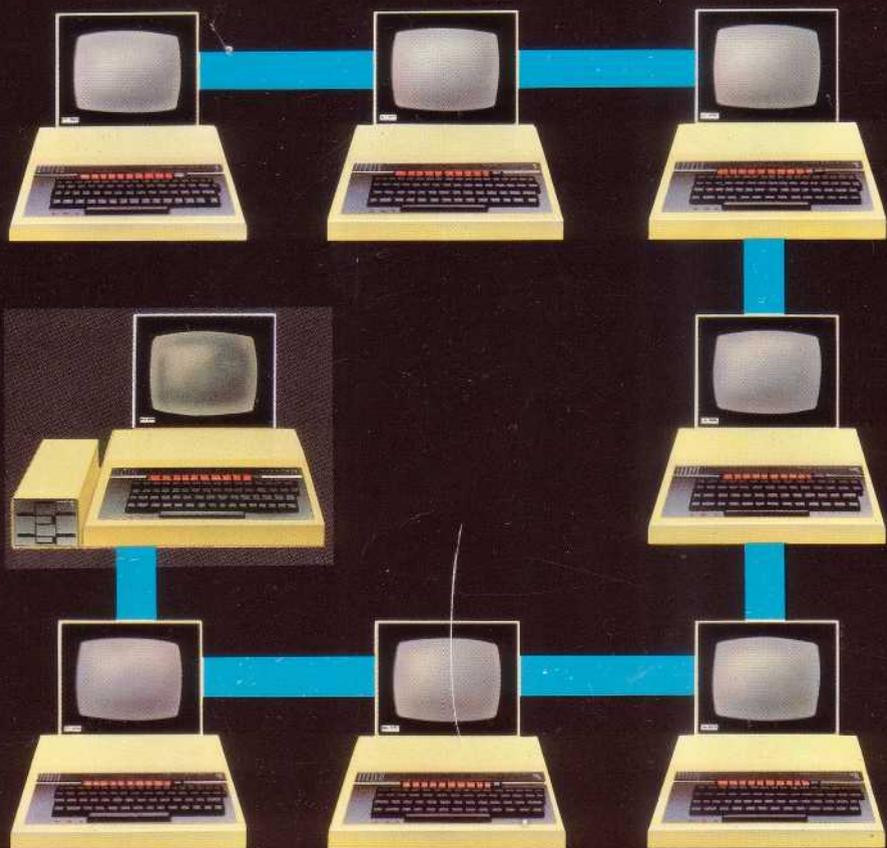


 ACORN COMPUTER

Econet level 1 file server MANAGER'S GUIDE



Acorn Econet



Level 1 File Server manager's guide

Within this publication the term 'BBC' is used as an abbreviation for 'British Broadcasting Corporation'

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Written and designed by Baddeley Associates, Cambridge

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Technical Enquiries
Acorn Computers Limited
Fulbourn Road
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CB1 4JN

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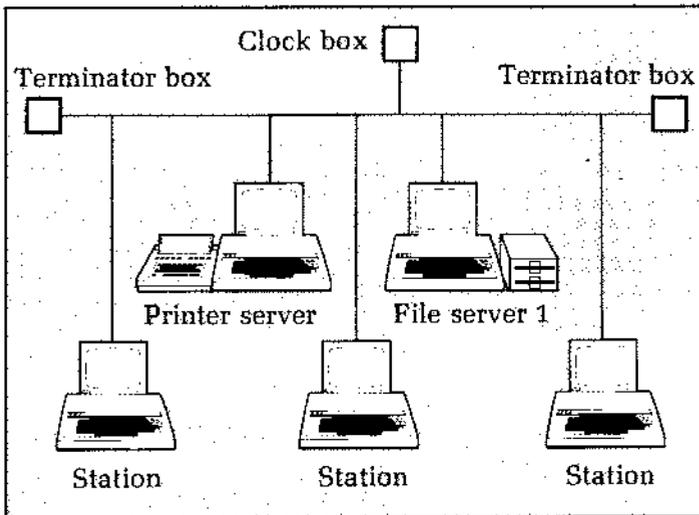


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Introduction

Econet is a low cost information and communication system which links together a number of microcomputers, called user stations, to a central disc filing system and printer. This allows several users to share otherwise expensive disc filing and printing facilities.

