

TUTORIAL 2: Creating Applications in Microcosm Pro



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Additional information about Microcosm is available on our World Wide Web site:

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Contents

1 Conventions	1
1.1 Typographical Conventions	1
1.2 Window Systems	1
2 An Introduction to Microcosm Applications	3
2.1 What is a Microcosm “application”?	5
2.2 What is involved in authoring an application?	6
3 The Create Application Wizard	7
3.1 Getting started	9
3.2 Naming the application	10
3.3 Making a structure for your application	12
3.4 Populating the structure with documents	13
3.5 Start-up documents	15
3.6 Completing the initial application	16
4 Working on an Application	19
4.1 Logging on to Microcosm	21
4.2 Changing the folder structure	23
4.3 Working with documents	24
4.4 Indexing the documents for computed linking	34
4.5 Making Links	36
4.6 Making Annotations	43
4.7 Presentation of documents and links	43
5 Publishing an Application: Overview	47
5.1 Stand-alone CD	49
5.2 Installable CD	52
5.3 Local Area Network	53
5.4 The World Wide Web	53

6 Working with Web Documents	61
6.1 Introduction to Working with Web Documents	62
6.2 Working with a Local Copy	62
6.3 Working with the URL	64
6.4 Summary of Working with Web Documents	64
7 Index	66

1 Conventions

This material provides an introduction to making applications in Microcosm Pro. By working through a number of step-by-step exercises you will learn how to use Microcosm. In addition, you will be introduced to some of the features of Microcosm Pro that makes it unique among hypertext and hypermedia systems.

Before you start using Microcosm, it is important to understand the conventions used in the documentation.

1.1 Typographical Conventions

Formatting convention	Type of information
➔	Step-by-step procedure.
<i>italic</i>	The word is being used as a Microcosm technical term, e.g. <i>generic link</i> .
Bold type	A reference to a Microcosm function or process.
<i>Bold Italic type</i>	A reference to another part of the documentation.
Monospaced font	Used for examples of data such as Microcosm application names, Windows File System directory names, or files names.

1.2 Window Systems

Microcosm runs on Windows 95, Windows 98 and Windows NT. On all these systems the interface described by this documentation is identical.

The documentation tells you how to perform a number of Microcosm functions by clicking with the mouse on these icons in the task bar.

➔ Single right click on the Microcosm icon  in the Task Bar.

2 An Introduction to Microcosm Applications

In this chapter

- **What is a Microcosm Application?**
 - **What is involved in authoring an application?**
-

2.1 What is a Microcosm “application”?

This section introduces the idea of the Microcosm “Application”, and the next discusses the process involved in creating (authoring) such an application.

A Microcosm application is the entire set of resources (data files, links, indexes, annotations) organised in the way the author wishes to deliver them.

Microcosm Pro is delivered with a sample application about Mazes and Labyrinths called *Caerdroia*. This application consists of:

- more than 150 data files (which are stored in the *data* subdirectory);
- the organisation and description of these files within the “Select a Document” window;
- a set of links between these data files
- an index that enables users to compute links
- some annotations of items within the files
- a number of stored “settings” which describe things like the size and position of the windows to be used with each file, the zoom level, the colours, the presentation of links, etc.

The result is an *application* which is a complete environment that allows a user to follow paths, navigate and explore the provided data files about mazes and labyrinths.

An application that has been properly prepared so that everything is stored within the application directory may be moved to different locations, including networks, CD’s and even World Wide Web servers.

2.2 What is involved in authoring an application?

The task of an author is to gather together data files to be shown to the user, and then to use Microcosm to organise how these files will be presented to the user. This process includes creating links and indexes that will enable users to navigate through these documents.

A high level description of the tasks might be:

1. Gather and create files (documents) on your computer that you wish to show to the users.
2. Create a folder structure which the application can use to organize the files. (This is analogous to creating folders within Windows Explorer).
3. Tell Microcosm about your data files - so that they appear within the folders and have appropriate descriptions, keywords etc.
4. Choose start-up documents - those documents you would like to be shown immediately the application is started.
5. Index your documents that you may use computed links to navigate through the documents. (This is done by an automatic indexer).
6. Create generic links to each document to help people find documents by keyword or key phrase
7. Create button links to guide people through the files
8. Associate related documents
9. Make any annotations you wish to include
10. Save any settings (such as size and position of documents) that you wish the user to see.

Creating appropriate files (point 1 above) can be done using most text editors, word processors, picture editors, drawing packages or other content creation tools. Microcosm does not provide any tools for creating content.

Microcosm provides a wizard for making new applications, and this wizard also assists you with creating folder structure and registering documents (points 2 to 4 above), although these tasks can also be performed independently of the wizard.

3 The Create Application Wizard

In this chapter

- **Getting Started**
 - **Naming the Application**
 - **Making the Structure for your Application**
 - **Populating the Structure with Documents**
 - **Start-up Documents**
 - **Completing the Initial Application**
-

3.1 Getting started

This Wizard allows a user to create a new Microcosm application. Any user with authoring rights (given by the system administrator at the time that the user is created) may create a new application. This section describes how to use this wizard.

Before running this wizard you need to collect together a number of electronic copies of documents or URL's. You also need to consider how you want the folder structure to look.

You can collect your documents in any directory. The wizard will copy them into the application directory for you. However it can be quite useful to create the application directory, with a Data directory and subdirectories meaningfully named and documents within, as you would like it to be shown by Microcosm. The wizard will automatically copy this structure. The diagram below shows a Windows Explorer window, where the user has created a "test" application directory with a "Data" subdirectory, and two subdirectories within which are already populated with files.



When you have collected your resources, you should start Microcosm¹ and login and you will see the familiar Application List. If you are an authoring user, you should now be able to select the *Settings* button.

Note: If you are not an authoring user the Settings button will be greyed out. You must get your system administrator to make you into an authoring user if you wish to proceed.

¹ Note that if Microcosm is in Auto Login Mode, then you will not be offered the chance to login.

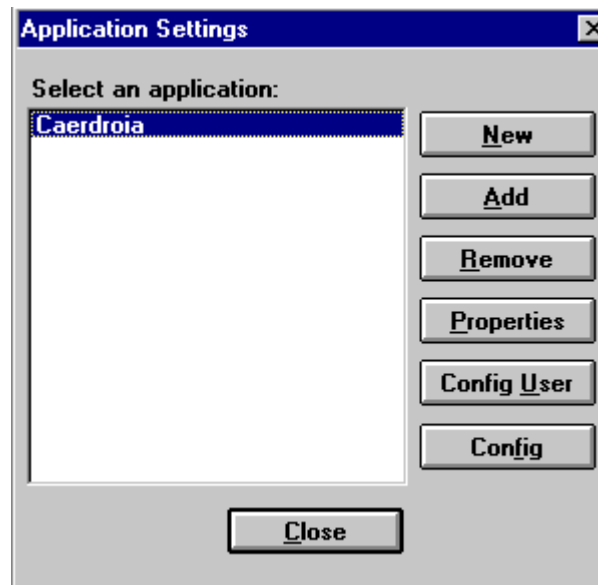
Accessing the
Create Application
Wizard (1)



You will now see the Applications Setting screen below. To run the *Create Application* wizard, press the *New* button.

Note: Alternatively you can run the wizard from within the *Config* section

Getting to the
Create Application
Wizard (2)



3.2 Naming the application

The wizard now invites you to name the application. You may give your application any sensible name (sticking to the same conventions as long file names in Windows 95 & NT 4.x). You will see that the Wizard will suggest a directory and a description for the application.

The *name* is what Microcosm will know the application as. Once created, this name may not be changed.

The *directory* will be created by Microcosm if it does not already exist. If the directory does exist, you will loose in Microcosm system settings that are held within it. (You may change the directory independently of the name and description if you wish). You may always move your application to a new location at a later stage.

The *description* is the text that will appear in the application list as above. Generally there is no reason why this should not be exactly the same as the application name, but it may be changed if you wish. You may change this description later if you change your mind.

The *password* will be the application's password so that you can log-on, in the future as the application's owner. It may be left blank, in which case the application will have a blank password. You may change the password later if you change your mind.

Naming the application

Step 1 of 4. Name and password for your application...

Name
test

Directory
C:\Mcmapps\test

Password
PASSWORD

Description
test

Please enter a name for your application. The description and directory fields will be completed automatically, although you may override them if you wish.
Try to keep your description brief and succinct as this may be used in other places by Microcosm.
You may optionally specify a password to protect your application from modification by others.

< Back Next > Cancel Help

If the directory `C:\Mcmapps\test` does not already exist you will now be prompted to create it.

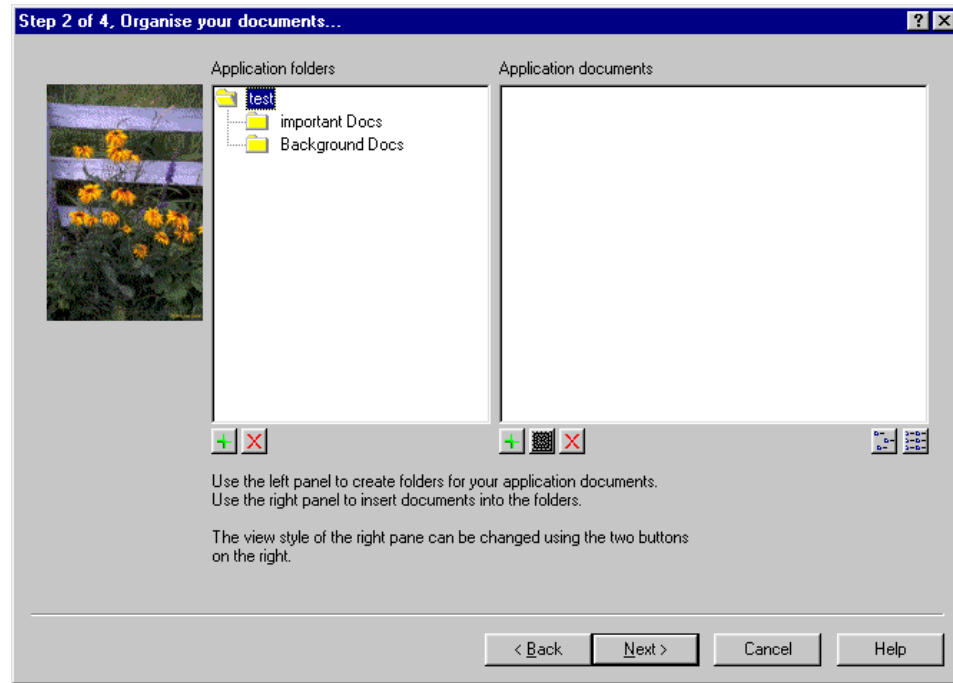
3.3 Making a structure for your application

The next stage of building your application is to create some form of data structure within which to refer to the files. These folders are analogous to the folders that you see in Windows Explorer, but in this case they will appear within the *Select a Document* window.

Initially the application folder will be shown (in this case the *test* folder).

Note: If the application directory already existed, with a Data directory within it, then any subdirectories within the Data directory will automatically appear as folders as shown below.

*The Wizard shows
pre-prepared
folder structure*

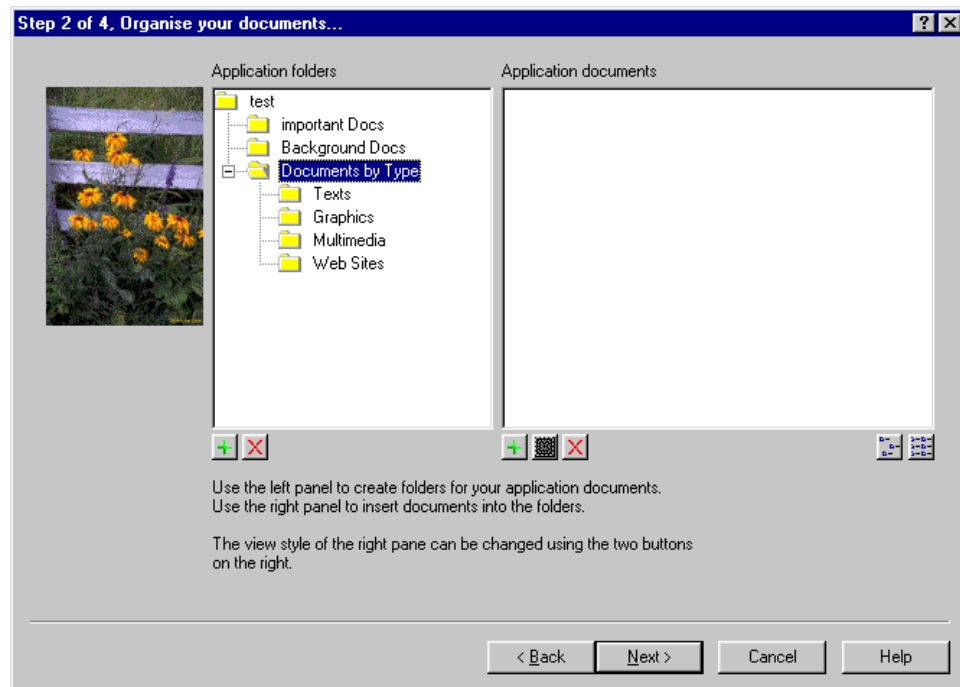


Now, to create a more folders, select the folder within which you wish to create the new folder, then press the green “+” button below. You will be asked to name the new folder, which should follow the conventions for long file names in Windows 95.and NT 4.x

You should repeat this process to build the required structure.

