Manual for
DeskWatcher

Created 11-19-2020 T. Milius
Changed 01-31-2022 T. Milius

Content

Overview

Please read this manual carefully and in full. In case that you do not understand parts of it please desist from buying and using DeskWatcher.

Note: The computer program DeskWatcher operates only in conjunction with the computer operating system RISC OS! Operating this program requires a fundamental knowledge about operating of programs on RISC OS. These basics are not explained in this manual, they can be found in the RISC OS users guide.

DeskWatcher is a screen sharing program. This means that with DeskWatcher you can show the content of the screen of a RISC OS based computer on another RISC OS based computer by making usage of a network connection and if necessary, you can take control of mouse and keyboard on the distant computer for a while.

DeskWatcher tries to reduce the workload on the network as much as possible by capturing various central RISC OS screen output system calls on the server computer and passing them on to the client computer. There they are run inside a separate window which emulates a screen. This method has advantages but also disadvantages. As a disadvantage text can be only displayed in a correct way if the client computer has the same fonts as the server computer. Additionally, there are some programs which are writing directly into the screen memory bypassing RISC OS. Therefore, DeskWatcher offers the option to transfer parts of the screen content from server computer to the client computer too. You are able to configure this for every program and even every window separately.

Note: Unfortunately, there are programs which DeskWatcher can't display or will display incorrectly. Using the free of charge test version, you are able to check whether DeskWatcher meet your demands.

DeskWatcher can be used if installed accordingly and configured already from start of the server computer onwards during the so called PreWimp phase of RISC OS even there is a small technical gap at the switching to the Wimp.

DeskWatcher allows several clients to connect to the same server computer at the same time in parallel. Technically the number of connections is only limited by the processing power of the server computer and the network capacities. Connections can be controlled by assignment of usernames and passwords with related rights. Only one person can control mouse and keyboard of the server computer at one time. The person in front of the server computer is thereby handled in a preferred way. Requests from users of the client computers to take over the control can be rejected by enquiry.

Warning: DeskWatcher does not encrypt any data during the transmission over the network. In case that you can't ensure that your network data will not be recorded like it is the case with internet connections you must not transmit any data by DeskWatcher where a damage may occur to you or others by recording of this data! Even data on in-house networks may be recorded by unauthorized persons under certain circumstances.

Warning: Under no circumstances use DeskWatcher for remote maintenance or remote control

of other computers. DeskWatcher is simulating RISC OS keyboard drivers which may lead to the effect that the release of keys is delayed or lost during the transmission from the client computer to the server computer. This again may lead to unwanted or harmful key repeats on the server. You must not use DeskWatcher in environments where a failure of the software could have deadly or negative consequences on health or negative consequences on data, finances, machines etc.!

In addition DeskWatcher offers the possibility to record the screen activities on the server computer in files and to play back them later in a nearly real time simulation in the DeskWatcher client program.

Installation

Requirements

DeskWatcher requires at least RISC OS 5.22. The program is executable on an Iyonix PC, a BeagleBoard xM, a Raspberry Pi B, a Raspberry Pi 2B and a Raspberry Pi 3B+. In case that the connection function between client and server shall be used there must be a network connection between the computers available and the access of the client to the according TCP/IP port of the server must be ensured.

Note: DeskWatcher doesn't work in conjunction with the RISC OS emulator RPCEmu!

DeskWatcher requires a lot of RAM. The requirement depends heavily on the configuration of the program. In general, higher screen resolutions imply the need for more memory. The same is valid for the network connection between client and server. Likewise, the programs used are playing a role. Whilst !Edit transfers just a few thousands characters per page in case of games or pictures millions and more characters per second will be transferred. A typical ADSL connection usually allows 100-200 Kilobytes per second for upload. There are lots of RISC OS programs which are bypassing RISC OS during the screen update especially games. Such programs are not supported by DeskWatcher.

Note: Requirements are so manifold that it can't be granted that in a certain constellation all needs can be fulfilled. Using the free of charge test version, you are able to check whether DeskWatcher meet your demands.

Performing the installation

Copy the !DeskWatch directory to an arbitrary place on a storage medium. Start DeskWatcher once, adapt the configuration to meet to your requirements, stop the program and restart it afterwards. Now DeskWatcher should be ready to use.

From version 0.08 onwards DeskWatcher is delivered with three variants of the "vdugrabber" module. The variants differ between the provided properties to avoid possible security gaps in certain scenarios. Inside your installation choose the variant suitable for your, rename it to "vdugrabber" and delete the two other variants (only inside in your respective installation and not inside the original distribution!). Of course you can keep all three variants also and can activate a particular module variant by double click on demand before you are starting the "!DeskWatch" application. But take into account that the availability of all variants may be possibly a security risk in case that e.g. maleware will be accidentally loaded on the computer or external persons are having extensive access to the computer.

Differences between the module variants:

Module name	File transfer	Invers connection	Usage
vdugrabber	+	-	Usual operation
vdugrabber IC	+	+	Remote support
vdugrabber NFT	-	-	Highest security level e.g. used on servers at which external users can test software.

