Q-Device!

Ian Chapman

COLLABORATORS			
	TITLE : Q-Device!		
ACTION	*NAME*	*DATE*	*SIGNATURE*
WRITTEN BY	Ian Chapman	January 13, 2023	

REVISION HISTORY			
NUMBER	DATE	DESCRIPTION	NAME

Contents

Chapter 1

Q-Device!

1.1 Q-Device!.guide

```
                                   Q-Device!

                     Describes Version 0.5
                         by Ian Chapman
                   ian.chapman@amiga-hardware.com

                   http://software.amiga-hardware.com

For additional information on specifications and terminology, please consult the
                 SCSI documentation at http://www.t10.org


             Disclaimer

             Introduction

             SCSI Devices

             IDE Devices

             USB Devices

             ST506/ESDI Targets etc

             Main Window
                                         Query

             Probe Devices

             Full Inquiry

             Capacity

             Test Ready

             Device Parameters

             Show Firmware Logs
```

1.2 **SCSI Devices**

```
                         SCSI DEVICES
                         ============
```

Q-Device! is primarily intended for SCSI devices and was written using
information mainly from the SCSI-2 specifications but also many other sources.
It should however perform well with SCSI-1 and SCSI-3 devices. Providing the
driver for your controller supports SCSI-Direct (almost all do) then all of
the functionality of Q-Device! will be available to you.

Please note: Due to a querk on Commodore's part, the device driver
'scsi.device' usually (but not always) controls an IDE bus. For example, this
applies to the internal IDE controller of the A600, A1200, A4000 and A4000T as
well as several third party IDE cards.

1.3   IDE Devices

```
                          IDE DEVICES
                          ===========
```

Although Q-Device! was primarily written for SCSI devices using the SCSI-2
specification, it does not make it useless for IDE Devices. Most drivers for
IDE Controllers support SCSI-Direct which in turn provides a layer of emulation
for SCSI commands. However most IDE drivers do not emulate the more advanced
features of SCSI, only the basic queries such as an Inquiry, or the eject
command. You should also be aware that the values reported are largely due to
the SCSI emulation of the driver, and may indeed vary if you were to move the
device to a different IDE controller. You may also find that using the ATAPI
driver for the controller may improve the quality of the SCSI emulation,
particularly with ATAPI devices.

Please note: Due to a querk on Commodore's part, the device driver
'scsi.device' usually (but not always) controls an IDE bus. For example, this
applies to the internal IDE controller of the A600, A1200, A4000 and A4000T as
well as several third party IDE cards.

1.4   USB Devices

```
                          USB DEVICES
                          ===========
```

Q-Device! was primarily witten for SCSI devices using the SCSI-2 specifcation.
You may be able to use it with USB Mass Storage device drivers, but initial
reports show that the supported commands are very limited, primarily only the
inquiry command seems to work. As with all non-true SCSI drivers, Q-Device! is
only as effective as the quality of the driver's SCSI emulation and in
particular the driver must support SCSI-Direct.

1.5   Other Devices

```
                          OTHER DEVICES
                          =============
```

In the days before SCSI and IDE emerged as the two standards for storage
devices (generally speaking), many other proprietary formats existed including
ST412, ST506, XT and Mitsumi/Panasonic/Sony CD Controllers. There are
controllers available for the Amiga which support these sorts of devices. How
well Q-Device! will work with them is largely unknown but it depends mainly on
two things. Q-Device! requires the driver to support SCSI-Direct and because
most of these devices are old (VERY OLD) the driver is unlikely to support it.
Secondly, even if the driver does support SCSI-Direct, the emulation is likely
to be very poor and basic.

1.6 Disclaimer

```
                           DISCLAIMER
                           ==========
```

Use of this software is entirely at your own risk. You accept any consequences
whatsoever as a result of using this software, whether intentional, accidental,
or as a result from a defect in the software. This includes, but is not limited
to, damage to hardware, software or legal actions taken as a direct or indirect
result of using this software. There is no warranty, either expressed or
implied.

It is always prudent to maintain recent backups of your system, particularly
when dealing with software that makes use of the device drivers.