The disc filing system and the printer are connected to the network via dedicated BBC Microcomputers called the file server and printer server. A network can support up to 254 stations including any combination of file servers, printer servers and user stations.



The file server is a Model B BBC Microcomputer fitted with Econet and disc software and interfacing. Once the file server program has been loaded and run, it allows users access to stored files just as if they had their own disc drives attached.



The system caters for two types of file

- users' own files, which are secure against access

by other network users and can be saved from each user station

- library files, which are freely available to anyone on the network and which store data constantly in use, for example, a text editor program. These cannot be saved at a user station while the file server is running.

Your file server comes with the Level 1 File Server Master Disc, referred to elsewhere in this guide as the Master Disc. This contains

- the file server program
- other utilities useful when running the Econet, such as those for backing up and formatting discs.

This guide describes how to set up and manage an Econet Level 1 File Server. It is written for the network manager who is responsible for administering the Econet. The guide includes

- all the necessary instructions for installing and operating the file server
- advice on the day to day running and administration of a multi-user network.

You should also refer to the other manuals which came with your Econet system; the installation leaflet, the BBC Microcomputer System User Guide and the BBC Microcomputer Disc System User Guide for advice on disc handling and file management.

Station users have their own guides on how to use the file service.

Conventions used in this guide

Throughout this guide there are instructions for typing in commands and data, to which the following rules apply:

- showing a word in square brackets indicates that it is a key
EXAMPLE: [RETURN] means the RETURN key
- descriptions in angle brackets should be replaced by the information required
EXAMPLE: <filename> means type the name of a file
- characters not in brackets should be typed in exactly as they are shown.

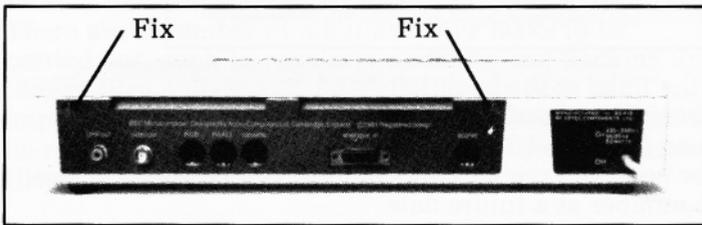
Setting the file server station number



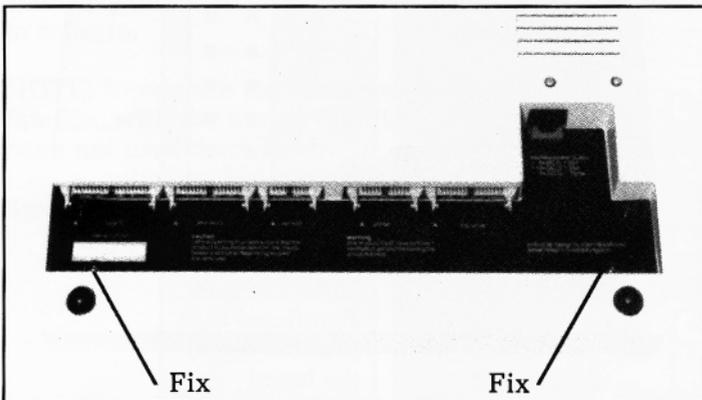
Before you can use any station in an Econet you must set its station number so that the network can identify it. It is recommended that the file server is set to the default number 254. If you have more than one file server set one to 254, and select different numbers for the others.

To set the file server station number go through the following steps, very carefully. If by any chance you damage the equipment you will have to have it repaired and it will not be covered by the guarantee.