In case that you want to establish connections between two computers using DeskWatcher ensure that a network connection exists between client and server computer and that the network port used by DeskWatcher on server side can be accessed by the client computer. Especially for internet connections it is often necessary to setup up some unblockings and forwardings on the server's side inside the firewall and the router. If in doubt contact the responsible network experts on client and on server side.

For removal delete the !DeskWatch directory from the storage medium. Additionally, you may delete the DeskWatch directory containing the configuration files inside the Choices: directory.

Manual

Please ignore all entries in the program menus regarding "Proxies". They are not implemented yet. The only exception to this is the field "Proxy" at start of server.

The computer delivering data towards another computer will be called the server. The computer receiving data from another computer will be called client.

DeskWatcher consists in general of two programs. One to display the screen content of the server on the client and one grabbing the screen content on the server and transfering it to the client. The displaying program is called !DeskWatch. The module VDUGrabber is responsible for the grabbing of the screen data. VDUGrabber is also used on the client to grab mouse and keyboard actions during remote access. VDUGrabber can be controlled by !DeskWatch but can be also controlled separately by command files. When !DeskWatch is started it will launch VDUGrabber also and will remove it when !DeskWatch quits.

Note: VDUGrabber isn't getting along with the SpecialFX module. Therefore, !DeskWatch deactivates SpecialFX at start but will reactivate it when !DeskWatch quits.

Start !DeskWatch by a select double click on the !DeskWatch directory. On the right side of the iconbar the symbol of the program will appear.

With a menu click over the DeskWatcher symbol you will obtain a menu which allows you to display the copyright (menu entry "Info"), this help (menu entry "Help") and of the configuration files (menu entry "Configuration") and to stop (menu entry "Quit") the program. By selecting the menu entry "Received Files" you can display the content of a directory which contains the files which have been transmitted to the computer.
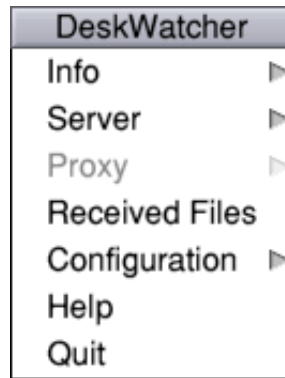
When the program is quit all related windows will be closed.

DeskWatcher can act on a computer either as server or as client. DeskWatcher can connect to several clients at the same time in client mode and in server mode several clients can connect to the same server at the same time. In case that you are trying to open a session window whilst your computer is operating in server mode you will get an error message.

Server mode

The menu entry "Server" leads into a submenu which allows you the control of the server mode. This submenu is only available if no session windows have been opened.

Server mode will be started within a subwindow of the menu entry "Start Server".

You can set the network port which shall be used. If the port field is left blank the server can be only used to generate screen recordings. No client will be able to connect to the server. Initially leave the field "Proxy" blank. Its meaning will be explained later in detail inside the section "Invers Connection". The server mode will be started by a select click on the "Start" button. A select click on the "Cancel" button will close the window without activation of server mode. In case of activation of server mode, the DeskWatcher program symbol on the iconbar will change.

Warning: DeskWatcher does not encrypt any data during the transmission over the network. In case that you can't ensure that your network data will not be recorded like it is the case with internet connections you must not transmit any data by DeskWatcher where a damage may occur to you or others by recording of this data! Even data on in-house networks may be recorded by unauthorized persons under certain circumstances. Data transmission over the Internet can be encrypted by using VPN connections which complicates recording of data by unauthorized persons.

Server mode is stopped by selecting the menu entry "Stop Server" inside server menu. In doing so all existing session connections and all active screen recordings will be terminated. The DeskWatcher program symbol on the iconbar will change back into original state.

Inside a sub window of the menu entry "Start Screen Recording" in the server menu you can determine the file by using Drag-and-Drop in which the screen recording data shall be kept.


A select click on the "Save" button will start the recording of the screen activities. A select click on the "Cancel" button closes the sub window without starting the recording.

A recording will be terminated automatically in case that server mode is finished. You can terminate it also by selecting the menu entry "Stop Screen Recoding" in the server menu.

Warning: The files containing the recorded screen activities are not encrypted. Everyone who is in possession of such a file is able to replay it with DeskWatcher. In case you can't ensure that unauthorized persons may get such files you should better not record any screen activities of which a replay by unauthorized persons may cause a harm for you or other persons. Take into account that e.g. a distribution of such a file by e-mail may have the consequence that unauthorized persons are getting access to the file!

In server mode VDUGrabber is able to generate some additional information which can be used for the localization of errors. This information is transferred over the network to the clients and recorded inside the screen recording files. The information is assigned to groups. You can determine for which groups VDUGrabber shall create information by the submenu of the menu entry "Logging Levels" in the server menu.

Logging Level
Errors
Evaluation General
Evaluation Font
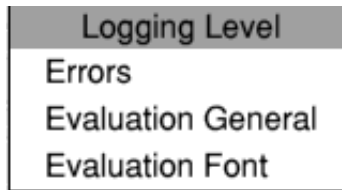
The information allows conclusion about the kind of behaviour at screen update of RISC OS programs. The settings can be changed both before the start of server mode and while it is running. If you are not facing any problems keep the settings as they are at start of the program (only "Errors" is activated) because other settings will generate a high amount of information that is superfluous in usual operation and only leading to unnecessary workload on the network.