1.7 Introduction

```
                          INTRODUCTION
                          ============
```

Q-Device! is a tool for querying, controlling and performing diagnostic
operations on SCSI and IDE devices. Although it was primarily written for SCSI
devices, many of the options also work with IDE devices, depending on their
driver implementation. Q-Device! can provide you with quite a wealth of
information about your devices.

```
Features
--------
```

* Graphical User Interface (MUI)
* Device Probing
* Device Inquiry including:
  Product, Vendor, Revision, Type, RMB Info, ISO, ECMA and ANSI versions, AENC,
  TrmIOP, Relative Addressing, Bus Width, Synchronous, Linked, Command Queuing
  and Reset Type
* Device Capacity including:
  Number of Blocks, Block Size, True Capacity and Vendor Capacity
* Product Serial Number
* Media Ejecting
* Media Inserting
* Device Power Down
* Device Power Up
* Device Media Locking
* Device Media Unlocking
* Test for unit readiness
* Read CD Table of Cotents including:
  Starting Track, Ending Track, Track Type, Track Copyright, Audio Channels,
  Audio Emphasis
* Diagnostic Tests: Simple 1 & 2, Deep 1 & 2
* Parameter Pages Including: Error Recovery, Disconnection & Reconnection,
  Formatting Parameters, Rigid Disk Geometry, Flexible Disk Geometry, Verify
  Error Recovery, Cache, Interface Mode, Control Mode, Supported Media, Notch,
  CD-ROM Parameters, Power Condition, CD-ROM Audio, Data Compression, Sequential
  Device Configuration, Medium Partition Page (1,2,3,4), Protocol Specific LUN,

```
Protocol Specific, SCSI SMART Control, CD-ROM Capabilities and Mechanical
Status, Quantum Unique Drive Control,
```
* Firmware Logs Including: Write Errors, Read Errors, Reverse Read Errors,
  Verify Errors, Non-Medium Errors, Buffer Over/Under-runs, Temperature
* Basic ATIP support
* Remote querying of SCSI devices running on Linux or Solaris machines.

1.8 Main Window

```
                                    MAIN WINDOW
                           ===========

Driver
------


The name of the device driver to use, whether present in DEVS: or in ROM. For
example scsi.device or gvpscsi.device. tcpip-scsi.device is
a special pseudo driver, described elsewhere in this documentation.


Unit
----


The AmigaDOS unit number to which commands will be sent. This applies to all
commands with the exception of Probe.


Command Buttons
---------------


These buttons allow you to send commands to the selected device. Q-Device! will
allow you to send any command to any device, regardless of whether that device
supports it. If the device supports removable media, some commands may require
the media to be inserted. Common errors are $5 when the device doesn't support
the command, or $2 if the unit is not ready to receive commands, or that command
cannot be peformed under current conditions, for example attempting to eject if
the drive is locked.



    Query


              Probe Devices

              Full Inquiry

              Capacity

              Test Ready

              Device Parameters

              Show Firmware Logs

              Serial #

              Read TOC
```

```
                      ATIP
                         Control

                 Power Up

                 Power Down

                 Lock

                 UnLock

                 Insert

                 Eject
                    Diagnostic

                 Start Self Test
                Output
------
```

Information and errors are displayed in this listview. Double clicking an
appropriate entry, will perform a full inquiry on that device.

1.9 Probe Devices

```
                                  PROBE DEVICES
                        =============
```

Probe attempts to discover devices attached to the bus controlled by the
driver. Probe scans the AmigaDOS unit numbers specified in your preferences,
which by default are 0 to 15. Some hardware may have LUNs in which case each
LUN will appear on a different AmigaDOS unit. Probe returns the product, vendor,
revision and type for each attached device. PLEASE NOTE: When Q-Device! means
unit number, it means the unit number that AmigaDOS uses. This usually reflects
your SCSI ID's, but not always. See the
                FAQ
                Example Output 1:

```
scsi.device [0]: ST32132                12.1:DIRECT ACCESS (eg Disk)
scsi.device [1]: SAMSUNG SV2044D        MM20:DIRECT ACCESS (eg Disk)
scsi.device [2]: <no device>
scsi.device [3]: <no device>
scsi.device [4]: <no device>
scsi.device [5]: <no device>
scsi.device [6]: <no device>
scsi.device [7]: <no device>


Example Output 2:

gvpscsi.device [0]: QUANTUM FIREBALL ST3.2S 0F0C: DIRECT ACCESS (eg Disk)
gvpscsi.device [1]: <no device>
gvpscsi.device [2]: <no device>
gvpscsi.device [3]: TEAC CDROM CD-516S      1.0G: CD-ROM
gvpscsi.device [4]: <no device>
```

```
gvpscsi.device [5]: <no device>
gvpscsi.device [6]: <no device>
gvpscsi.device [7]: <no device>

Example Output 3:

1230scsi.device [0]: DEC  RZ29B  (C) DEC 0014 :DIRECT ACCESS (eg Disk)
1230scsi.device [1]: PLEXTOR CD-R  PREMIUM  1.04 :CD-ROM
1230scsi.device [2]: PLEXTOR CD-ROM PX-40TS  1.05 :CD-ROM
1230scsi.device [3]: <no device>
1230scsi.device [4]: TEAC  MT-2ST/N70   RV B :SEQUENTIAL ACCESS (eg Tape)
1230scsi.device [5]: IOMEGA ZIP 250   H.41 :DIRECT ACCESS (eg Disk)
1230scsi.device [6]: UMAX  Astra 1200S  V2.3 :SCANNER
1230scsi.device [7]: <no device>
```