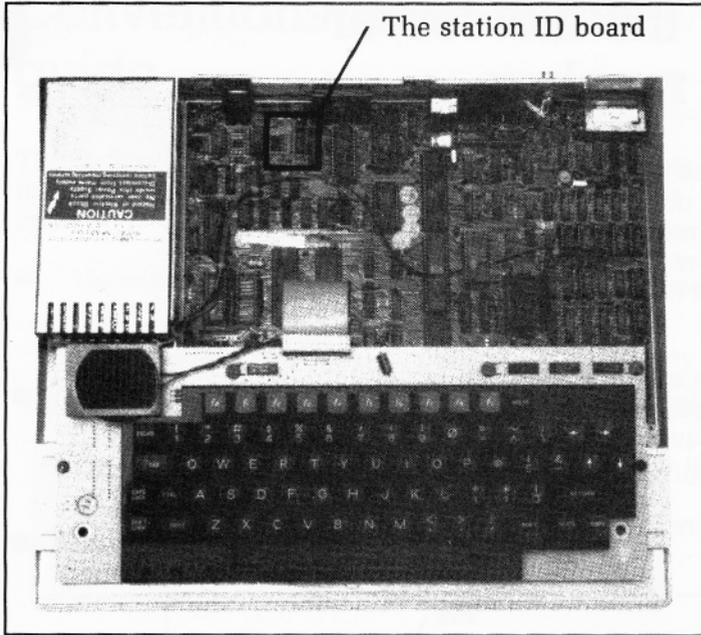
1. Make sure the computer is not connected to the mains power.



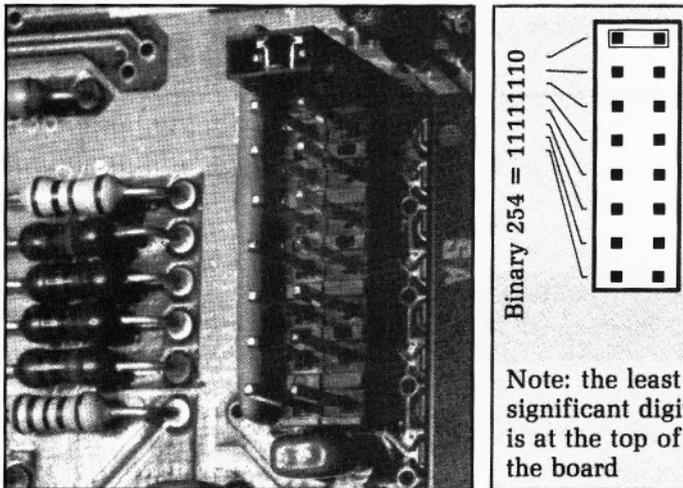
2. Unscrew the two screws in the back panel marked "FIX".



3. Unscrew the two screws on the underside of the computer near the front, and remove the lid carefully.



4. Pull off the links at the back left hand corner of the printed circuit board and position them as shown below. (See also the leaflet supplied with your clock and terminator boxes.) Save the links in case you need to change the number at a future date.



5. When you have finished setting the station number, refit the lid and replace the screws.

The role of network manager



Econet is a multi-user system. Administration of the system is carried out centrally and, unlike single-user systems, users do not do their own backing up and formatting of discs. The successful operation of each user station depends on the whole system being set up and maintained correctly.

Every Econet network needs a manager who is responsible for the day to day running, administration and maintenance of the entire network, and is available to answer queries and sort out any problems the users may have. Each time the network is switched on you must ensure that all the equipment is functioning correctly and ready for use.

There are a number of administrative tasks to be carried out, such as regularly updating and backing up library files and data discs. Security can also be important and access to the file server machine should be restricted to those authorised to use it, so that users' files are secure.

The next section explains how to set up the file server for the first time and gives recommendations on how to run the network as efficiently as possible. The daily start up procedure is summarised on page 15 for you to refer to.

NOTE: to operate the file server you need to be familiar with the use of the disc drive unit. If you have not used discs before, practise with the Welcome Disc supplied with your system and refer to the Disc System User Guide.

Installing the file server

Instructions for installing the Econet and checking it out are contained in the installation leaflet supplied with the clock and terminator units.

When you set up the file server in the network:

1. Make sure that

- all microcomputers, terminators and the clock are correctly plugged into the network sockets
- all connections between units, such as the file server microcomputer to the disc drive unit, are correct
- all units requiring mains electricity are correctly plugged into the mains.

2. Switch on the mains supply and check that the red lights on the clock and terminator units are alight.

3. Switch on the file server microcomputer.

Screen: **BBC Computer 32K**
Acorn DFS
BASIC
>

If you do not get this message your disc and Econet EPROMs may be plugged in in a different sequence and you will need to hold D and press [BREAK] to reset the computer. Alternatively you can use the *DISC command as explained in the Disc System User Guide.