In server mode you can have a look on the clients which are connected to the server inside a submenu of the menu entry "Active Sessions" in the server menu. In case that no client is connected the list will be empty.
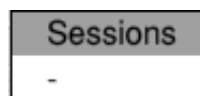
Sessions
-

Connected clients are displayed by an internal session number which can be used in conjunction with the VDGrabber command VDUGrabber_CloseSession to terminate a session followed by the user name.

The menu entry "Update exceptions" allows it to update exceptions definitions for a special handling of windows and programs in active server mode. For an explanation of the exceptions definitions please see chapter SpecApps.

Client mode

A select click on the DeskWatcher symbol on the iconbar opens a session window. This window displays the content of the screen of a server to which you have connected or replays a screen activity recording. At the bottom border there is a bar in which information about the elapsed time of a session, the actual data transfer rate in Bytes per second and the total amount of transferred Bytes in the context of the session are displayed. The bar can be hidden by ticking the "Hide Session Info" entry inside the session menu.

| Bytes/s | 0 | Bytes Total | 0 | Session Duration | 00:00:00.00 |

After opening a session window, it initially does not display useful information. You have two choices. Either you replay a screen activity recording inside the session window or you connect to a DeskWatcher server to display its actual screen content.

To replay recorded screen activities, drag the symbol of the file containing the screen activities onto the session window using Drag-and-Drop. The replay of the activities will start immediately.
Warning: DeskWatcher isn't making any checks on the file content. In case of dragging an arbitrary file onto the session window this may lead to crashes and damages of data on your computer. Therefore, please ensure that you drag a file containing recorded activities onto the session window only.

A Menu click above a session window opens the session menu.

```
         DeskWatcher
Save                  ▷
Logging               ▷
Scale                 ▷
Connection
Stop Activity
Hide Session Info
Create Movie
```

By selecting the entry "Stop activity" you will terminate the replay of screen activities or the connection to another server. The same will happen if you close a session window. In case that no session is active any longer the DeskWatcher program symbol on the iconbar will change back into original state.

Please note the difference between replay of screen activities and connections. Start or stop of screen activities replay will not cause a change of the DeskWatcher program symbol on the iconbar.

By using the sub window of the menu entry "Connection" in the session menu you can establish a connection to a DeskWatcher server.


You must enter either the name of the server or its IP address and the network port. Additionally, in "Identification" you must enter your user name on the server and if required the "Password". A select click on the "Connect" button tries to establish the connection. If this is not successful you will get an error message containing a hint about the reason why the connection failed. A select click on the "Cancel" button closes the window without starting a connection. In case that a least one connection is active the DeskWatcher program symbol on the iconbar will change.

Warning: DeskWatcher does not encrypt any data during the transmission over the network. In case that you can't ensure that your network data will not be recorded like it is the case with

internet connections you must not transmit any data by DeskWatcher where a damage may occur to you or others by recording of this data! Even data on in-house networks may be recorded by unauthorized persons under certain circumstances. Data transmission over the Internet can be encrypted by using VPN connections which complicates recording of data by unauthorized persons.

By using the sub window of the menu entry "Save" in the session menu you can save the content of the session window into a sprite file using Drag-and-Drop
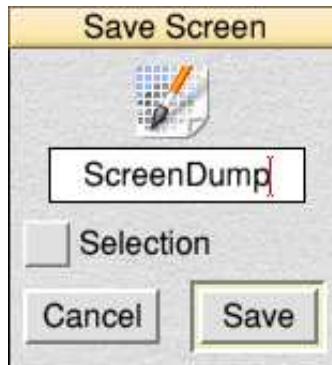

In case that "Selection" has been enabled in addition to the content of the session window the content of the internal sprite cache of DeskWatcher will be saved. Generally, this function is only helpful at analyzation of problems.

In a subwindow of the entry "Scale" of the session menu you can enlarge or shrink the session window.
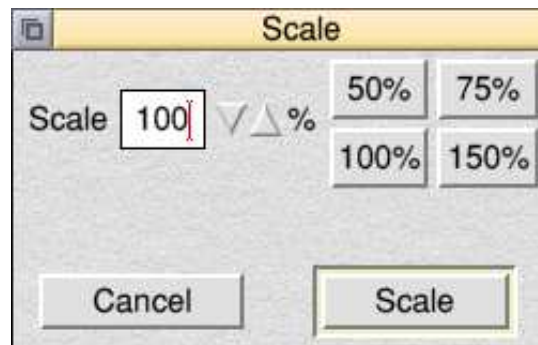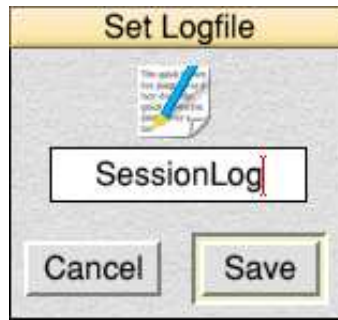

Via entry "Logging" in the session menu you reach a submenu where you perform certain settings and actions regarding analyzation of problems.
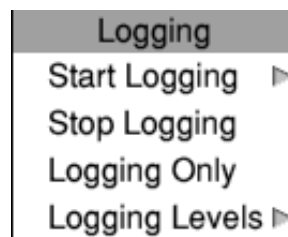
This menu is not required during regular operation.