1.10 Full Inquiry

```
                        FULL INQUIRY
                        ============
```

Reads as much information as possible from the device to discover which
standards it supports and its product information. The following information is
returned:

Driver:
The device driver used to communicate with the device

Unit:
The unit number the device is attached to

Vendor:
Usually the vendor/manufacturer of the device although some manufacturers store
other information here.

Product:
Usually the product name, although some manufacturers may leave this blank, or
store other information here.

Revision:
Usually the product revision although some manufacturers may leave this blank
or store other information here.

Type:

One of the following:

  DIRECT-ACCESS: A direct access device, for example a Hard Disk
  SEQUENTIAL-ACCESS: A sequential access device, for example a Tape Drive
  PRINTER
  PROCESSOR: A processor device such as the host controller.
  WRITE-ONCE: A write-once device, for example an Optical Disc writer
  CD-ROM
  SCANNER
  OPTICAL MEMORY: An optical device, for example a PD Drive
```

```
  MEDIUM CHANGER: For example, a JukeBox
  COMMUNICATIONS: For example, a SCSI network card
  UNKNOWN: Q-Device! does not recognise the hardware type.
```

Removable Media:

Desribes whether the device supports removable media, for example a ZIP Drive
or CD-ROM

Vendor Type Modifier:

Usually only used with SCSI-1 devices and is a custom vendor value to
describe the device.

ISO Version:

A non-zero value means this device conforms in some way to the SCSI standard
specified by the International Standards Organisation, known as ISO 9316

ECMA Version:

A non-zero value means this device conforms in some way to the SCSI standard
specified by the European Computer Manufacturers Association, known as ECMA-111

ANSI Version:

A non-zero value means this device conforms in some way to the SCSI standard
specified by the American National Standards Institute. The value usually
represents the version of SCSI, ie SCSI-2 (X3T9.2). Many devices are capable of
operating in different SCSI modes, this reports the actual mode they are
currently using.

AENC Support:

Describes whether the device supports the Asynchronous Event Notification
Capability. This usually only applies to processor devices.

TrmIOP Support:

Describes whether the device supports the TERMINATE I/O PROCESS command, a
method by which a device can be asked to terminate the current IO command,
without corrupting the media.

Relative Addressing:

Describes whether the device has the ability to interpret addresses specified
as an offset from the last accessed logical address. Relative addressing can
only be used with Linked commands.

32bit Support:

Describes whether this device can support 32bit wide transfers.

16bit Support:

Describes whether this device can support 16bit wide transfers.

```
8bit Support:
```

Describes whether this device can support 8bit transfers. All SCSI devices should support this.

```
Synchronous Support:
```

Describes whether the device is capable of performing Synchronous Transfers or only Asynchronous Transfers.

```
Linked Support:
```

Desribes whether the device has the ability to accept chained commands to continue the I/O process

```
Command Queuing Support:
```

Describes whether the device is capable of queuing commands, possibly from multiple sources to be performed in an optimal way thus increasing performance.

```
Supported Reset Type:
```

Describes whether the device supports either Hard, or Soft resets. A hard reset returns a device to a state roughly equivalent to that after power on. A soft reset attempts to preserve the current I/O processes and provide minimum disruption to other initiators.