You may remove any unwanted folder at any stage by selecting the folder and pressing the red “x” button.

Hint: Many authors build a structure to represent the “structure” of the application - in much the same way as an author divides a book into chapters. Then they build a structure that represents the physical types of documents. Each document is registered in both places.



Note: You may always change and add to this structure at a later stage by logging in as the application and working from the *Select a Document* window.

3.4 Populating the structure with documents

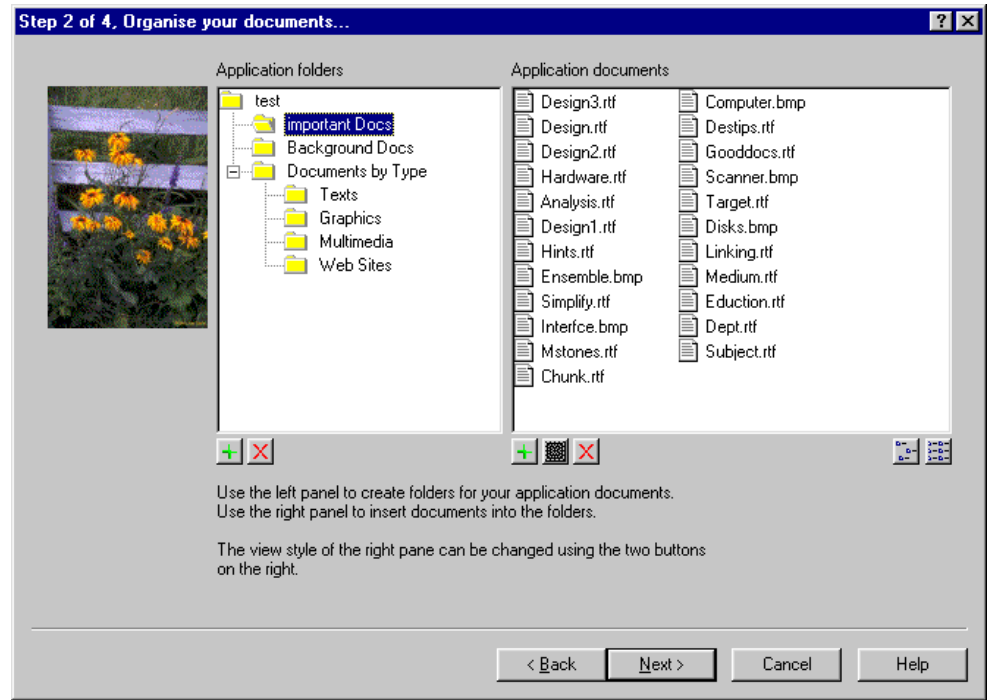
Microcosm points at documents in the Windows file structure; it does not physically hold the files. The process of pointing Microcosm at the files you wish to use is called *registering* the files. Microcosm can register files *anywhere* on the file system, but if you want to make applications portable it is best to keep all your files in one place.

This wizard invites you to choose the files that you wish to register within each directory, and then either copies them or moves them into a data directory within the application directory.

To do this, remain in the same screen of the wizard as for the previous section and:

- ➔ Select the folder into which you wish to register the files
- ➔ Press the green “+” on the right hand side.
- ➔ You will be offered a file dialog showing the folders and files on your disks. You may move to the correct folder and make one or more selections of files.
- ➔ Press “Open” and they will be registered with Microcosm as shown below.

Selected documents placed in selected folder

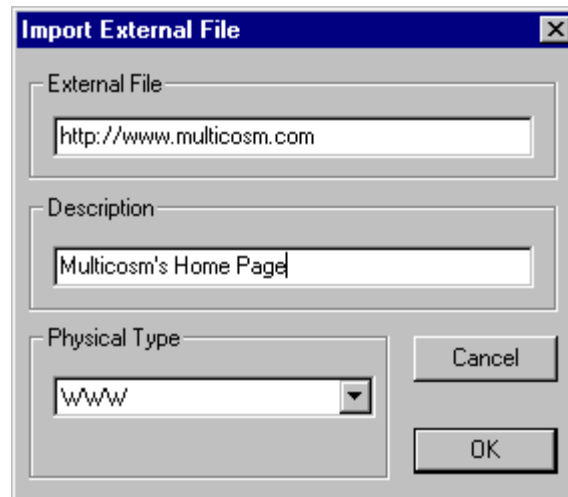


Note: Although Microcosm allows you to register the same file in two places, you should not do so at this stage. You can do this later by making copies of the short cuts within the Select a Document Window.

➔ You may repeat the above process as many times as you wish.

To add URL's press the black "Web" button instead. You can then enter the URL of the document, you wish to include, as shown below.

Importing a URL



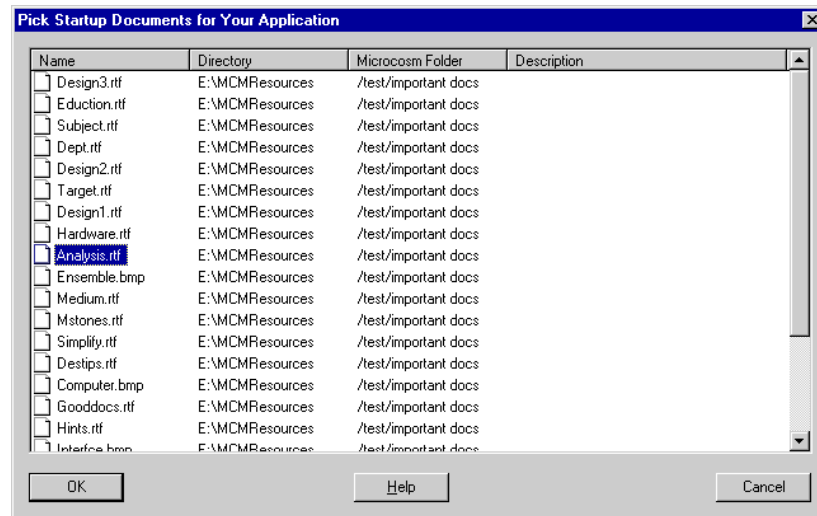
➔ Click on Next to proceed to the next screen.

3.5 Start-up documents

When Microcosm starts an application, by default it will start by displaying the Select a Document window.

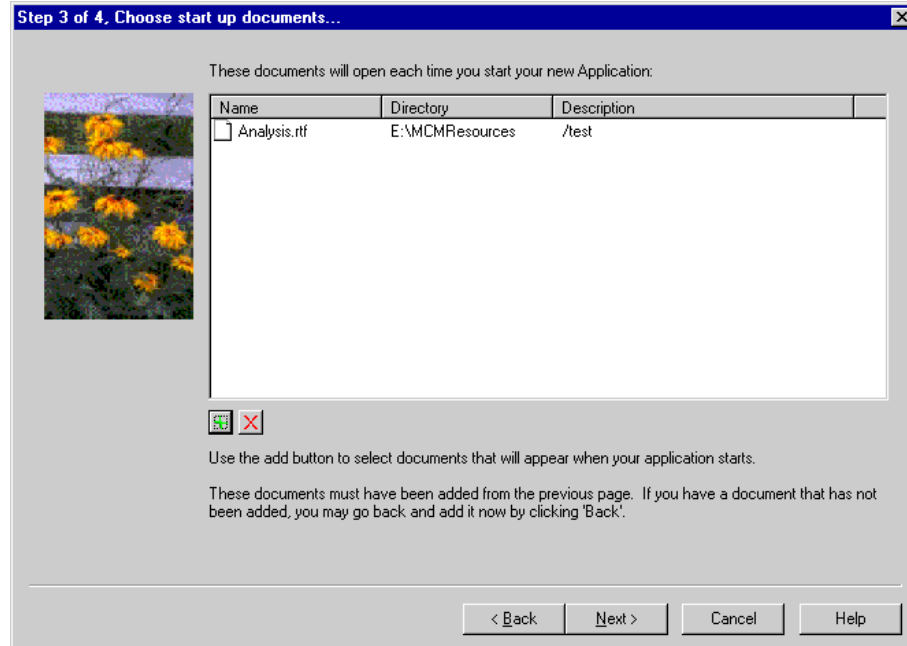
However, if you wish you can choose one or more documents which will be automatically displayed when the application starts. In the example below the author pressed the green “+” on the wizard, and was asked to pick startup documents from the list of those that have been registered.

Choosing a startup document



The author chooses to use Analysis.rtf as the start up document (above) and this is listed in the wizard (below).

Selected Startup document

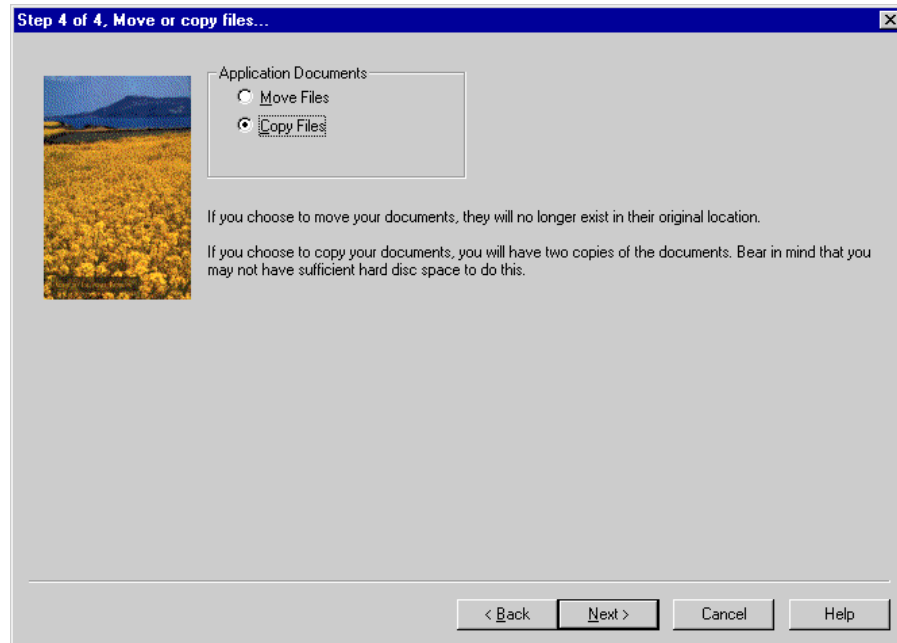


➔ Click on Next to proceed to the next screen.

3.6 Completing the initial application

The final screen of the wizard allows the author to make the decision whether to move the files from their current directory into the application's data subdirectory, or whether to copy them there (in which case the original files will still be in place).

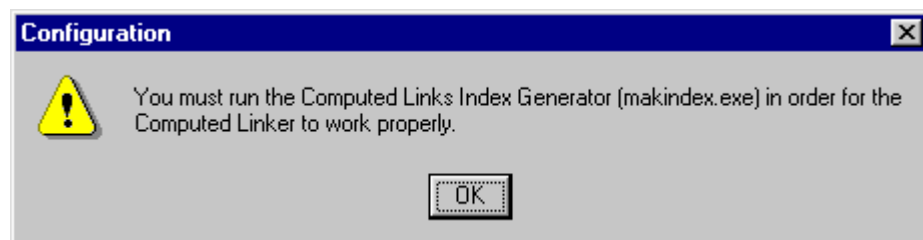
Moving or copying files. The final input



➔ Click on Next to proceed to the next screen.

The wizard will now create the application that you have specified. When the wizard is completed you will see the message, reminding you to run the computed link generator. (See **Indexing the documents for computed linking**)

Reminder to run the computed link indexer



This will be followed by the message informing you that the application has been successfully created.

Note: It is very important that you now close the wizard *and* the Configuration Program before you run the Indexer and before you start Microcosm again.

The next time you run Microcosm you will see the new application in the Application List, as follows.

*The new
application in the
Application List*



4 Working on an Application

In this chapter

- **Logging on to Microcosm**
 - **Changing the folder structure**
 - **Working with documents**
 - ◆ Adding documents
 - ◆ Copying documents
 - ◆ Deleting documents
 - ◆ Changing document attributes
 - **Indexing the documents for computed linking**
 - **Making Links**
 - **Making Annotations**
 - **Presentation of documents and links**
-

4.1 Logging on to Microcosm

Once the basic framework of an application has been created using the create application wizard, it is possible for the author to alter and add to the application in many ways.

The owner of an application should normally log on as the application rather than as an authoring user.

The owner of the application may make changes to the *application* settings, linkbases, docuverse, and annotations.

An authoring user may make changes to the *user* settings, linkbases, docuverse and annotations, which will then need to be promoted to the application level if they are to be distributed as part of the application.

When you log in you will see a screen like this:

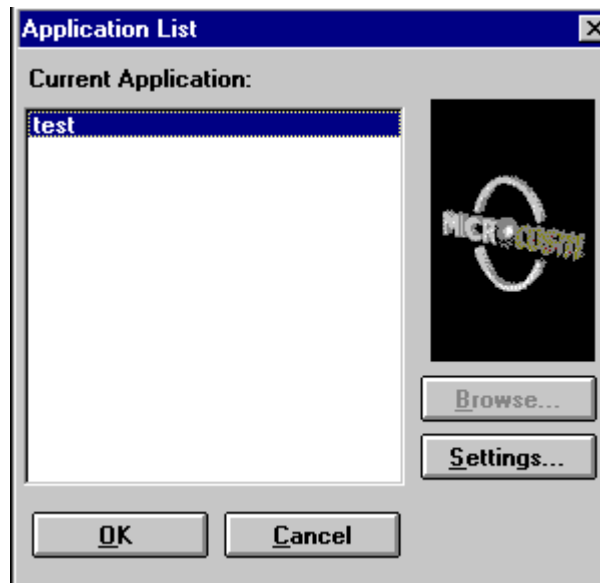


Note: If you do not see the above screen when you start Microcosm, it is probably because your version of Microcosm has been set up for auto logon (single user mode). The Microcosm Administrator must run the Create User wizard, and set the system into multi-user mode.