In a sub window of the menu entry "Start Logging" in the Log menu you can determine a file which gets the protocol data by Drag-and-Drop.

When you click the "Save" button protocol information will be recorded in the file determined. A click on the "Cancel" button will close the window without starting the recording.

A recording can be finished at every time by selecting the menu entry "Stop Logging" in the Log Menu.

By selection of the menu entry "Logging only" in log menu the update of the session window can be enabled or disabled. Thus, it is possible to create protocol files without the related screen update.

As in server mode the protocol information of the client mode is assigned to certain groups. Inside a submenu of the menu entry "Logging Levels" in the Log menu you can determine which kind of information shall written into the protocol file.
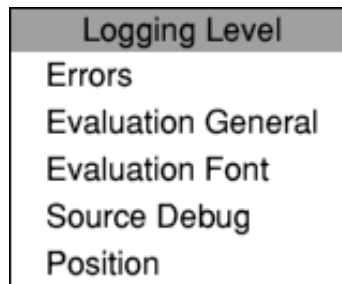
The information group "Errors" might possibly be of interest because you can determine e.g. missing fonts from it. The group "Source Debug" mist be enabled to record the logging messages from the server inside the protocol file.

Springing into action in a session

When a new session is starting DeskWatcher will create a copy of the screen content of the server and transfer it to all connected clients. This may take a while and will be repeated for every new login and change of screen mode. On client-side patience is required during connection establishing and change of screen mode.

The section of the session window on the client will be automatically adjusted in such a way that the mouse pointer of the server or the screen recording is visible. Adjustment is only done in case of mouse movement on the server or during screen recording. The position of the input caret is not considered. As long as mouse on the server or during screen recording is not moving you can choose a different section of the session window on the client.

Depending on the permissions a client can try to gain the control over mouse and keyboard of the server. To do so the user on the client must simply click into the respective !DeskWatch session window. From this moment onwards all activities of the mouse and keyboard driver of the client are redirected.

Warning: Due to the network and the program concept of DeskWatcher it may occur that activities of the mouse or keyboard driver of the client are reported never or delayed to the server. E.g. in case of a keypress this may lead to the situation that the server erroneously

assumes that the key is still pressed whilst it has been released since a while. On server side this may cause to start the automatic key repeat. All this can lead under certain circumstances to a damage of data or a crash of the server computer. Therefore, disable the automatic key repeat inside the keyboard configuration of RISC OS if you are working with DeskWatcher and avoid activities of mouse and keyboard which may cause a damage or loss of data or other damages in case of misbehaviour.

A client that gained control of keyboard and mouse can release this only by pressing an arbitrarily configurable combination of up to four keys at the same time and releasing these keys afterwards. Default is only key and this is F1. **Please take into account that there are programs evaluating key F1 so that a press of this key has unwanted consequences in case that one of the respective programs gained the input focus on the server. Furthermore, you can't use the key any longer in its usual function.** This applies amongst others to NetSurf, Draw and PhotoDesk. If necessary, adapt the configuration of VDUGrabber according to your requests. The fundamental problem that keystrokes or mouse actions can be interpreted in a wrong way or may be lost persists.

Warning: Under no circumstances use DeskWatcher for remote maintenance or remote control of other computers. You must not use DeskWatcher in environments where a fail of the software could have deadly or negative consequences on health or negative consequences on data, finances, machines etc.!

In case that a session is terminated on client side the control over mouse and keyboard is returned to the server. In case that client session aborts for which reason ever on the server side the remote control over mouse and keyboard by the client will stay. On server side you can gain control over mouse and keyboard back by making an arbitrary mouse movement. **Hint: This behaviour can cause unwanted loss of the control over mouse and keyboard on the client side in case that the mouse of the server is not immobilized (e.g. when the server is transported).**

File transfer

In case that the according variant of the "vdugrabber" module has been loaded on server side and that the according rights have been granted to the clients respectively to the the server on the client side single files may be transferred between client(s) and server. At side of recipient the transmitted files will be stored in an according directory which can be displayed by clicking on the menu entry "Received Files". Inside the file "!DeskWatch.!Run" you can adapt the location of directory according to your requirements. You only transfer one file per direction at the same time.

At client side drag the file which shall be transferred at active connection on the according session window. Depending on the configuration the file transfer must be acknowleged on server side manually.

At server side drag the file which shall be transferred on the DeskWatcher symbol at the iconbar when server is active. The file will be broadcasted to all connected clients then. Alternatively you can start such a transmission by using the command "VDUGrabber_SendFile". There will be no acknowledgement on client side but the client can be configured in such a way that receipt of files is generally prohibited.

Additionally you can transfer a file to a particular session by using the command "VDUGrabber_SendFile" at server side. Depending on the configuration such transfers must be manually acknowledged on client side.