```
Example Output:
```

```
Driver:                 gvpscsi.device
Unit:                   0
Vendor:                 QUANTUM
Product:                FIREBALL ST3.2S
Revision:               0F0C
Type:                   DIRECT ACCESS (eg Disk)
Removable Media:        No
Vendor Type Modifier:   0
ISO Version:            0
ECMA Version:           0
ANSI Version:           2 (SCSI Version)
AENC Support:           No
TrmIOP Support:         No
Relative Addressing:    No
32bit Support:          No
16bit Support:          No
8bit Support:           Yes
Synchronous Support:    Yes
Linked Support:         Yes
Command Queuing Support:Yes
Supported Reset Type    Hard
```

1.11 Capacity

```
                            CAPACITY
                            ========
```

Attempts to discover the capacity of the medium. The exact meaning may vary
slighty between devices. Devices which have read/write media tend to report the
actual size of the disk, devices which use read only media tend to report the
size of the contents.

Blocks:

The number of blocks on the medium.

Block Size:

The size in bytes of an individual block. This is usually 512 bytes for disks
and 2048 bytes (but not always) for CD-ROMs.

True Capacity:

Reports the capacity of the medium using the correct values of:

    Kilobyte = 1024 Bytes
    Megabyte = 1024 Kilobytes
    Gigabyte = 1024 Megabytes

Vendor Capacity:

It is almost universal these days for hard disk manufacturers to mis-represent
the true sizes of their products by using slightly different formulae to give
the consumer the impression that their disks are bigger than they really are.
This reports the capacity of the medium using the values of:

    Kilobyte = 1000 Bytes
    Megabyte = 1000 Kilobytes
    Gigabyte = 1000 Megabytes

Example Output:

```
Blocks:         4127759
Block Size:     512 bytes
True Capacity:  ~ 1.9GB (2015 MB)
Vendor Capacity: ~ 2.1gb (2113 mb)
```

1.12 Test Ready

```
                    TEST READY
                    ==========
```

Queries the device to discover whether it is ready to receive commands.
Q-Device! will either report that the unit is ready, or sense data will be
reported saying the device is not ready. Common causes for non-readiness
may include media not being inserted or the device may be powered down.

1.13 Power Up

```
                            POWER UP
                            ========
```

Attempts to spin up the device by sending it the start command. This command
is only really useful, if the device has been powered down.

Known Side Effects:
1. Some devices respond by inserting their media.
2. WARNING: Some scanners may begin moving their scanner head and attempt to
   move it beyond its physical boundary.

1.14 Power Down

```
                           POWER DOWN
                           ==========
```

Attempts to spin down the device.

Known Side Effects:
1. Some devices respond by ejecting their media.
2. WARNING: Some scanners may begin moving their scanner head and attempt to
   move it beyond its physical boundary.

1.15 Lock

```
                              LOCK
                              ====
```

Usually only useful for devices that support removable media, this command
attempts to stop the media from being removed. Ignoring attempts to eject it
both by software and physically

1.16 UnLock

```
                             UNLOCK
                             ======
```

Usually only useful for devices that support removable media, this command
attempts to unlock the device, allowing the media to be ejected both by
software and physically.

Known Side Effects:
1. Some devices cache eject requests and will immediately eject the medium when
   unlocked.
2. Some devices respond by always ejecting their media.

1.17   Insert

```
                            INSERT
                            ======
```

Usually only useful for some devices that support removable media, this command
attempts to insert the media.

Known Side Effects:
Some devices may respond by spinning up.

1.18   Eject

```
                            EJECT
                            =====
```

Usually only useful for devices that support removable media, this command
attempts to eject the media.

Known Side Effects:
Some devices may respond by powering down.

1.19   Read TOC

```
                            READ TOC
                            ========
```

Usually only useful for CD-ROM and related devices, this command attempts to
read and display the Table of Contents on the currently inserted CD.

Starting Track:

The number of the first track on the CD. Usually 1.

Last Track:

The number of the last track on the CD.

Track Number:

The number of the track, which should be between "Starting Track" and "Last
Track" inclusive.

Track Type:

One of DATA or AUDIO

Copyright:

Describes whether you are legally allowed to digitally copy this track or not.

Audio Channels:

Reported only for AUDIO tracks, it reports the number of audio channels it uses
Either 2, or 4.

Emphasis

Reported only for AUDIO tracks, it describes whether the AUDIO has been
pre-emphasised or not.

Example Output

```
Starting Track: 1
Last Track:     2

Track Number:   1
Track Type:     DATA
Copyright:      Digital Copy Prohibited

Track Number:   2
Track Type:     AUDIO
Audio Channels: 2
Emphasis:       Audio IS pre-emphasised
Copyright:      Digital Copy Prohibited.
```

1.20   Start Self Test

```
                    START SELF TEST
                    ===============
```

Instructs the device to perform a self test to ensure it's integrity. Four test
types are supported, which are described below. The device performs a self test
by executing special code contained within the firmware of the device and is
vendor specific. If a device fails a self test then Q-Device! will report a
Hardware Failure or that the medium may contain defects, otherwise it will
report that the device has passed the test. Q-Device! cannot report the specific
details of a failure, only that one has occurred. NOTE: You are entirely
responsible for any actions you take, in the event of Q-Device! reporting a
hardware failure, even if the failure was mis-reported due to software errors.