Select the application radio button, and choose your application from the pull down list, give your password, then press OK, as below.



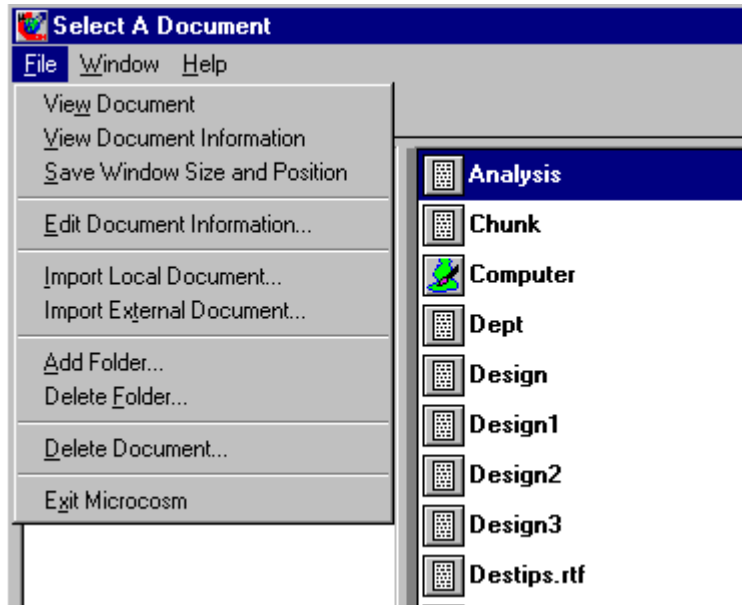
You will now see the following screen from which you can either launch the application (OK) or configure the application from the settings menu.



4.2 Changing the folder structure

Once you have created a folder structure, you may *Add Folders* (as sub folders of the currently selected folder) and *Delete Folders* (the currently selected folder).

Add Folder and Delete Folder on the File Menu within the Select a Document window



Note: There is no option to rename a folder. To do this you must create a new folder with the required name, and copy all the files into it, then delete the old folder.

4.3 Working with documents

Once you have made an initial application you may wish to add new documents, copy, move or delete them within your folder structure.

4.3.1 Adding Documents

Files not already in the **Document Management System** can be registered in the **DMS** by drag and drop from the Windows Explorer into the Microcosm Select a Document Window, or by using the **Import Local Document** and **Export External Document** options from the **File** menu on the Select a Document Window.

Before importing files to Microcosm it is important that you understand what is happening. Microcosm does not actually store the files; it stores the path and filename of the file on the file system.

If you want your application to be portable (so that it can be moved to other machines, CD's and Webservers) then it is vital that

either

you put your files somewhere inside the application's **Data** directory before you "import" them to Microcosm. (Typically, for an application called *Test* this would be somewhere within the C:\McmApps\Test\Data directory)

or

the file must be universally accessible and have a "universal" name which will always be the same to all users of the application wherever they are running Microcosm from. e.g. a URL such as `http://www.multicosm.com` will access the same file wherever you are.

◆ Import Local Document...

To register a document:

- ➔ Put the document into a sensible place under the **Data** directory within the application's subdirectory. (Typically, for an application called *Test* this would be somewhere within the C:\McmApps\Test\Data directory)
- ➔ Use the left hand pane of the **Select a Document** window to identify and select the branch in the folder hierarchy into which the shortcut is to be created.
- ➔ Choose **Import Local Document...** from the **File** menu to open a **Select a File** window.
- ➔ select the required file and click on OK

The **Select a File** window will close and the selected file will be registered as a document in the **DMS**.

Drag and Drop

You can also register documents by drag and drop

- ➔ Put the document into a sensible place under the **Data** directory within the application's subdirectory. (Typically, for an application called *Test* this would be somewhere within the C : \McmApps\Test\Data directory)
- ➔ Use the left hand pane of the **Select a Document** window to identify and select the branch in the folder hierarchy into which the shortcut is to be created.
- ➔ Open the Windows Explorer and, with the pointer over the selected file, press the left mouse button and drag the file to the right hand pane.

You can use the Shift and Ctrl keys to select more than one file to register in the branch.

Document Description

If the document is already registered with the **DMS**, the action of importing it again will create a *document reference*. The reference will be given the same document description as the existing document.

If the document is not already known to the **DMS**, the document will be given the description containing the document file name. You will probably want to change this description and add other attributes to the document, as described in Changing Document Attributes.

Application Path Variable

If you import a document from a directory that is defined by an *Application Path Variable* then the file name stored in the DMS will contain the name of the *Application Path Variable*. Typically the *data* directory within the *application directory* (and any directories within the data directory) will have an application path variable. Other directories will not. If the document is in another directory, the full path name of the document file will be used, and this will make the application non portable.

NOTE If you are an application author and registering documents for that application, it is highly recommended that you move or copy the document file to the application *data* directory (the directory defined in the *Application Path Variable*) before you register the document.

◆ Import External Document...

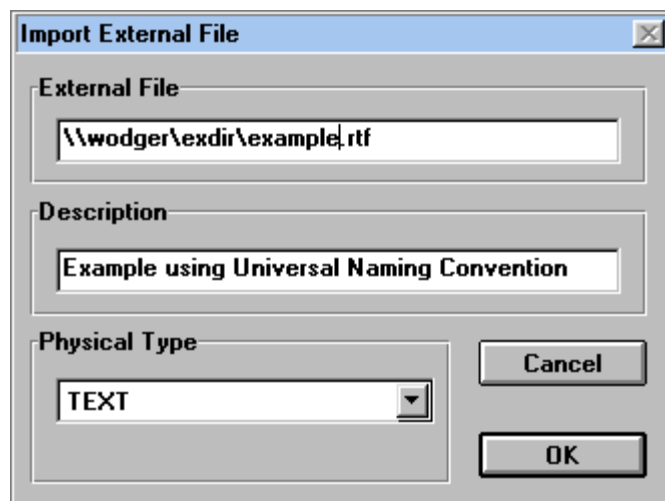
If the document you wish to import into Microcosm does not exist on the local Windows File System, then it may be possible to access it on a local area network or on the World Wide Web.

Local Networks

Windows 95 and Windows NT which are connected to a network allow files on one PC to be accessed from another PC, using the Universal Naming Convention (UNC).

- ➔ Use the left hand pane of the **Select a Document** window to identify and select the branch in the logical hierarchy into which the file is to be registered.
- ➔ Choose **Import External Document...** from the **File** menu.

*Import External
File: using the
Universal Naming
Convention*



- ➔ In External File enter the name of the machine in the Workgroup and the directory and file name, using the UNC.
- ➔ Enter a suitable description for the document.
- ➔ Choose the physical type for the document.

In the example above, the file `example.rtf` is in the shared directory `exdir` on the networked machine known as `wodger`. The general form of the UNC is

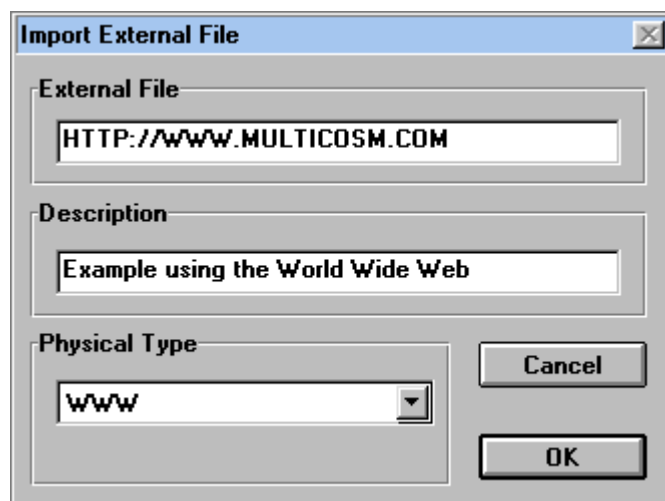
`\\Machine-name\shared-directory-name\sub-directories\filename`

There can be any number of sub-directories after the shared directory.

World Wide Web

- ➔ Use the left hand pane of the *Select a Document* window to identify and select the branch in the folder hierarchy into which the file is to be reistered.
- ➔ Choose **Import External Document...** from the **File** menu.
- ➔ In External File enter the URL of the Web page.
- ➔ Enter a suitable description for the document
- ➔ Choose the physical type for the document, in this case WWW.

*Import External
File World Wide
Web*



In this case the External File is a Web page which is to be viewed as a WWW Document Type. Netscape (or an equivalent Web browser) must have been installed on your system. (Microcosm will use the default web browser as registered with Windows).

See also the section on Working with the Web.

◆ The Type of Registered Documents

When a document is registered with Microcosm, Microcosm will assign the document a type. This type will be used by Microcosm to decide which viewer to use to display the document. The author may change the type after importing the document, but Microcosm will initially allocate the type according to the file name's extension.

The following types are recognised:

Microcosm Type	Extensions	Viewer Used by Type
ANIMATION	*.ANI	ANVIEWER.EXE
BITMAP	*.BMP;*.JPG	BMPVIEW.EXE
DATABASE	*.MDB;*.DBS;*.DEZ; *.PDX;*.SMT;*.FMT	MVIEWR32.EXE
LAUNCHER	*.EXE	[none]
MIMIC	*.MMC	MIMVIEW.EXE
RASTER	*.GIF;*.JPG;*.TGA; *.TIF;*.PNG;*.BMP; *.PCD;*.PCX	MVIEWR32.EXE
SOUND	*.WAV	MPLAYER.EXE
SPREADSHEET	*.XLS;*.WKS	MVIEWR32.EXE
TEXT	*.RTF;*.TXT	RTFVW.EXE
TOOLBOOK	*.TBK	MCMLINK.EXE
VECTOR	*.CDR;*.PDF;*.DXF; *.PS;*.PPT;*.DWG; *.WMF	MVIEWR32.EXE
VIDEO	*.AVI	BMPVIEW.EXE
WP	*.DOC;*.WP5;*.WP6; *.WPD;*.RTF;*.TXT; *.HTM;*.HTML	MVIEWR32
WWW	*.HTM;*.HTML	<SHELLEXECUTE>
ZDEFAULT	*.*	<SHELLEXECUTE>

NOTE An executable file (*.EXE) will simply be executed by Microcosm when this “document” is shown.

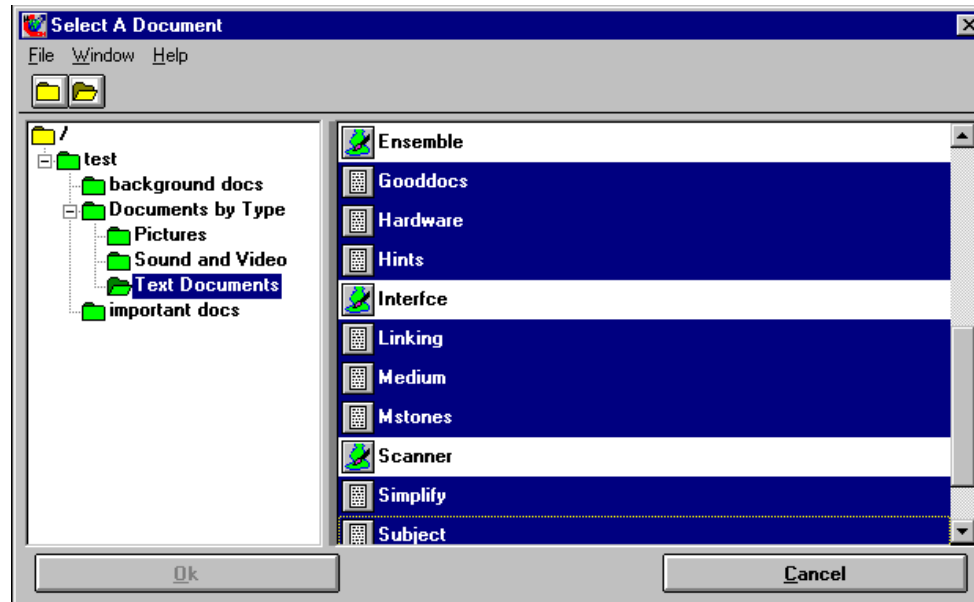
NOTE2 <SHELLEXECUTE> means that files of these types will use whatever program Windows associates with that extension. So for example, if Windows would normally run MSWord when a file of type *.DOT was selected, then so would Microcosm.

NOTE3 Microcosm allocates the type by finding the first match in the list above. This means that html documents will be given type WP by default; and it means that if Microcosm doesn't know the file type it will be given type ZDEFAULT.

4.3.2 Copying Documents

Once you have made the application, within the select a document window you can make copies of the document shortcuts, so that the document appears in more than one place. This is done by selecting documents in one folder and dragging them onto another folder.