Shooting a movie

You can generate a movie from a file containing recorded screen activities. To do so select the menu entry "Create Movie" inside the session menu. You must do so before dragging a file containing recorded screen activities onto the session window. Note that DeskWatcher is needing the help of another program to generate the movie. The program must support a certain protocol of Wimp messages. The only program which can cope with this in the moment is MakeMJPEG. MakeMJPEG can be downloaded free of charge from the homepage of Thomas Milius, Germany. Ensure that the movie creation program has been started before you are selecting the menu entry "Create Movie". When selecting the entry the creation program will allow you to determine the name and location of the movie file. After this has been done the menu entry "Stop Activity" will be enabled, so that you can abort the creation. In last step drag a file containing recorded screen activities onto the session window. The movie creation will start now. When the creation hass been finished "Stop Activity" will be disabled.

During creation the behaviour of the session information bar changes slightly. From time to time "Session Duration" field may be updated indicating on which time of recorded screen activities the creation process is just working. At the end "Session Duration" field will show you the time taken by movie creation.

Movie creation will in general be much slower than recorded screen activities lasts in reality. Also the created movie file may be much larger as the file containing recorded screen activities and the quality may be not as good as the original one. But this all depends on the movie creation program and the desired parameter settings. Generated movies nay be edited or converted into other movie formats e.g. by the FFMPEG program.

Invers connection

Usually today computers are protected very well against attacks from the internet by firewalls. In case that you want to provide a server in the internet in most cases you must reconfigure the firewalls accordingly first to do so. This is laborious in case that you only want that someone have a short look onto your computer over the internet to help you to find a solution for a problem. Besides a certain computer has to be determined which may provide the server service at such a concept.

To simplify this DeskWatcher offers the possibility to create a so called invers connection. In this case the client offers a connection port in the internet similar to the server in regular cases and the server initiates the connection by connecting against the client. Because computers in general are allowed to connect to other computers in the internet through the firewall there is no need to change anything at the firewalls at server side but changes have to take place at client side if using this concept.

However this concept arises dangers. If someone external in which way ever e.g. by infiltration of maleware on the sever manages it to initiate such an invers connection to outside against a client provided by him he will be able to control the server in an arbitrary way remote which of course is entirely unwanted. So if you decide to use invers connections it is better to install DeskWatcher on a separate storage which is only attached to the server in case that such a connection is really needed.

The concept will fail in case that the firewalls have been setup in such a way that no computer of a normal user is allowed to connect directly to the internet but instead have to use an internal proxy e.g. to access webpages.

To establish an invers connection it is mandatory to use the "vdugrabberIC" variant of the "vdugrabber" module on server side. The creation of the connection is done as follows. At first you

have to initiate a connection on client side but you have to leave the "Server" field blank! You have to fill "Identification" and "Password" as usual that means as if you would log into the server. Afterwards you will be prompted whether you want to generate an invers connection. If you acknowlege this the client will provide a connection port. You can stop this provisioning at any time by choosing "Stop Activity" in the session menu. After the provisioning of the connection port by the client you must start the server on server side. The only difference to a regular start of the server is that the internet address of the client must be entered into the "Proxy" field. This can be either an IP or an according DNS address.

Afterwards a window will be displayed for security reasons in which a random value is displayed which must be manually typewritten by you and acknowledged.
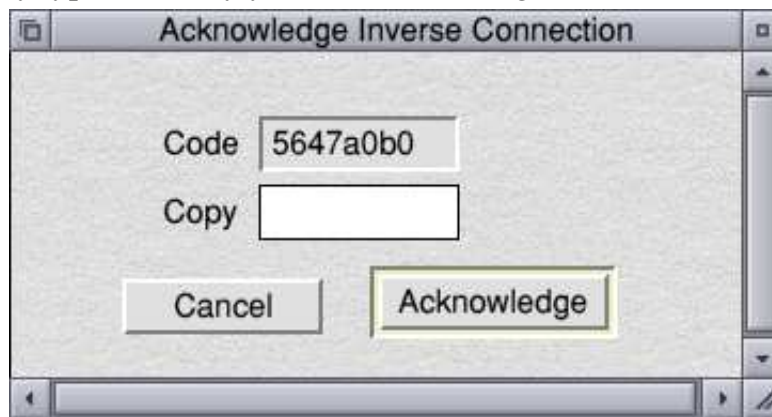
If everything has been performed correctly afterwards the server will conatct the client and both will proceed as if the client have would tried to connect against the server.

When client terminates the session the server will stay in server mode but will be not able to accept other connections anymore and can be only used anylonger to create session recordings.

Hints and tips

It is impossible to record the screen activities of all programs ever written for the operating system RISC OS and to transfer them to other computers properly. The most simple solution would be to take a screen copy every few milliseconds. But the transfer will quickly come to its limits. An

Example: On a server you have a screen resolution of 1600x1200 screen points at 16 million of colours. A single screen content has then a size of 1600x1200x4 = 7.680.000 bytes. If making 20 screen copies this gives 7.680.000x20 = 153.600.000 bytes per second. A gigabit network may be able in theory to handle 100-125 million of bytes per second which means that even such a network connection will fail to fulfil these demands. Depending on the computer involved the values achieved can even be much lower. There is the possibility to compress picture data. However, this requires a lot of computing power and will lead to very different results regarding the savings of bytes by compression depending on the screen content . On Internet connections in general there is no gigabit access available as a matter of fact ADSL is still common, This are usually only 160.000 bytes per second or less.

