 2. The Network Manager account you are logged in under does not have editing privileges. An Observer account has no editing privileges, and cannot be switched to *View/Modify* mode (the *Access Mode:* pop-up is not available). A Manager account cannot edit account or configuration settings, so the *Accounts* and *Configuration* icons are not in the control frame. Log in under an account with sufficient privileges if possible.

Problem:	Difficulty with the XML parser installation
Reason and possible solution:	If you have trouble installing the XML parser, bear in mind that the XML parser installer requires permissions to the WINNT Installer folder.

Index

D

E

F

G

H

I

J

L

M

N

P

R

S

T

U

V

W

X