Multiple documents are selected from one folder and dragged onto another folder



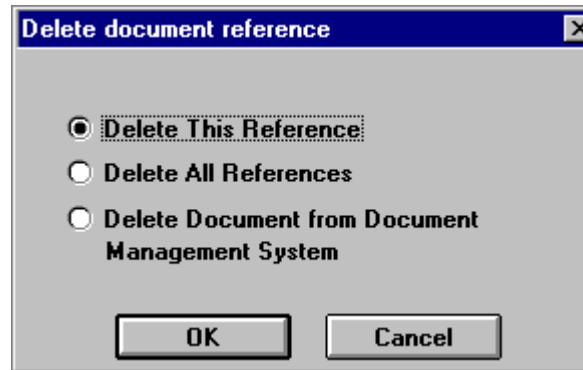
HINT You can *move* the shortcuts by pressing SHIFT then dragging the selected files to the new folder.

4.3.3 Deleting Documents

To delete a document from the Document Management System:

- ➔ Select the document you wish to remove in the Select a Document window.
- ➔ Choose Delete Document... from the File menu.

A dialogue box will appear:



The choices here dictate what happens to references to this document in other parts of the logical structure.

Delete This Reference results in the selected document being removed only from this point in the logical structure. All other references remain intact.

Delete All References results in all references to the selected document being removed from the logical structure. However, the document is not removed completely from the DMS. Instead it is moved to the very top of the structure.

Click on the root branch of the folder structure (/), and you should see the document for which you have deleted all references. The document has been moved to the root of the structure in order to provide a safety mechanism when removing documents.

NOTE If you were to remove the document completely from the DMS before ensuring that all links had been updated accordingly, it is possible that links might be left dangling (i.e. pointing to a document that Microcosm no longer knows about).

When you are sure no dangling links remain, you can safely remove the document completely from the DMS

- ➔ Select the document in the root branch of the folder structure.
- ➔ Choose Delete Document... from the File menu.
- ➔ Click on Delete Document from Document Management System, then click on OK.

The document will now be removed completely from the DMS.


NOTE Microcosm **never** removes files from the Windows File System.

4.3.4 Changing Document Attributes

If you are an author you can change any of the document attributes associated with a document in the DMS.

→ In the *Select a Document* window, select a document in the right hand pane then **either**

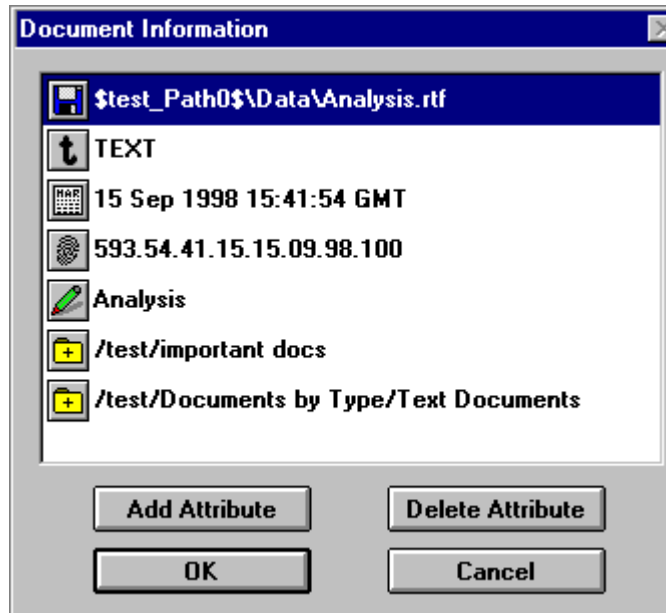
→ Click on the **File** menu and then on **Edit Document Information...**

→ Double-click on the attribute you want to change (e.g. Description entry ).
The current values of the information are shown.








or


→ Click with the **right** mouse button

*Document
Information
Window: editing
the Information*



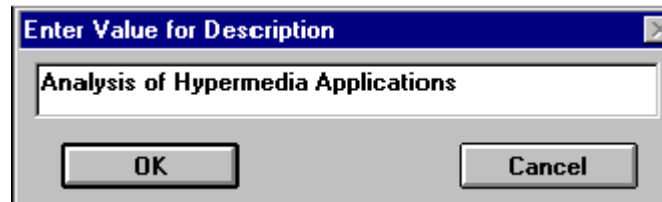
The icons in this window have the following meanings

Icon	Name	Used for
	File Name	The location of the file in the Windows File System (see Note below)
	Type	The document type (e.g. TEXT or SOUND)
	Date	The date on which the file was imported into the DMS
	Unique Id	A unique number used by Microcosm to identify the document
	Description	The document description used in the Select a Document window
	Keyword	Any associated keywords
	Logical Type	The location of the document in the

Icon	Name	Used for
		logical hierarchy.
	Author	The person who created the document




NOTE In the example above, *\$test_Path0\$* is a Microcosm *Application Path Variable*. These variables are built and used by Microcosm to keep track of documents associated with each application.

*Entering a New
Description*



- ➔ Type the new value over the old value
- ➔ Click **OK**
- ➔ Click on **OK** in the *Document Information* dialogue.

You will see that the description in the right hand pane of the *Select a Document* window has changed to the description you have just given to the document.

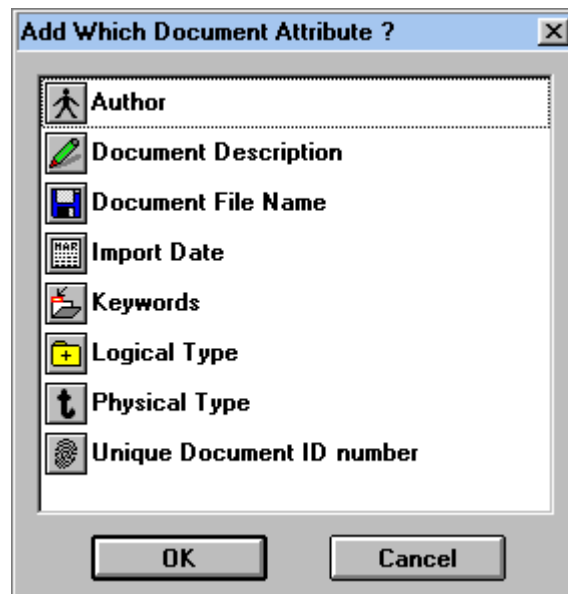
NOTE Although all the attributes are editable, you should not change the UniqueID entry  as this is what Microcosm uses to identify the document. Only change the File Name  if you change the position or name of the file in the Windows File System. You should not change the document Type  which relates the contents of the file to a particular viewer.

Add Attribute

The **Add Attribute** option on the Document Information allows you to specify additional attributes for a document. Clicking on the button displays a dialogue box with a list of all possible attributes.

- ➔ Click on **Add Attribute** in the Document Information window

*Document
Attributes list from
Document
Information
Window*



- ➔ Select the attribute you wish to add and click on **OK**
- ➔ You can now enter the value for that attribute as described above.

Delete Attribute

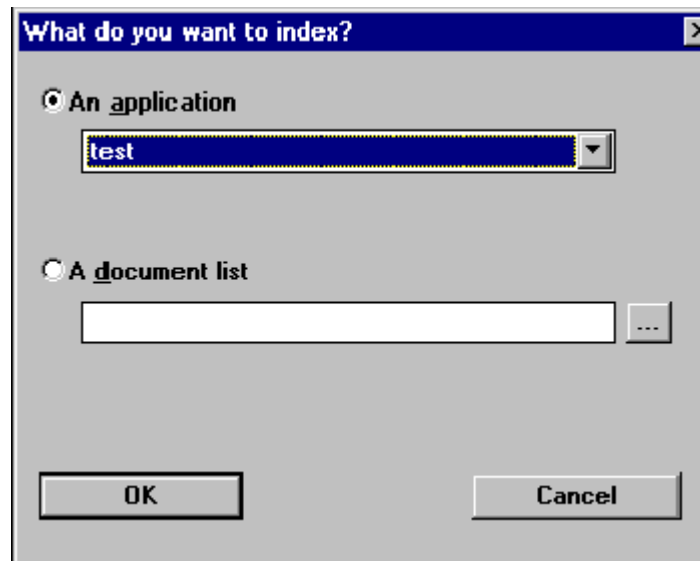
Delete Attribute removes the attribute selected from the document's entry in the *DMS*

4.4 Indexing the documents for computed linking

In order to use computed links in Microcosm you must first produce an “inverted index”, which holds the information about which documents contain which words.

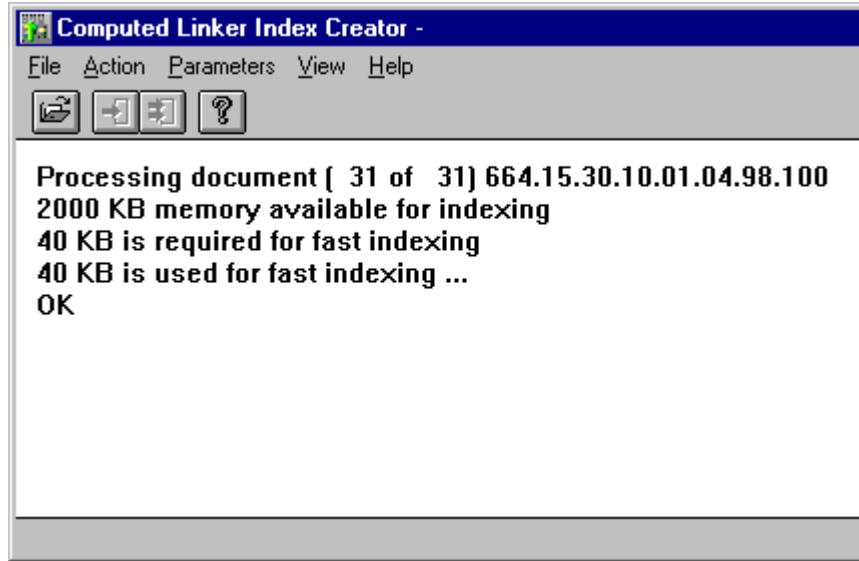
The create application wizard will produce a suitable index for the computed linker. However, as you add and remove documents from the application from time to time it will be necessary to update the index.

You can build an up to date index at any time by closing down Microcosm or the Configuration Program, then running the *Computed Links Index Generator* from the Microcosm Start menu.



The index is best built by selecting an application and pressing OK. The indexer will index all the documents within that application that are of types registered as indexable (ASCII Text, RTF and WP by default).

When the indexing is complete it will say “OK” with a message similar to the one shown below. You may now quit the indexer.



INFO Unless the defaults have been changed, the indexer will have created a file called INVERT1.TAB in the SYSTEM/INDEXES directory within the application's root directory.

In the case that you have an application that has not got a computed linker installed (the Compute Links option will be greyed out on the viewer's Action menu), then you can use the Filter Manager wizard to add a computed linker.

NOTE It is important that you do not attempt to run the computed link index generator when Microcosm or Microcosm Configuration is running. Always close down Microcosm first, and restart when the new index has been created

◆ Limitations of the Indexer

- The indexer will only index documents that are owned by the application. User's documents will not be indexed.
- The indexer only indexes "internal" documents; it does not index external documents such as html documents on remote machines.
- The indexer only indexes ASCII text, RTF and formats that are part of the WP type (MS-Word, Word Perfect and HTML documents by default). It will not index other types such as Spreadsheets even though they contain text.
- It is only possible to have one index per application.

4.5 Making Links

The basic techniques required for making links in text and pictures are covered in Tutorial 1: An Introduction to Microcosm. This section covers the basic philosophy of link making, and then covers some advanced techniques.

♦ Creating Links in an Application

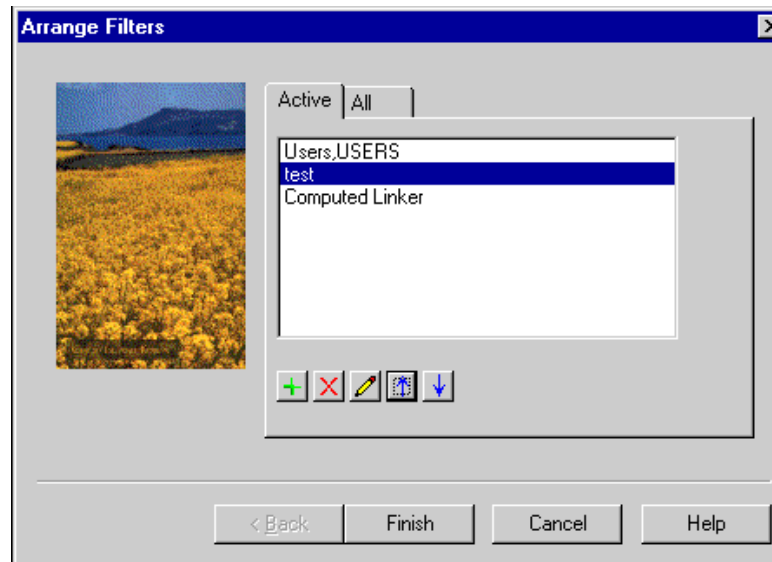
There are two types of links that an author may wish to create:

- **generic links:** These are (invisible) links which will apply from *wherever* some given text string occurs. One example is the **keyword link**. If a document is about “stone mazes” then it may make sense to make a generic link *from* the phrase “stone mazes” *to* this document, so that users will find the document when browsing. Another example is the **glossary link**. For example, if we have a glossary of terms or dictionary that apply to our subject domain, then we might make glossary links from each *term* to its definition in the glossary.
- **button links:** These are the visible links which encourage a user to follow a given path. They show the paths that the author expects the user to follow; we sometimes call them tutorial links.