DeskWatcher therefore uses a different approach. It tries to catch the screen output and to transfer it together with the related data to the client which reproduces the output. Really efficient is the concept to transfer pure text. But even this method has limits. On one side you end up in special case exactly at the scenario described above when a program writes 20 times per seconds pictures in full screen size to the screen. On the other side not all programs under RISC OS are putting their data onto the screen using the operating system but are writing directly into the screen memory instead. Additionally, some parts of the operating system can't be captured well. It may also happen that certain resources of the server are not available on the client especially fonts. At fonts you could argue you can copy them from server to the client before. In general, you can handle this in such a way manually but there are fonts which you must not copy due to reasons of copyright.

With this background here are some hints to work with DeskWatcher a reasonably satisfying way.

Ensure that the same fonts are available on client and server. In case that DeskWatcher doesn't know a font, it uses Homerton.Medium automatically. This may lead in case of non-latin characters in the source font to silly screen output on client side. Therefore, use in documents which are displayed on the server the usual standard fonts which are available on all RISC OS computers. In worst case you can try to transfer the display of a certain file in a certain program on server side as screencopy by SpecApps definitions. But this will lead to a heavy loss in rate of transmission. You can use the same trick in case of embedded ArtWorks graphics.

Compared with other operating systems RISC OS has a really good screen output if using 256 colours screen modes. For these just one byte per image point must be transferred instead four as in case of 16 million of colours. Especially on slower computers and limited network connections this leads to a much a smoother display.

If possible, use low screen resolutions on server side and replace a background picture by a single colour during the session.

A couple of programs provide various ways of screen output. In most cases the variant of bypassing the operating system is configured by default. Before you try to help yourself by setting up SpecApps definitions you should change the settings inside the program itself.

- StrongEd

Menu -> last entry (mode specific) -> Settings -> Font -> choose system font

- NetSurf

Settings -> Pictures -> use RISC OS

By default, ArtWorks operates in a way not favourable for DeskWather. As Artworks extends the display of the operating system there is only the possibility to transfer copies of screen parts. Whilst ArtWorks Viewer renders every picture completely leading to one screen part copy which must be transferred by DeskWatcher Artworks renders a picture in multitasking mode step by step. This is fatal for DeskWatcher because it leads to a screen part copy at every step which increases the data

volume which must be transferred a lot. Tipp: A reduction of the ArtWorks render quality allows ArtWorks a much quicker completion of the rendering often in a single step.

Zap doesn't offer a chance of using the operating system. Usually the program uses its internal character display bypassing the operating system. You can choose like for StrongEd a RISC OS compliant way of display but this generates only faulty displays (which are transferred by DeskWatcher exactly to the client). The only way is the screen part copy which results in a heavy thwart of usage.

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Contact

Manufacturer:
Stader Softwareentwicklung GmbH
Tilsiter Straße 2
D-21680 Stade
Germany
Telephone: [+49 4141 7891060](tel:+4941417891060)
E-Mail: Verwaltung@stader-softwareentwicklung-gmbh.com.de
Handelsregister Registerblatt: HRB 207721
Registergericht: Amtsgericht Tostedt
Umsatzsteueridentifikationsnummer conformable to § 27 a Umsatzsteuergesetz: DE 327715351
Homepage:
http:///www.stader-softwareentwicklung-gmbh.com.de/

History

Version 0.09

Release date:

- 01-31-2022

Remarks:

- None

Corrected errors:

- Font identifier not properly terminated
- Random number generation not properly initialized

New errors/problems:

- None

New features:

- Start of connection is no longer a submenu but now by click. This allows usage of keystore applications
- Shooting movies from recorded screen activities
- Configuration windows for server settings, client settings and server users
- Server proxy/port defaults can be configured
- Session status information can be hidden
- Copes with TextEase now

Version 0.08

Release date:

- 03-10-2021

Remarks:

- None

Corrected errors:

- Invalid keyboard driver handling in case that no keyboard is connected to server causing loss of some keypresses
- Usage of RLE compression causes crash of client
- Click on session window handles zoom in y direction in a wrong way.
- In case that login of a new user is acknowleged all clients get a wrong screen content
- Trouble with transmission of key release at end of mouse/keyboard control by a client.
- No Message about desired mouse/keyboard control in case that another client claims the control.
- Session list in application on server side incomplete
- Message handling of module to application wrong
- PointerV 0 handled in client mode in an invalid way causing that mouse moves at client are not transmitted to server.