4. Make a back-up copy of your Master Disc.

If you have only one disc drive insert the Master Disc into the drive and

type: ***ENABLE[RETURN]**
 ***BACKUP 0 0[RETURN]**



Take out the Master Disc and put a blank formatted disc into the drive when prompted to do so. You will have to swap the discs backwards and forwards until copying is complete.

If you have two disc drives put the Master Disc into the drive 0 and the formatted destination disc into drive 1.

Type: ***ENABLE[RETURN]**
 ***BACKUP 0 1[RETURN]**

For extra information on making back-up copies see the Disc System User Guide.

Put the Master safely away and label the new working copy. If the working copy is damaged at some later stage you can make a new one from the Master Disc.

Starting up the file server

Next you need to start the file server program running.

1. Put your working copy of the Econet Level 1 Master Disc which contains the file server program into the disc drive. Put it into the top drive if you have a dual disc unit.

Type: **CHAIN"FS"[RETURN]**
Screen: **Model B File Server version x.xx starting**
 Number of files per user:

NOTE: x.xx is the Level 1 File Server software release number.

2. Decide how many files on the disc you wish to allocate to each user for this session. You have up to 31 files per disc side to allocate among the user stations on the network.

Type: **<number> [RETURN]**

If you just press [RETURN] each user will be able to use up to five files on each disc side.



If you wish to work on a disc other than the Master Disc, take out the Master Disc and insert your work disc, which may be the Welcome Disc the first time you use the file server.

Press: **[RETURN]**

to show that you have finished allocating.

Screen: **Longest file xxx bytes Ready**

This tells you the maximum file length a user has available and that the system is ready for use.

Testing the user stations

Next you need to test the user stations.

Switch on one user station microcomputer and its video monitor.

Screen: **BBC Computer 32K**
 Econet station xxx
 BASIC
 >

If "Econet station xxx" is missing, the Econet software is not activated. Hold down **[BREAK]** and **N**, then release **[BREAK]**, followed by **N**. The correct message should be displayed. If not, contact an Acorn approved dealer for help. An error message may appear after the station number. (See the list of error messages at the back of this guide).

Switch on each user station. When you're satisfied that they are all working correctly, you are ready to use the file server.

A good way to test the stations is to start by displaying on each screen the files held on the Welcome Disc. All the demonstration files on the Welcome Disc are stored under the **W** directory, so that you can access them from all the stations to which you have assigned the directory letter **W**.

Insert the Welcome Disc in the top drive (if you have a dual disc unit).

Type: * CAT[RETURN]

at the user station.

The list of files should be displayed on the user station monitor screen, showing that the user station is communicating correctly with the file server. Check all other user stations in the same way. If the correct message is displayed you have a fully working Econet. If not see the list of error messages on page 22.

To call up the Welcome programs

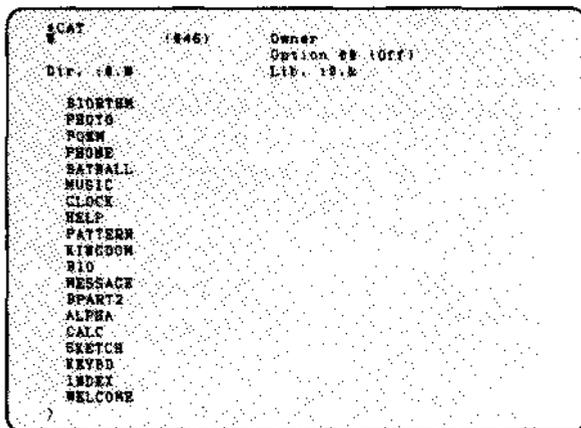
type: CHAIN"WELCOME" [RETURN]

at the user station.

Normally when you set up the file server you will allocate different letters to each station, or give a group of stations the same letter if they need to share the same files.

When you type *CAT at the user station you will see displayed the files that are allocated to that directory letter, and, underneath, the library files.

Screen:



NOTE: there are several error messages which may occur when you are setting up the file server. These are explained in the section on error messages at the back of this guide.

Daily start up procedure



This page sets out the steps you should follow each time you set up the file server after it has been switched off.