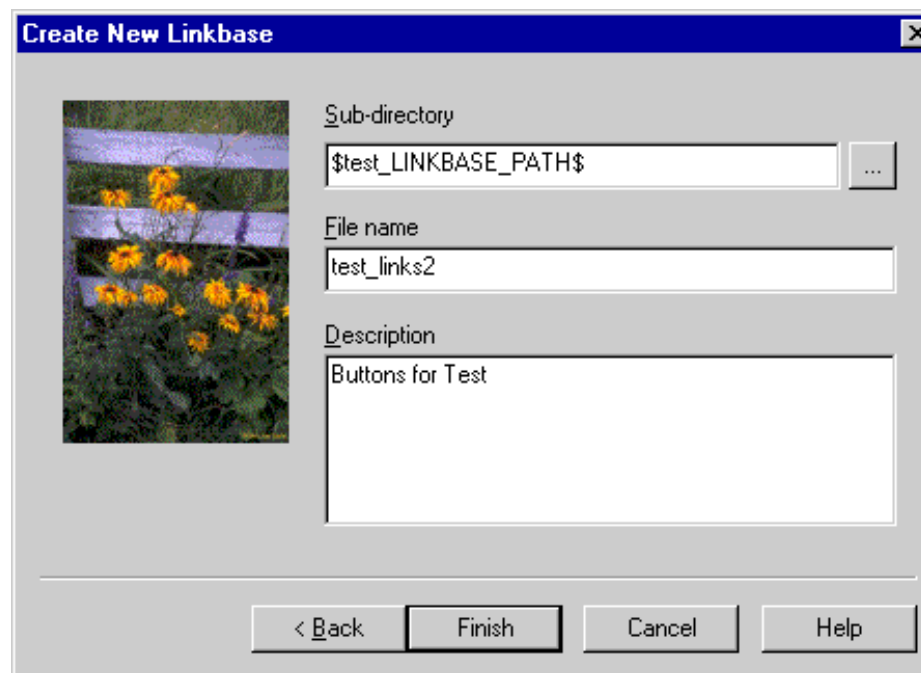
One of the advantages of Microcosm’s approach is that it is possible to keep links in separate link databases, and apply those links (webs) that you want. It is good practice to keep the generic links in one link database, and tutorial button links in another, so that if you wish you can apply different sets of tutorial links (for different types of user etc) while keeping the generic links. In order to do this you need to know

⇒ How to create a new linkbase

1. Login as the application
2. Select Settings
3. Select Config
4. Choose the FilterManager Wizard (shown in the first screen shot below)



From the Filter Manager Wizard, press the green “Plus” button to add a new element, then choose linkbase from the next screen. Now you are asked to give a file name and a description for the new linkbase, as shown below.



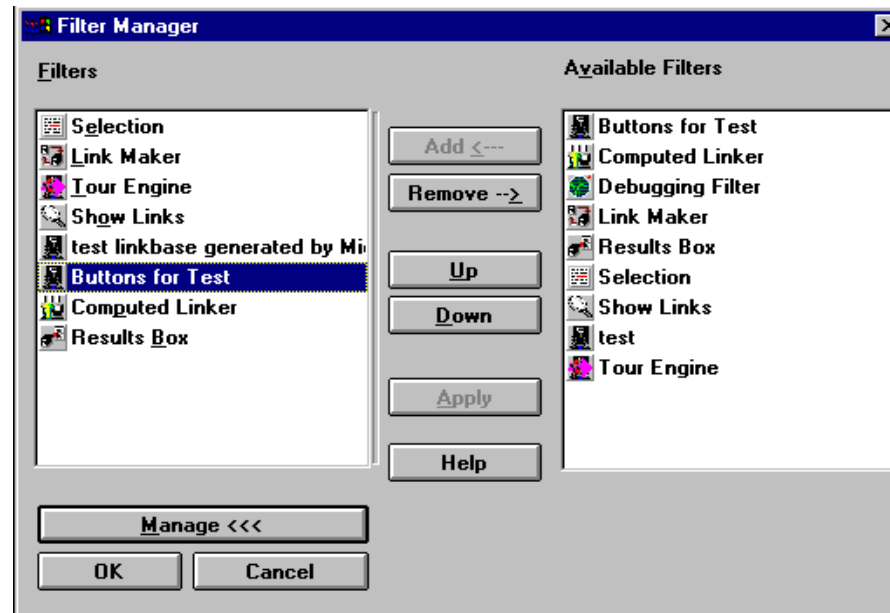
By default your new linkbase will be created so that it runs at the end of the list of application filters. This means that the linkbase labelled “test2” will be used by default. If you wish, you can run the FilterManager Wizard again, and use the up and down arrows on the first screen to alter the default order of the filters.

⇒ How to control which linkbase each link goes into

Why does it matter which order the linkbases are stored? Well the first (writable) linkbase in the filter chain is the one which will store, by default, any

new links. As described above, you can use the Filter Manager to change the order of the linkbases at the time that the system starts. However you may wish to change this order at run time. In this example, there are two linkbases. The first is called “test” which was set up by the create application wizard, and the 2nd is called “Buttons for Test”. They are initially configured so that “test” is in front of “Buttons for Test”.

Now when Microcosm is run, the user can access the Filter Manager from the Windows Task Bar and the “Manage” button is pressed, we will see the following.



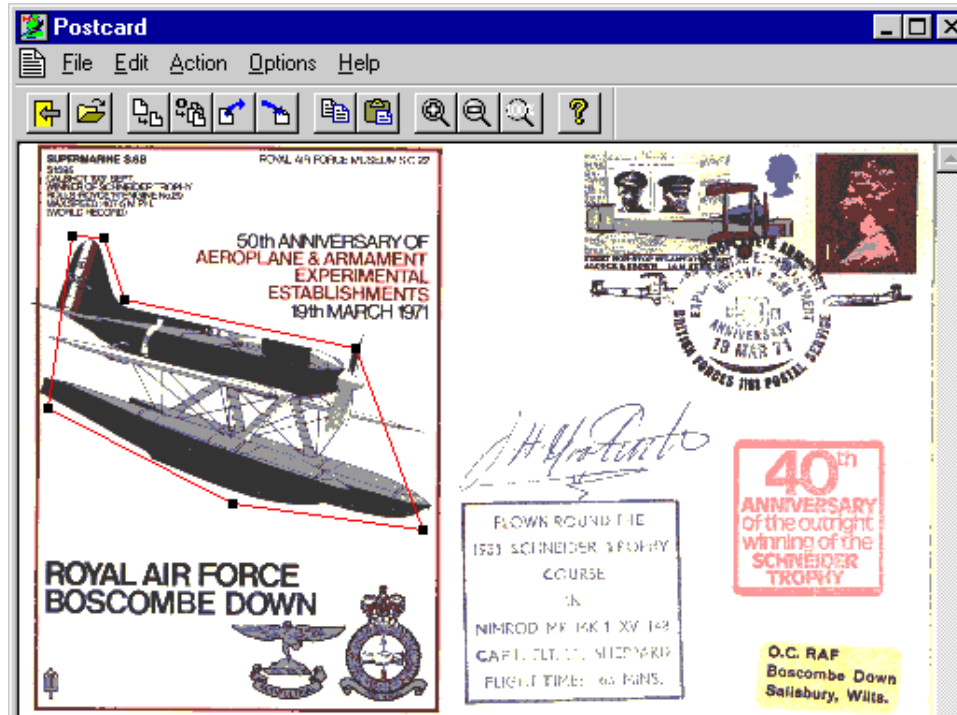
In this picture the user has selected “Buttons for Test”. Now pressing the Up button, will move this linkbase above the test linkbase, so that *it* will receive the new links.

◆ Advanced Techniques

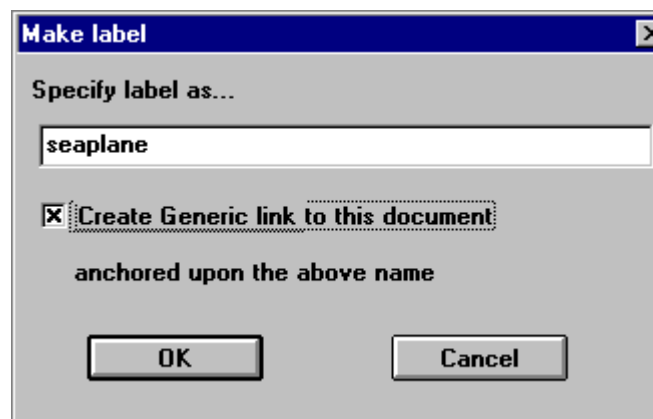
This section covers

⇒ Making Label links in pictures

A valuable time saver when creating links within pictures is to make “label links”. A label link allows you to name (with a text string) some area of a picture. Then when this area is clicked it will send a generic link query based on that string.



For example, in the above picture the user has created an outline selection around the seaplane. Then by choosing Action, Make Label, we get the following dialog.



The user has labelled the picture as a “seaplane”, so that every time the button is pressed, Microcosm will follow generic links on the word seaplane. Also, the

user has clicked the check box, to make a generic link on the word seaplane point *to* this picture.

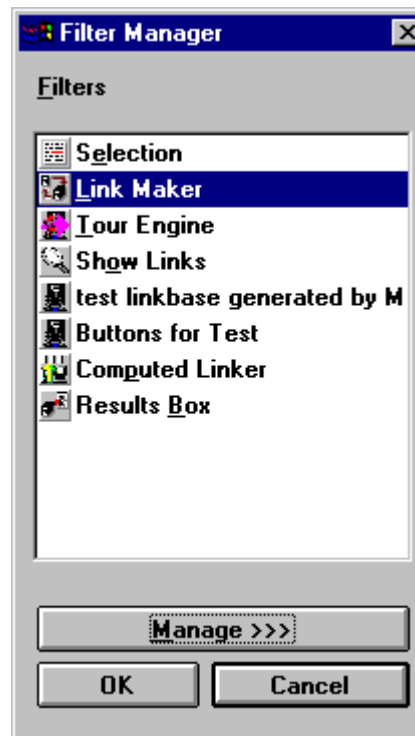
This technique makes it easy to create networks of links on inter-related objects very speedily.

⇒ Using EndLink to put the end of a link onto some document (or process) which does not use a viewer with a Microcosm Action menu.

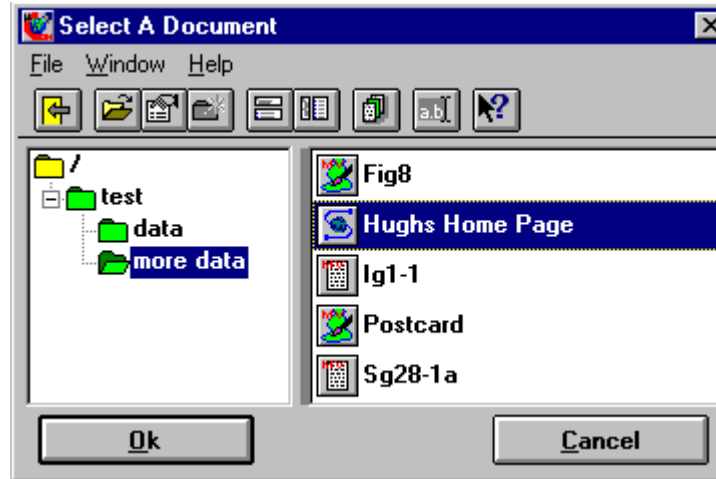
Sometimes one wishes to end links on some program that does not have a Microcosm action menu. In this example we make a link that ends on a File shown in Internet Explorer.

The file (or executable process) must first be registered with Microcosm, so that we can see it in the Select a Document Window.

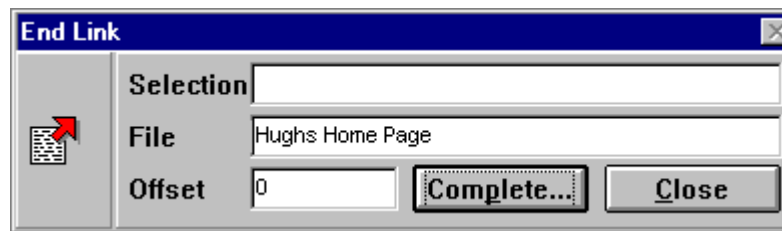
Now, we start the link as normal, but then, when it comes to ending the link, we pull up the Filter Manager from the Task Bar, and double click on the *link maker*.



This will cause the Select a Document Dialog to appear. We now move to the correct document, and click on this.



This will get us the endlink dialog that we need in order to complete the linking process.



⇒ Making Local links in documents which do not use a viewer with a Microcosm Action menu, by using the clipboard.

You can start a link or follow a link from any viewer (even if it does not have a Microcosm Action Menu) as follows.

Right Click on the Microcosm icon on the Windows task bar and you will see the following dialog. Choose the appropriate action (e.g. Start Link) and check the Monitor Clipboard box.