New errors/problems:

- Random number generation not properly initialized

New features:

- Improved checked of transmitted SWIs at client application side.
- Fixed opponent license
- Optional login log file
- Invers connection
- File transfer

Version 0.07

Release date:

- 11-14-2020

Remarks:

- None

Corrected errors:

- None

New errors/problems:

- Keys will stay sometimes "pressed" in remote mode.
- Various programs will be not displayed or not accurately displayed
- GCOL mode is sometimes wrong (unclean lettering at 256 colours)
- Usage of tools inside Paint is displayed in a wrong way
- No display of ArtWorks graphics inside other documents
- Colours sometimes temporarily wrong
- Display of colours at screen resolutions using 32/64K colours is wrong

- Mouse drivers using absolute positioning are not supported.
- Invalid keyboard driver handling in case that no keyboard is connected to server causing loss of some keypresses
- Usage of RLE compression causes crash of client
- Click on session window handles zoom in y direction in a wrong way.
- In case that login of a new user is acknowleged all clients get a wrong screen content
- Trouble with transmission of key release at end of mouse/keyboard control by a client.
- No Message about desired mouse/keyboard control in case that another client claims the control.
- Session list in application on server side incomplete
- Message handling of module to application wrong
- PointerV 0 handled in client mode in an invalid way causing that mouse moves at client are not transmitted to server.
- Font identifier not properly terminated

New features:

- None because it is the first official version.

Technical details

This section is describing various configuration options which allow to improve the interaction between DeskWatcher and other programs and the usage of DeskWatcher in certain situations at all.

Configuration

There are four configuration files allowing to control the behaviour of the components of DeskWatcher in various cases. Before making changes inside these files make a backup of the file which you want to change to which you can go back in case of trouble to restore the old behaviour. All configuration files are located inside the directory Choices:DeskWatch.

The files can be shown by menu which also allows to edit some of them by windows.

Watcher

The configuration file Watcher defines settings for !DeskWatch. It is loaded during the start of !DeskWatch. In case you are changing something inside the file you have to terminate !DeskWatch afterwards and restart it to let the changes take effect.

The parameters and the format are described inside the file. You can also edit the parameters inside a window.

The "Maximal sprite cache size" parameter determines how much memory for a sprite area !DeskWatch will reserve when opeing of a new session window. This value should be always larger than its pendant on server side or the value with which a screen recording has been created. An adaptation should be only required at very large screen resolutions or in case that on client side only "little" memory is available. Additionally you are able to determine a movie creation program by its task name, defaults for server port and proxy, whether a Deskwatcher session may recieve files and whether the receipt must be manually acknowleged.

Note that you can set the parameters without saving the settings!

VDUGrabber

The configuration file VDUGrabber defines settings for the module VDUGrabber. It is loaded during the start of VDUGrabber. In case that you are changing something inside the file you have to remove VDUGrabber afterwards and reload it to let the changes take effect. When you are terminating !DeskWatch VDUGrabber will be removed automatically and during the start of !DeskWatch it will automatically loaded.

The parameters and the format are described inside the file. You can also edit the parameters inside a window.

DeskWatcher server configuration

Remote control stop	1	
Maximal screen memory size	10000000	Bytes
Maximal sprite cache size	30000000	Bytes
Maximal transmission buffer size	20000000	Bytes
Maximal sprite cache entries	1024	
Maximal screen range entries size	1024	
Minimal sprite size for cache	10000	Bytes
Maximal sprite size for cache	1000000	Bytes
Compression Sequence	1	
Maximal size of compression result	10000000	Bytes
Sprite size acceptance factor for cache	128	/256

Log Errors ✓

Log Evaluation ☐ General   ☐ Fonts

Acceptance of connections. Ask   ○ never   ○ always   ● user properties

Keyboard/Mouse access allowance   ○ never   ● always   ○ user properties
                                                        ○ always no clipboard

Receipt of files allowance   ○ never   ○ always   ● user properties

[Cancel]   [Save]

The remote control stop sequence consists of up to four decimal numbers of keys according to PRM 1 Key up/down event separated by colons. To facilitate the determination of the numbers you can choose some popular keys from a sub menu.

```
 Remote control stop keys
✓ F1
  F2
  F3
  F4
  F5
  F6
  F7
  F8
  F9
  F10
  F11
  F12
  Shift (L)
  CTRL (L)
  Alt (L)
  Alt Gr (R)
  Shift (R)
  CTRL (R)
```

SpecApps

The configuration file SpecApps defines exceptional handlings of the screen output on single programs or on single windows belonging to the programs by the module VDUGrabber. It is loaded during the start of server mode. In case you are changing something inside the file you have to stop the server mode and reactivate it to let the changes take effect. Inside server menu !DeskWatch with the menu entry "Update Exceptions" offers the option to update the changes even whilst server mode is active.

The parameters and the format are described inside the file.

In general, DeskWatcher tries to capture all screen output by tracing the corresponding operating system calls of the programs inside RISC OS and then to transfer them to the client and run them at there. For programs written in a non operating system compliant way or programs that are expanding the graphics output of the operating system this concept will fail. The only chance in such cases is to copy the content of the screen area impacted. At first you have to specify the programs needing this. Then you can specify separately for windows and toolbars whether a screen copy must generated and in which way. The entries will be processed from first to last. For windows you can specify a window name or a search pattern for the window name. You have to define in which way VDUGrabber has to handle this window. In case of a screen copy you can define, whether and how attempts should be made to compress its data.