1. Make sure all stations, clock and terminator boxes are plugged in.
2. Check that all the connections between units, such as the file server to the disc drive unit, are correct.
3. Check that all units requiring mains power are plugged into the mains.
4. Switch on mains supply and check that the red lights on the clock and terminator units are alight.
5. Switch on the file server.
6. Load the Master Disc.

Type: **CHAIN" FS " [RETURN]**

7. Allocate the number of files for each user, up to 31.

Type: **<number> [RETURN]**

8. Assign directory letters either manually or using the NAMES file.

To use the NAMES file

type: **N[RETURN]**

To assign manually

type: **Y[RETURN]**

prompt: **Directory:**

type: **<directory I etter> [RETURN]**

prompt: **Station number:**

type: **<station number>[RETURN]**

Repeat for each station.

9. When you have finished insert the work disc and press [RETURN]. The "Ready" message should appear on the screen.

10. Switch on the user station and test by typing *CAT[RETURN] at each station to display the contents of the work disc on each screen.

The file server is now ready to use.

NOTE: once the file server program is running you should not use the file server microcomputer keyboard at all. All commands are given at the user station.

While the file server is running all the commands received from user stations are displayed on its screen, with the number of the station at which each was typed in.

EXAMPLE

Screen: **191: *1 AM 123**
143: * CATALOGUE
143: LOAD A.MATHS
191: SAVE B.PROG

where stations 143 and 191 have been assigned directory letters A and B.

The display scrolls up when the screen becomes full.

When you have finished with the file server, pressing [BREAK] will stop the program running.

Managing the NAMES file



The NAMES file is kept on your Master Disc and is used for storing a list of all current user stations and their file directory letters.

If you have several user stations you will find it saves a great deal of time to store their directories on the NAMES file and let the computer allocate them automatically each time the file server is set up.

As this cannot be done when the file server is active, you may find it convenient to update your NAMES file and make back-up copies of files worked on during the day, at the end of the day.

The NAMES file must be kept up to date by removing or adding stations as required. To update the list, load the utilities program (FSUTIL).

Type: **LOAD"FSUTIL"[RETURN]**
 RUN[RETURN] after the prompt

A list of the file contents is displayed.

Prompt: **Type in directory and station number**
 Directory:

You can either add or delete stations.

To add stations follow the procedure you used to manually assign directories (see page 12).

To delete stations

type: **DELETE[RETURN]**
prompt: **Station number:**
type: **<number>[RETURN]**
where <number> is the number of the station to be deleted.

The station number and its directory will be removed from the NAMES files. Press [RETURN] to finish your editing of the NAMES file and return the file to disc.

When you set up the file server using the NAMES file type:
N[RETURN] after the prompt: **Manual?**

The file is loaded from disc and allocates all the directory letters giving the display:

Longest file xxx bytes

Ready

when the allocation is complete.

If the NAMES file cannot be found you will get an error message.

Disc management



This section describes the routine disc handling procedures you need to follow when running the Econet. These use programs provided on the Level 1 File Server Master Disc. Routine procedures like backing up files and formatting discs would be carried out by each user in a single user system but on a multi user system like Econet they are the responsibility of the network manager.

The Disc System User Guide, which is supplied with each BBC Microcomputer with a disc interface, provides a great deal of information on disc systems generally and the handling of the discs themselves.

Backing up discs

Back up all your discs regularly, always keeping at least three copies. The instructions for copying discs and files are given in the Disc System User Guide which also explains a good system to use, called the grandfather, father, son routine.

Preparing new discs

You cannot use new discs in the Econet without formatting them. To format a disc you use the program FORM80, or FORM40, depending on whether you wish to format 80 or 40 tracks. The Disc System User Guide tells you what formatting is and gives instructions on how to carry it out.

Managing library files

Library files can be read (but not written to) by any user of the Level 1 File Server (including those which have no directory letter assigned to them at start up). Because they are read-only while the file server is running, they must be updated using ordinary Disc Filing System (DFS) commands on the file server computer itself.

Library files are identified by being in the "&" directory, so you should use the *DIR command to select that directory before starting work on the library files. Apart from the "&" identification, library files are not special in any way, and can contain programs, data or any other useful information which can be shared by many Econet users.