```
Diagnostic Tests
----------------
```

Any SCSI device should support at least one of the diagnostic tests. IDE
Devices might not support any of the tests.

Simple Test

Instructs the device to perform a self test with minimal interruption to normal
service. In other words, tests which may interfere with normal access by the
operating system or applications will not be performed.

Deep Test

Instructs the device to perform a full self test. The device will also perform

any tests which may temporarily interfere with normal access by the operating
system or applications. The diagnostic tests may require the device to go
offline temporarily or make temporary changes to the medium.

There is very little difference between type 1 and type 2 tests, other than
telling the device which page format to use for retrieving the results. They
are both provided as some devices may only support one page format or the other

1.21 Device Parameters

```
                        DEVICE PARAMETERS
                        =================
```

Most drivers for IDE devices do not emulate this command very well, so results
will be minimal. This command tries to discover as much information as possible
about the device's configuration. This information is returned from the
hardware's firmware in the form of pages. Most devices do not return information
for every page, only the ones they support.


```
ALL SCSI DEVICES
----------------
Disconnection & Reconnection
Interface Mode
Control Mode
Protocol Specific LUN
Protocol Specifics
Power Condition (type 1)
SCSI SMART Control


DIRECT ACCESS DEVICES
---------------------
Error Recovery
Formatting
Rigid Disk Geometry
Flexible Disk Geometry
Verify Error Recovery
Cache
Supported Media
Notch
Power Condition (type 2)
Quantum Unique Drive Control
Extended Error Recovery


CDROM DEVICES
-------------
Error Recovery
Verify Error Recovery
Cache
Supported Media
CD-ROM Parameters
CD-ROM Audio
```

CD-ROM Capabilities and Mechanical Status

SEQUENTIAL ACCESS DEVICES

Error Recovery
Data Compression Characteristics
Sequential Device Parameters
Medium Partition Page (1)
Medium Partition Page (2)
Medium Partition Page (3)
Medium Partition Page (4)

OPTICAL DEVICES

Cache

Example Output:

Mode Data Length: 159 bytes
Inserted Medium Type: Default
Device Specific Parameter: 0
Descriptor Length: 8
Density Code: 0
Number of Blocks: 6328861
Block Length: 512 bytes

Information Page: Error Recovery Parameters
Page Code: 1
Page Length: 10 bytes
Automatic Write Reallocation: Yes
Automatic Read Reallocation: Yes
TB: No
RC: No
EER: No
PER: No
DTE: No
DCR: No
Retries on Read Error: 8
Retries on Write Error: 8
Correction Span: 24 bits
Head Offset Count: 10
Data Strobe Offset Count: 0 Ms

Information Page: Disconnection and Reconnection
Page Code: 2
Page Length: 10 bytes
Buffer Full Ratio: 192
Buffer Empty Ratio: 64
Bus Inactivity Limit: 0 *100 us
Disconnect Time Limit: 0 *100 us
Maxium Burst Size: 0 *512 bytes

Information Page: Formatting Parameters
Page Code: 3

```
Page Length: 22 bytes
Tracks Per Zone: 4
Alt Sectors Per Zone: 32
Alt Tracks Per Zone: 0
Alt Tracks Per Logical Unit: 0
Sectors Per Track: 159
Bytes Per Physical Sector: 512
Interleave: 1
Track Skew Factor: 28
Cylinder Skew Factor: 28


Information Page: Rigid Disk Geometry
Page Code: 4
Page Length: 22 bytes
Cylinders: 7068
Heads: 4
Start Write PreComp: 7068
Start Reduced Write: 7068
Step Rate: Device Default
Landing Cylinder: 0
Rotational Offset: 0
Rotation Rate: 5400 rpm


Information Page: Cache Parameters
Page Code: 8
Page Length: 10 bytes
Read Cache: Enabled
Write Cache: Enables
Min Pre-Fetch: 0 bytes
Max Pre-Fetch: 65535 bytes