Users

The configuration file Users defines user rights in server mode by the module VDUGrabber. Changes

inside the file take place immediately but are not effecting existing connections.

The parameters and the format are described inside the file.

The handling of the user rights is a bit complex. The settings inside the configuration file VDUGrabber parameter client_allowance_settings take precendence over all others.

Here it is determined whether always, never or depending on the user it shall be asked whether access should be granted for an user at a connection attempt. Users must have an entry inside the Users configuration file so that they are allowed to connect at all.

In case that it depends on the user whether it must be asked for granting access you can define in the user rights of a particular user whether access is granted without acknowledgement or whether a manual acknkowledgement is required.

Additionally, the parameter client_allowance_settings determime whether a user is allowed to gain the control over mouse and keyboard. This can be generally allowed or rejected or depend on the user rights.

In case the access depends on the user rights for every user can be specified, whether he is allowed to gain control at all and if this is the case whether a manual acknowledgement is required for this. In case that several clients shall connect to a server in parallel for all users that shall be able to gain control over mouse and keyboard except the administrator you should always request a manual acknowlegdement. The message for this is visible to all clients and so everyone is aware who is controlling the server which avoids chaos.

Example: A single person occasionally wants to have a look onto another computer without the need to go to this computer every time.

VDUGrabber

```
client_allowance_settings=4
```

Users

Rights of a certain user are not playing any role at all. Only entries for user name and password are important.

Example: A single person (adminuser) is allowed to control a computer from another computer, another person (normaluser) is only allowed to have a look on the computer.

VDUGrabber

```
client_allowance_settings=8
```

Users

```
...
adminuser,2,,4567
normaluser,0,,1234
...
```

You can also edit the users inside a window.

When you click on a user inside the list its details will be displayed in the fields below and can be adapted. Users can be deleted by selecting the only entry of the menu of the window. To create a new user simply change the user name to one which doesn't already exists, fill the other fields accordingly and "Save" afterwards to add it to the list of users.
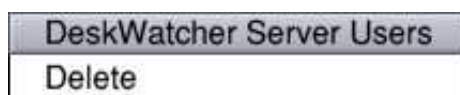
Server mode in PreWimp phase

To be able to use DeskWatcher even during the Boot phase of RISC OS you need to insert the following command sequence at the earliest possible point of time (but necessarily after the activation of the network!) into the boot sequence:

```
Set Choices$Dir
Path_to_the_Choices_directory_containing_the_DeskWatch_settings
Set Choices$Path
Path_to_the_Choices_directory_containing_the_DeskWatch_settings.
RMEnsure VDUGrabber 0.01 RMLoad Pfad_zur_VDUGrabber_Datei.VDUGrabber
X VDUGrabber_active 5937
```

Change the RISC OS boot sequence only if you are knowing what you are doing. Otherwise it can happen that RISC OS won't start properly any longer. In all cases take a backup of the file

which you want to change in the directory before doing the change. So, in case of trouble you can replace the changed file by this copy.

VDUGrabber

VDUGrabber commands

You can obtain a description of all VDUGrabber commands at the RISC OS command line prompt by typing of "Help VDUGrabber" or "Help VDUGrabber_..." this means name of the according command as listed under "Help VDUGrabber". In general, a user won't need these commands. Exceptions to this may be the usage of VDUGrabber_CloseSession to terminate sessions on server side, the usage of VDUGrabber in PreWimp-Phase and the start of certain applications as described inside the chapter regarding OvationPro.

VDUGrabber SWIs

The SWIs of VDUGrabber used only for internal communication between !DeskWatch and VDUGrabber. They may change at any time and are therefore not documented.

OvationPro

The DTP program OvationPro is getting trouble at start in case that VDUGrabber is in server mode. In case that it is started before server mode is activated there are no problems. The reason for the problems at start is that VDUGrabber is doing internally massive manipulations on the RISC OS internal data structures used by SWI decoding. Unfortunately this is necessary to be able to log certain activities of the operating system. To be able to start OvationPro also in server mode the following changes inside the !Run file of OvationPro are necessary by adding two lines immediately in front of the start of OvationPro:

1. X VDUGrabber_SWIManipulationOff
2. StartDesktopTask X VDUGrabber_SWIManipulationOn

Before
```
...
WimpSlot -min l648K -max l648K
|
|Run "<OvationPro$Dir>.!RunImage" %*0 2>"<OvationPro$Dir>.^.debug"
Run "<OvationPro$Dir>.!RunImage" %*0
```
Afterwards
```
...
WimpSlot -min l648K -max l648K
|
X VDUGrabber_SWIManipulationOff
StartDesktopTask X VDUGrabber_SWIManipulationOn
|Run "<OvationPro$Dir>.!RunImage" %*0 2>"<OvationPro$Dir>.^.debug"
Run "<OvationPro$Dir>.!RunImage" %*0
```
Like PreWimp operation this is not 100% accurate because clients can't see the OvationPro license information and at a start caused by a double click on an OvationPro document this will be displayed

in a wrong way on the clients in the first moment. But the display problem will vanish in that moment when the document is redisplayed on the server.