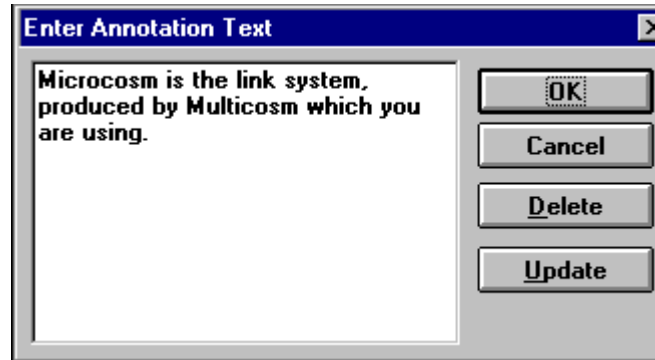


Now, whenever you select some text and copy it to the clipboard (Edit, Copy), Microcosm will take the selected action. In the case of a “Start Link” action, Microcosm will only be able to create Generic Links.

4.6 Making Annotations

Microcosm allows users and authors to create annotations. You can do this by making a selection, in exactly the same way as if you were about to start a link, then choosing *annotate* from the Action menu.

You will then see a dialog as follows, which allows you to enter some text, delete the current annotation or update the current annotation. Pressing OK saves the latest annotation.



The annotation will appear in most viewers to look the same as the start of a link. (The Multiviewer allows the insertion of an icon in the text).

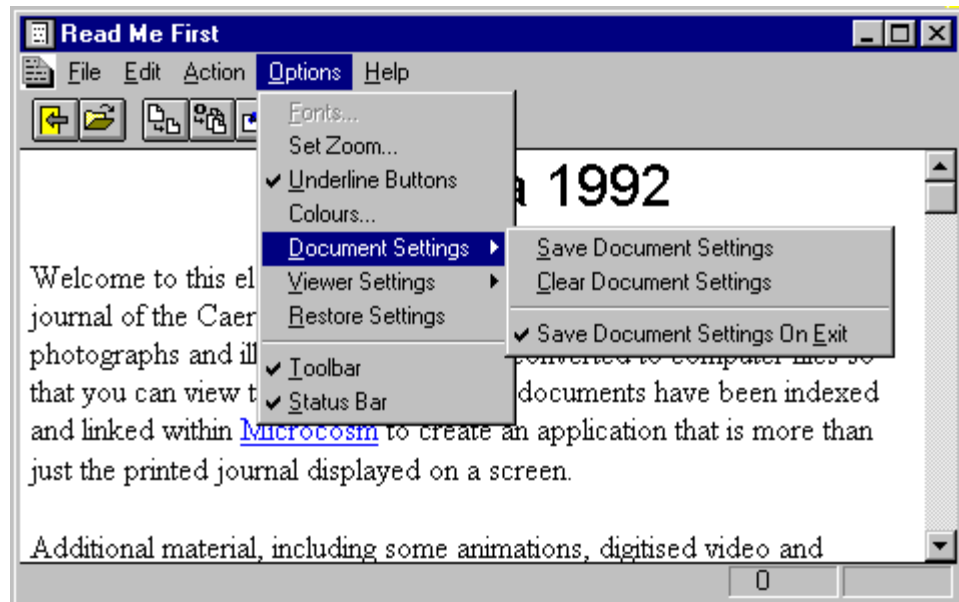
NOTE Annotations are stored in a database in exactly the same way as links. By default applications do not have an annotation database associated with them. Rather, the user has a private annotation database. If you wish to associate an annotation database with your application you will need to go into the Configuration program, and run the Filter Manager Wizard.

4.7 Presentation of documents and links

The section covers.

- ⇒ How to save the size, position and colours used in a document
- ⇒ How to save the size, position and colour used for all documents of some type.

All Microcosm viewers have an option menu, which contains an option for Document Settings, as shown below.



Whenever the document settings are saved (either by choosing Save Document Settings or automatically on exit, as set by default) the following things happen.

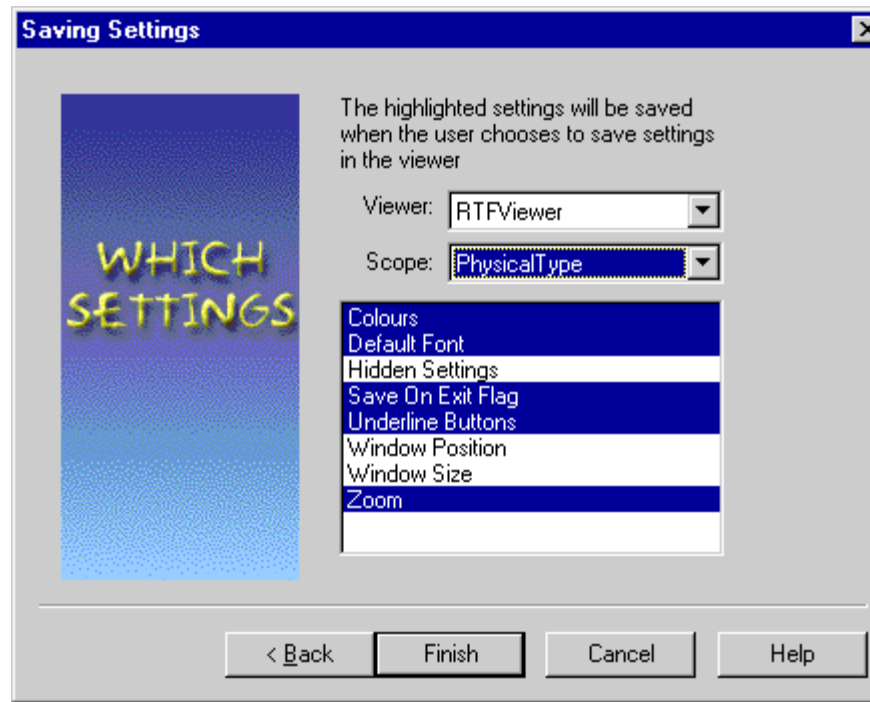
The Document Settings (Colours, Default Font, Save on Exit Flag, Underline Buttons, Window Position, Window Size, Window Zoom) will be automatically saved. If you are logged on as a user, these settings will only apply for this user. If you are logged on as the application, these settings will apply to all people who use this application.

You also elect to change the settings for *all* documents of some physical type by making one exemplar, then doing Save Viewer Settings from the Viewer settings option menu.

NOTE Setting Viewer Settings will cause the new settings to apply only to documents that have not already been given document settings.

If you want to remove document settings from documents, first un-tick the Save Document Settings On Exit menu item, then visit each document, selecting the Clear Document Settings menu item. This will cause the settings to revert to the default for the Physical Type (i.e. the Viewer Settings).

The settings that are saved for the document and the viewer may be different, and may vary from viewer to viewer. You can examine these settings (and change them) by running Microcosm Administration, and choosing Config System, then running the Saving Settings Wizard, which offers you a screen as follows.



In this example, we see that when you save viewer settings in the RTF viewer, Colours, Default Font, Save On Exit Flag, Underline Buttons and Zoom level will be saved, but that Window Position and Size will not be. You could change that behaviour here.

5 Publishing an Application: Overview

Once you have written a portable application (See **Portable Applications** in the **System Administrators Guide**), making it available to other users is easy. You can move the application as a whole (just copy the entire application directory and its subdirectories) to another directory or another machine, then you can point Microcosm at the system registry file and it should run without alteration.

However, you may also wish to publish your application on the World Wide Web or on a CD. This section is concerned with how you do this, using the **Publish Wizard**.

Note	Distributing Microcosm Applications is free of any licence restrictions. However distributing Microcosm Code (in the form of a Web Browser Plugin or on a CD may be subject to licence restrictions. Potential publishers should contact Multicosm Ltd at mcm@multicosm.com or +44 (0)1703 767678 if they have any questions about this.
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In this chapter

- **Publishing on Stand Alone CD**
 - **Publishing on Installable CD**
 - **Publishing on Local Area Network**
 - **Publishing on World Wide Web**
 - ◆ **Overview**
 - ◆ **Limitations of Web Delivery**
 - ◆ **Using the Publish Wizard**
 - ◆ **Running Applications from the Web**
-

5.1 Stand-alone CD

The Publish to Stand-alone CD option allows you to produce a CD with your application and a viewer only version of Microcosm Pro, so that you can distribute your application to run from CD.

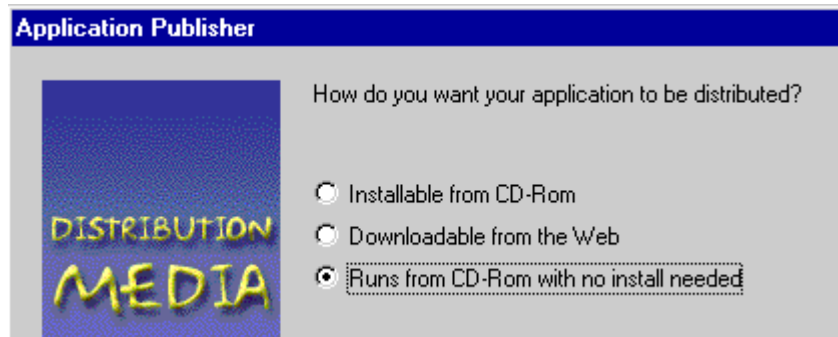
To use this option you must login to the Microcosm Configuration Program (See **Logging On to Microcosm**) as the owner of the application that you wish to publish (or alternatively as the Microcosm System Administrator).



Publish

- ➔ Select the Publish Wizard Application from the Microcosm Configuration Window.

*Publish
Application:
Method of
Publishing*



- ➔ Choose the **Runs from CD** option.
- ➔ Press **Next**

*Publish
Application:
Entering your
Serial Number*

Distribution Information

Type your DISTRIBUTION key below. You may not use your own Microcosm product key for distributing an application. If you do not have a distribution key please contact Multicosm.

DISTRIBUTION KEY

Name:

Company:

Serial:

< Back Next > Cancel

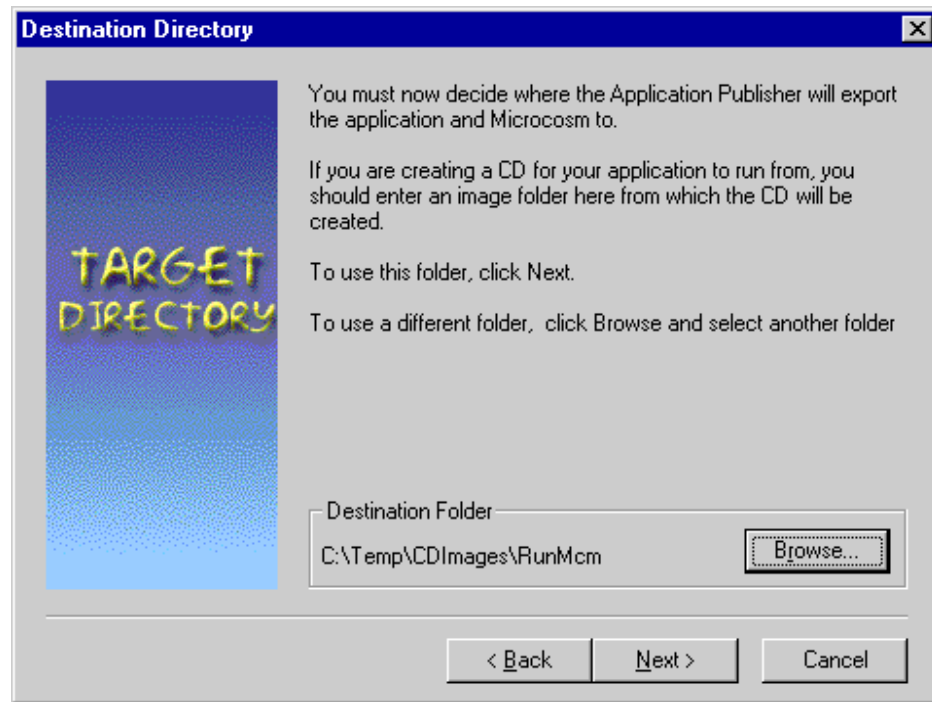
➔ You must now enter the serial number that you wish to be inserted into the Microcosm Viewer that you will distribute with your application.

Note Distributing Microcosm Applications is free of any licence restrictions. However distributing Microcosm Code on a CD may be subject to licence restrictions. The Serial Number that you have will depend on the sort of licence you have purchased. Potential publishers should contact Multicosm Ltd at mcm@multicosm.com or +44 (0)1703 767678 if they have any questions about this.

Note You may leave the Serial Number Blank. In this case the user of your CD will need to provide the serial number in order to run the application.

➔ Press **Next**

*Publish
Application:
Choosing the
Directory*

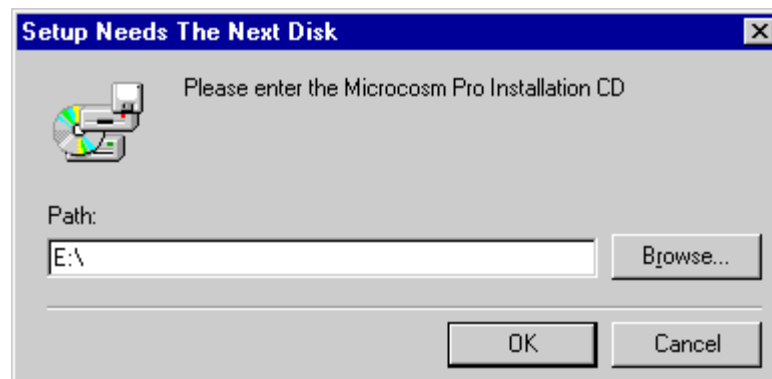


- You must now provide a directory into which Microcosm will build the image of what will be placed onto the CD.