Some library files are supplied on the Master Disc and include VIEW, REMOTE and NOTIFY. As these are powerful commands which can affect the security of stations on the network, you may want to move them out of the library directory and into a directory used by only one user, using the * RENAME command.

Inserting and removing discs

You can change discs as often as you want to while the file server is running. You should remember, however, that the discs are being worked on by several users. When you take out a work disc you must make sure that none of the station users still needs to access it.

Allocating disc drives

It helps to organise your discs so that all the library files are kept on drive 0. Then you can change the disc in drive 1 knowing that station users still have access to the library files.

System security

The file server station is the key to system security. Access to it must therefore be restricted to those who need it.

When the system is not in use, always store all discs under lock and key. Remember it only takes a few seconds to copy a disc.

Always monitor any user who is using the VIEW, REMOTE, PROT, UNPROT or NOTIFY functions.

Glossary

**Back-up copy**

a copy of a disc or file kept in case your working copy is damaged.

Clock unit

the unit that produces the clock signal supplied to all machines on the network.

Default

a setting or value provided by the system, used unless an alternative is specified.

Directory

a list (or set) of files in a filing system. In the Econet system, each user station is assigned a letter, and files created at that station are filed under the letter. This is referred to as the directory.

EPROM

erasable, programmable read only memory.

Library file

a file which stores a program or data which is constantly in use and which is freely available to any user on the network.

Network

a number of computers connected so that they exchange information.

Printer server

program which allows any station on a network to use a printer attached to it.

User station

a single computer connected as part of a network.

Error messages

This section explains the error messages which occur when setting up and using the file server, and how to sort out problems.

Messages appearing at the file *server* (see also the installation leaflet)

No clock **163**

No clock signal is reaching the computer.

Check that:

- the computer is correctly plugged into the network
- the clock unit is plugged into the network and is being supplied with power
- the network and connecting cables are not faulty
- if the above checks are satisfactory, the most likely cause is a fault in the clock unit or the computer.

No NAMES file

You have not yet created a NAMES file or it is not on the disc in the drive at present.

Messages appearing at the user station

Not listening **162**

Your command has not been accepted by the file server.

Check that:

- the file server program is running
- the station number of the file server you are trying to reach is 254. If it isn't then you must first specify its number with the I AM command (see the Level 1 File Server User Guide).
- the computer is plugged into the network cable.

No reply **165**

The file server is not responding to your command. Check that:

- the file server has a disc drive connected and working.

**Line jammed****160**

Information is continuously present on the network data lines.

Switch off all microcomputers except the file server

and user station at which the message first appeared. Test the file server by calling up the directory using * CAT.

If the error message has disappeared then the fault is not in the file server.

Now switch on each user station in turn and use

* CAT. When the "Line jammed" error reappears the station last switched on has faulty Econet interface components and should be fixed by an approved Acorn dealer.

If the error message remains, switch off the file server and type:
*CAT [RETURN].

You will see a "Not Listening" message (since the file server is switched off). If the "Line Jammed" message disappears then the file server is probably faulty. If on the other hand the Line Jammed message remains then the user computer is faulty. In either case contact one of the sources of help given at the end of this guide.

Too much data**131**

You have tried to save too much data in a disc file (see file server start up message — longest file XXX bytes).

Directory full**179**

You have tried to save too many files on disc (see Starting up the file server — number of files per user).

Insufficient access**189**

The file server does not recognise you as a user station. This could be because you are not on the NAMES file.

File locked**195**

You have tried to save or delete a 'locked' file. This can be verified by looking at the list of files held on disc by using * CAT. Each locked file is identified by the letter L after the name.

Bad filename**204**

You have used an incorrect syntax in specifying a file.

Invalid access string **207**

In attempting to lock a file using the ACCESS command a letter other than L has been specified. (See the Disc User System Guide, *ACCESS).

File not found **214**

The filename you have specified is not on disc.

Bad command **254**

You have typed in an incorrect command word, for example, *CAR instead of *CAT.

Service and support



If you have any problems with setting up or running the file server or need any advice, contact one of the following:

A dealer from the national network of approved dealers (see list).

Acorn Computers Limited, Technical Enquiries, Fulbourn Road, Cherry Hinton, Cambridge CB1 4JN

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