Note There will need to be disk space large enough to hold your application plus around 40 Megabytes of Microcosm Binaries.

- Press **Next**

*Publish
Application:
Pointing at the
Microcosm Install
Disk*



- Enter the disk drive (or Path) of your Microcosm Install Disk. The system needs you to provide the installation CD in order to copy the viewer code from this CD.
- Press **OK**
- If you did not login to the Configuration Program as an Application, then you will now need to point at the required Application Registry.
- Finally you will see a summary screen of all the options you have chosen. You can step back through these at any time, but when you accept them, the image will be built at the address you supplied.

- ➔ Copy the Image onto a CD. The CD produced should AutoRun Microcosm and your application when inserted into a CD Drive.

5.2 Installable CD

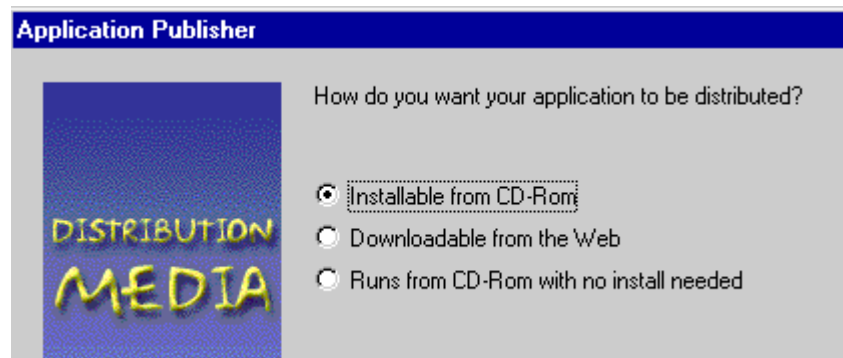
The **Publish to Installable CD** option allows you to produce an install CD from which your users can install your application together with a viewer only version of Microcosm Pro onto their hard disks. The installation will appear almost identical to the installation of your original version of Microcosm.

To use this option you must login to the Microcosm Configuration Program (See **Logging On to Microcosm**) as the owner of the application that you wish to publish (or alternatively as the Microcosm System Administrator).



- ➔ Select the Publish Wizard **Publish Application** from the Microcosm Configuration Window.

*Publish
Application:
Method of
Publishing*



- ➔ Choose the **Installable from CD** option.

- ➔ Press **Next**

The remainder of the process is identical to the Runs From CD option.

- ➔ Enter the serial number that you wish to be inserted into the Microcosm Viewer that you will distribute with your application.

Note Distributing Microcosm Applications is free of any licence restrictions. However distributing Microcosm Code on a CD may be subject to licence restrictions. The Serial Number that you have will depend on the sort of licence you have purchased. Potential publishers should contact Multicosm Ltd at mcm@multicosm.com or +44 (0)1703 767678 if they have any questions about this.

Note You may leave the Serial Number Blank. In this case the user of your CD will need to provide the serial number in order to run the application.

- ➔ Provide a directory name into which Microcosm will build the image of what will be placed onto the CD.

Note	There will need to be disk space large enough to hold your application plus around 20 Megabytes of Microcosm Binaries.
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- ➔ Enter the disk drive (or Path) of your Microcosm Install Disk. The system needs you to provide the installation CD in order to copy the viewer code from this CD.
- ➔ If you did not login to the Configuration Program as an Application, then you will now need to point at the required Application Registry.
- ➔ Finally you will see a summary screen of all the options you have chosen. You can step back through these at any time, but when you accept them, the image will be built at the address you supplied.
- ➔ Copy the Image onto a CD. The CD produced should AutoRun the Microcosm setup program when inserted into a CD Drive.

5.3 Local Area Network

You can place your application on a network drive, and point your Microcosm (which may also be on a network drive) at the application registry (.mcm) file, and it will run without problems.

However, if you wish to allow shared use of Microcosm by separate users you should first see the section on Networks in the System Administrators Guide.

5.4 The World Wide Web

This section explains how Microcosm Applications may be published on the Web, and how users may access these applications.

5.4.1 Overview

A Microcosm Application may be copied onto a Web Server. In the root directory of the Application will be found a file called `app.html`. If a user points their browser at the URL of this file, then the Microcosm on their machine will run and will access the application files from the Web Server.

E.g. If I move the “Mazes” directory into the top level of my webserver known as `www.multicosm.com`, then I might give the following URL to users:

`http://www.multicosm.com/mazes/app.html`

When this is given to Netscape or Explorer, if Microcosm is already loaded on the client machine, then Microcosm will start to run the application as if it were on any other network drive.

All the above can be accomplished without the use of the Publish Wizard. However, the publish Wizard has the advantage that it will also install a Browser Plugin onto your server, so that if Microcosm is not already loaded on the client, then the client will automatically download and install the web plugin version of the Microcosm viewer, then run the application using this plugin.

5.4.2 Limitations of Web Delivery

- `app.html` should work on any modern Java Script capable browser, specifically IE4.0 and above and Netscape 3 and above.
- The current distribution is intended for Web delivery over a fast intranet, where it is assumed that Web delivery will be almost as fast as Local Area Network delivery. Although it should run, it is not really intended for remote sites, and its usefulness will depend on speed of access to that site.
- The delivery should work perfectly on Windows NT's built in Web Server. It will also work on Unix Web servers such as Apache, but where servers are case sensitive success will depend on ensuring that the case in the application is preserved *exactly* when the Windows directory is copied to the Unix server. Some NFS mounting programs are careless in this respect.

5.4.3 Using the Publish Wizard

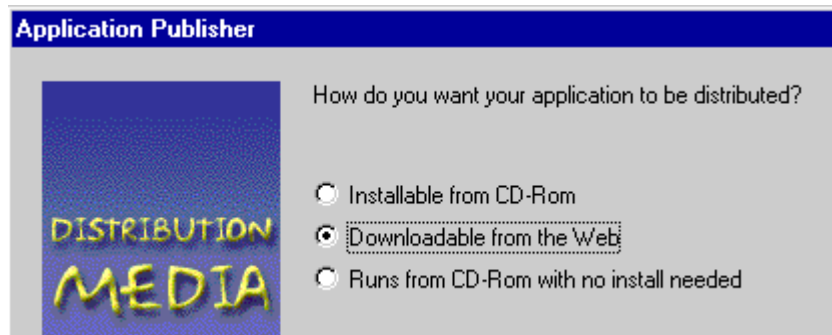
To use this option you must login to the Microcosm Configuration Program (See **Logging On to Microcosm**) as the owner of the application that you wish to publish (or alternatively as the Microcosm System Administrator).



Publish Application

- Select the Publish Wizard Application from the Microcosm Configuration Window.

*Publish
Application:
Method of
Publishing*



- Choose the **Downloadable from Web** option.
- Press **Next**
- Enter the serial number that you wish to be inserted into the Microcosm Viewer that you will distribute with your application.

Note Distributing Microcosm Applications is free of any licence restrictions. However distributing Microcosm Code by the Web may be subject to licence restrictions. The Serial Number that you have will depend on the sort of licence you have purchased. Potential publishers should contact Multicosm Ltd at mcm@multicosm.com or +44 (0)1703 767678 if they have any questions about this.

Note You may leave the Serial Number Blank. In this case the user of your Web application will need to provide the serial number in order to run the application.

*Selecting the
Image Directory*



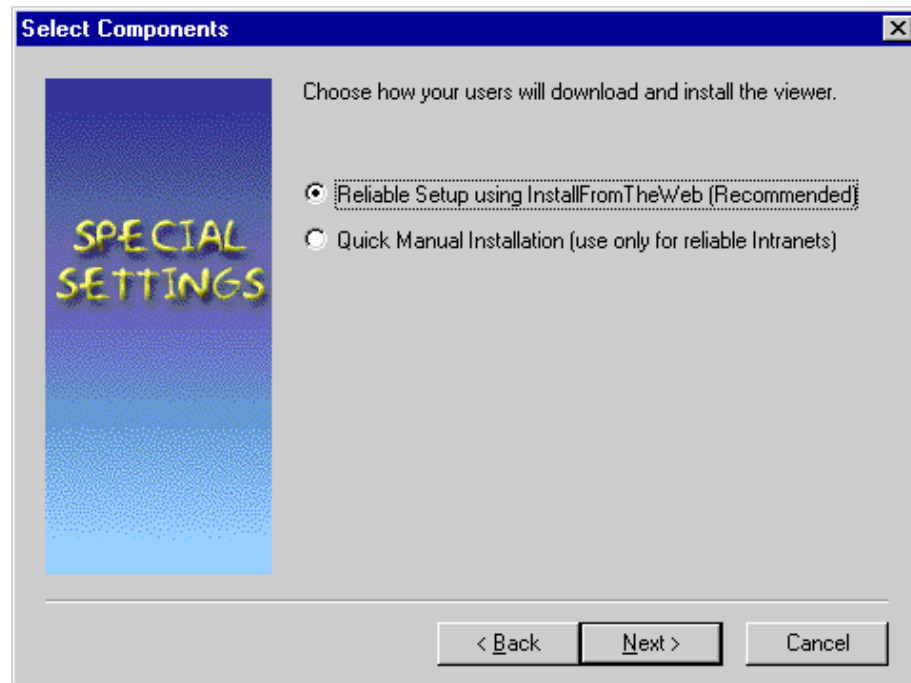
- ➔ Provide a directory name into which Microcosm will build the image of what will be placed onto the Web.

Note If you are able to mount your Web Server's filestore directly, then it is possible to give that directory here, to save having to copy the image later.

Note There will need to be disk space large enough to hold your application plus around 20 Megabytes of Microcosm Binaries.

- ➔ Enter the disk drive (or Path) of your Microcosm Install Disk. The system needs you to provide the installation CD in order to copy the viewer code from this CD.

Choosing the method that users will download the Plugin



- ➔ The next screen requires you to identify the method that the users will be offered to download the plugin (if needed). **The Reliable Setup Using Install From the Web** is recommended. In either case an image of the Microcosm Binaries will be built in a directory called Mcmsetup which will be below the same directory as the application directory on the web server.
- ➔ If you did not login to the Configuration Program as an Application, then you will now need to point at the required Application Registry.
- ➔ Finally you will see a summary screen of all the options you have chosen. You can step back through these at any time, but when you accept them, the image will be built at the address you supplied.
- ➔ Finally, if you did not build the image directly onto your Web Server, then you will now need to copy it there. This may be possible using an NFS mount provided by your local system administrator, or it may require you to use ftp. Consult your system administrator or web master if in doubt.

Note	If you have copied your application files onto a Unix server then it is likely that you will need to change the permissions on the files so that they are world readable. E.g. you need to logon to the machine using Telnet, change to the application directory and <code>chmod -R a+r *</code>
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5.4.4 Running Applications from the Web

When a browser points at the `app.html` file of a Microcosm Application on a Web Server, the following things happen.

The browser checks to see if there is a full Microcosm Pro installation or a Microcosm Viewer Browser plugin on the client machine. If so it will start that copy of Microcosm, passing it the URL of the application registry file.

If there is no Microcosm on the client machine the browser will initiate the download of the Microcosm Viewer Plugin from the server. This plugin may have been mounted either as

- A Self Extracting Executable: in which case the user must run this executable to install the plugin on the client.

Or

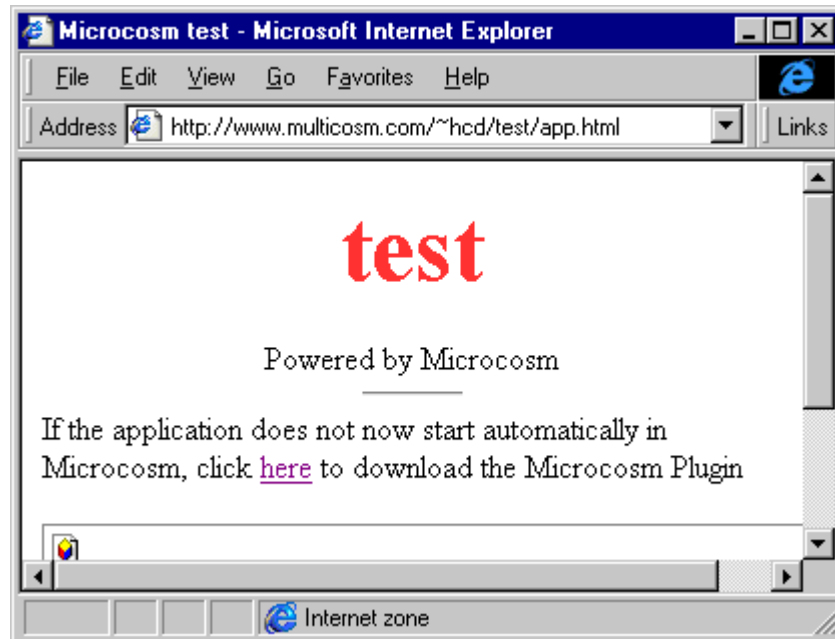
- As a set of Install from Web files. This is the recommended route and requires that the client has the necessary InstallfromtheWeb plugin.

If the InstallfromtheWeb plugin program is not already present, then the browser will first download and install this, before downloading the Microcosm Plugin, before starting Microcosm!

In the case where a machine is completely “clean” and has no copy of Microcosm and no InstallfromtheWeb plugin, the full process will appear like this;

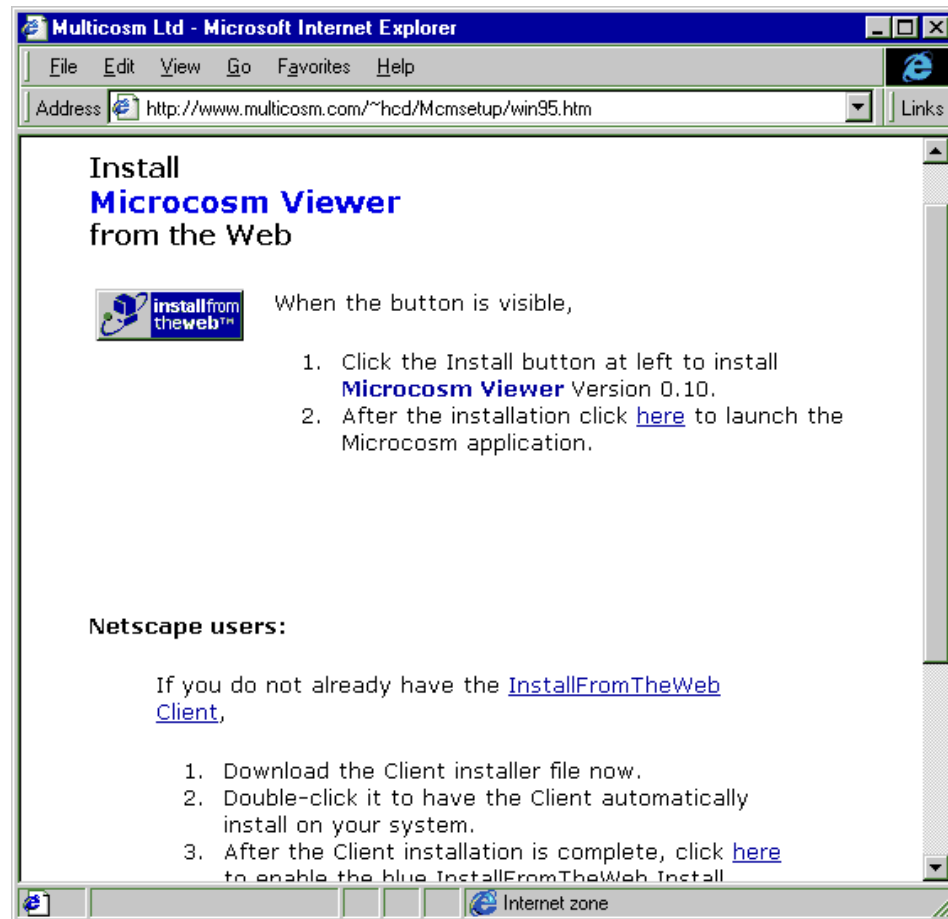
- The user sends types the URL into the Browser, e.g, in this example the test application has been published on the ~hcd directory of the Multicosm server, so the URL is
`http://www.multicosm.com/~hcd/test/app.html`

Running from the Web



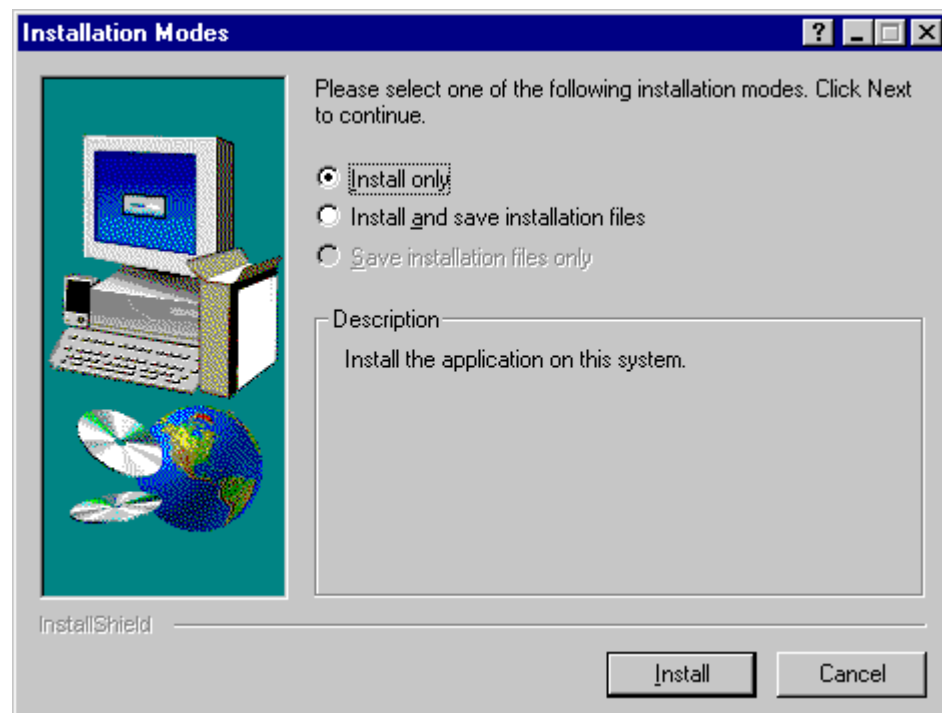
- The `app.html` does not automatically run Microcosm (as there is none installed), so the user must click on the [here](#) button.
- In the case of Internet Explorer you will now see InstallFromWeb pugin loading. (In the case of Netscape you will need to download it manually from the screen below). The InstallfromtheWeb Plugin is about 1 MB large, and the installation takes only seconds on a fast Intranet.

*Downloading the
Plugin using
InstallfromtheWeb*



- ➔ When the InstallfromtheWeb plugin has been installed, the InstallfromtheWeb button in the top left hand corner above will become visible. Click on this button to download the Microcosm Viewer. The Microcosm Viewer files are about 15 MB large, and will take a minute or two to download on a fast Intranet.

*Downloading the
Microcosm viewer
files for
installation only*



- ➔ When the Microcosm viewer install files have been downloaded you will see the Microcosm Setup program run, It will run automatically, and requires no user input. It will take about around a minute to complete.
- ➔ When the Installation is complete the Browser Screen will become visible again. Press the upper **here** button if using Internet Explorer and the lower one if you have used Netscape.
- ➔ You will see the application database and registry files download, and the Microcosm splash screen will be displayed as the database files are indexed on the client. The size of the databases and registry depend on the size of the application but will vary from around 50K to as much as 1 MB.

Note	All the above will only happen the first time you run a Microcosm Application. Subsequently if you run another application, once you enter the URL only the last stage above will happen.
Note	Once an application has been run on a workstation the application databases and registry will be cached in the workstation's TEMP directory. This will mean that subsequent access to the application will be even faster. However, you will need to delete these files manually if you want to refresh them from the server.

6 Working with Web Documents

In this chapter

- Introduction to Working with Web Documents
 - Working with a Local Copy
 - Working with the URL
 - Summary of Working with Web Documents
-

6.1 Introduction to Working with Web Documents

The World Wide Web is a major source of information and has the excellent advantage that it's documents are already in electronic form. This chapter assumes that the application author has already done some browsing on the Web, and as a starting point has a list of the URL's for the documents that should be included in the application. The purpose of this chapter is to give application authors hints on how to make best use of the Web and it's resources.

There are two fundamental approaches to working with these documents. You can either:

- Make a local copy of the document and include the local copy in your application
- or
- Give Microcosm the URL of the external document.

6.2 Working with a Local Copy

The principle advantage of working with a *local copy* of a document found on the Web is that users of your application will always have immediate access to the document. If you point to a URL then it is quite possible that access to the resource will be slow, the server may go down from time to time, or even worse, the document may be moved altogether. This section demonstrates what is possible with a local copy of a document, and considers the pro's and con's of this approach.

The first task is to obtain a local copy of the document. The basic principle is to load the document into your browser then use the **Save As** option on the **File** menu to save a local copy of the file. However it may not be as simple as this, as

- the information you want is inside a frame, so what you save is the frame rather than the information
- the page contains many GIF's and JPEG's, which will not be saved with the html.

Most browsers have options for saving framed pages and for saving embedded pictures. Even then the problem may not be cured as the html may well assume that a picture will be found in some directory other than the current, so it becomes necessary to mirror the directory structure after downloading the files - or else it is necessary to change the html. Another problem may be that the html contains links to other pages on the same site which you have not downloaded. This can all be time consuming, and dealing with these problems is beyond the scope of this tutorial. However a number of freeware and shareware "page sucking" utilities exist, and if you intend to do a lot of downloads, then this is the best solution.

<p>Note: You should be aware that just because a document is available on the Web does not give you automatic right to make and distribute copies. You should approach the owner before re-using documents on the Web.</p>

Once you have downloaded an html document there are two ways you might work with it in Microcosm.

- register the document as type WP (so it will use the MultiViewer to view the document); this will happen by default when you import a local document
- register the document as a document of type WWW (so it will use your default Web Browser to view the document). (To do this you will need to import it first as type WP, then change the document properties so that the type is WWW)

♦ **Advantages of working with local copies of documents**

Access to the document will be faster

You can guarantee the document will always be there

You could edit the document if necessary

If you register it as WP type you can put Microcosm links in it

Large pictures may be extracted from their Web pages and Microcosm linked

♦ **Disadvantages of working with local copies of documents**

Your readers will not benefit from updates to the document

It may be time consuming to download all the parts that go with the document

Links to other documents on the same site will not work unless you copy all those documents as well.

You need to clear copyright with the owner.

♦ **Advantages of importing documents as WP type**

The Multiviewer allows you to put Microcosm links into the html.

The Multiviewer will still execute links to other URL's by launching your standard Web browser.

Documents of type WP will be indexed for use with the computed linker.

♦ **Disadvantages of importing documents as WP type**

The Multiviewer may not render document as well as a browser

The Multiviewer cannot execute things like animated GIF's or Javascript or Applets.

♦ **Advantages of importing documents as WWW type**

Your Web browser will execute Scripts, Applets and animations etc (as long as they were successfully downloaded).

Your Web browser may render things more accurately.

♦ **Disadvantages of importing documents as WWW type**

You cannot put Microcosm links into the html.

6.3 Working with the URL

An alternative to working with a local copy of the document is to point Microcosm at the actual URL, so that Microcosm fetches the document from the external Web Server every time the user asks to view the document. This is done using the **Import External Document** option on the **File** menu of the **Select a Document Window**.

♦ Advantages of using a live URL

There is little effort involved - no need to make a local copy

In cases where a page is regularly being updated by its owner, it may be that you want your users to see the latest information. (E.g. If the Page is entitled "Today's News Headlines")

If the page uses Applets and scripts etc. then you may need to be connected to the server for them to work as expected (E.g. A page that displays latest statistics from some database may have to be viewed from the host server in order to access that database).

♦ Disadvantages of using a live URL

Speed of access to the document may be slow

The application may be used on a machine that does not have internet access

The Web Server may not be available from time to time

The owner of the external site may move or delete the document

The owner of the external site may change the document so that its content is no longer what you wanted

You cannot index the content of external documents for use with the computed linker

You cannot change the document at all

You cannot put Microcosm links in the document

6.4 Summary of Working with Web Documents

When it comes to working with Web documents, the easiest and fastest thing for the application author to do is to point Microcosm at the external URL. The trouble with this is that access may be poor, and you will get poor hypertext functionality.

It is more time consuming to download a local copy of a document, but if the author takes this trouble, then they can be sure that the document will always be speedily available, and if they import it as a WP type, then it will be possible to put Microcosm links into it and to index it for the computed linker.

7 Index

—A—

Adding document Attributes, 31–33
Adding documents, 13–14, 24–28
Application, 5
Application Development, **19**
Application distribution, 47
Application publishing, 47
Applications, Microcosm Applications, **3**
Attributes, 31–33
Authoring, 6

—B—

Buttons, 36–42

—C—

CD, 49–51, 52–53
Changing document attributes, 31–33
Changing folder structure, 23
Computed link index, 34–35
Conventions
 Typographical, 64
 Windows 95, **64**
 Windows NT, 64
Creating a computed link index, 34–35
Creating an Application, 6–7
Creating annotations, 43
Creating links, 36–42

—D—

Deleting document Attributes, 31–33
Deleting Documents, 30
Document attributes, 24, 31–33
Document settings, 43–45
Documents, 24, 29
Documents Copying, 29
Documents Deleting, 30
Documents of the Web, **61**

—F—

Folders, 12–13, 23

—G—

Generic links, 36–42

—H—

html documents, 62–63, 64

—I—

Indexing, 34–35

—L—

Link presentation, 43–45
Local Area Network, 53
Logging on, 21–22

—M—

Making annotations, 43
Making links, 36–42
Managing documents, 24
Microcosm Application, 5
Microcosm Plugin, 56–59

—N—

Naming your application, 10–11
Network, 53

—O—

Overview
 World Wide Web, 53–54

—P—

Plugin for the WWW, 56–59
Presentation, 43–45
Publishing, 47
 Installable CD, 52–53
 LAN, 53
 Stand Alone CD, 49–51
 WWW, 53
Publishing Applications on the Web, 54–56

—R—

registering documents, 13–14
Running Applications on the WWW, 56–59

—S—

Settings, 43–45
Start-up documents, 15
Structure, 12–13, 23

—T—

Typographical Conventions, 64

—U—

URL's, 61, 64

—W—

Windows 95, 64
Windows NT, 64

Wizard, 6–7
World Wide Web, 53
 Overview, 53–54
 Publishing, 54–56
WWW Documents,, 61