Information Page: Control Mode
Page Code: 10 ($A)
Page Length: 6 bytes
Report Log Exceptions: No
Queuing Algorithm: Restricted Reordering
Queuing: Enabled
Extended Contingent Allegiance: Disabled
AEN Holdoff Period: 0


Information Page: Notch Parameters
Page Code: 12 ($C)
Page Length: 22 bytes
Notched Drive: Yes
Notch Boundary Type: Logical
Maximum Notches: 15
Active Notch: 0
Active Notch Start: 0
Active Notch End: 1809155
Pages Notched A: 0
Pages Notched B: 4120


Vendor Information Page: Power Condition
Page Code: 13 ($D)
Page Length: 10 bytes
Standby Support Enabled: No
Idle Time to enter Standby: 0 *100 Ms
```

```
Information Page: SCSI SMART Control
Page Code: 28 ($1C)
Page Length: 10 bytes
Info Exception Logs: in Vendor Specific Location
Exception Control: Enabled
Reporting Type: None
Interval Timer: 0
Report Count: 0

Vendor Information Page: Quantum Unique Drive Control
CAUTION: Vendor Specific Page Decoded
REFERENCE: Quantum Fireball ST 2.1/3.2/4.3/6.4 GB S
Page Code: 57 ($39)
Page Length: 6 bytes
Disable Identify Out: No
Disable Identify In: No
Preserve Synchronous Mode: No
Reallocate Uncorrectable Errors: Yes
Fill Data Pattern: Disabled
Send Synchronous Message: No
Disable Unit Attention: No
Disable Reselection Timeout: No
Disable Disconnection: No
Software Selectable SCSI ID: Disabled
Software SCSI ID: 0
Disable Plug n Play SCSI: No
Use Motor Delay Time: No
Disable Parity Control: No
Perform Wait/Spin: No
Motor Delay Time: 0 *10 Ms
```

1.22   Show Firmware Logs

```
                        SHOW FIRMWARE LOGS
                        ==================
```

The option attempts to retrieve and decode the logs stored in the device's
firmware. Not all SCSI devices store logs, and in particular this option
doesn't seem to be supported by non-SCSI devices.

Q-Device! is able to recognise the following logs:
(!) = Log is recognised by cannot be decoded yet.

```
    Buffer Over-run and Under-run
    Write Error Log
    Read Error Log
    Reverse Read Error Log
    Verify Error Log
    Non Medium Error Log
(!) Last Events Log
(!) Format Status
(!) Last # deferred errors or async events
(!) Sequential Access Log
    Temperature Log
```

```
(!) Start Stop Cycle
(!) Application Client
(!) Self Test Results
(!) DTD Status
(!) Tape Alert Response
(!) Requested Recovery Log
(!) Device Statistics
(!) Non-Volatile Cache
(!) Protocol Specific Port
(!) TapeAlert Log
(!) Informational Exceptions
(!) SMART Data Sense
(!) Cache Statistics (Seagate)
(!) Factory Log (Seagate)
```

Example Output

```
Found Log: Write Error Log
Log Code: $2
Log Size: 44 bytes
Total Re-writes or Re-reads: 0
Total Errors Corrected: 0
Times Correction Algorithm Used: 0
Total Bytes Processed: 799633 (First longword)
                        51200 (Second longword)
Uncorrected Errors: 0
```

```
Found Log: Read Error Log
Log Code: $3
Log Size: 52 bytes
Total Re-writes or Re-reads: 0
Total Errors Corrected: 0
Times Correction Algorithm Used: 0
Total Bytes Processed: 152790 (First longword)
                        13824 (Second longword)
Uncorrected Errors: 0
```

```
Found Log: Verify Error Log
Log Code: $5
Log Size: 52 bytes
Total Re-writes or Re-reads: 0
Total Errors Corrected: 0
Times Correction Algorithm Used: 0
Total Bytes Processed: 13068 (First longword)
                        867864064 (Second longword)
Uncorrected Errors: 0
```

```
Found Log: Non-medium Error Log
Log Code: $6
Log Size: 8 bytes
Non-Medium Error Count: 608
```

```
Found Log: Temperature Log
```

```
Log Code: $D
Log Size: 12 bytes
Current Temperature: 33 degrees celsius
```

1.23   Serial

```
                          SERIAL NUMBER
                          =============
```

```
Attempts to return the serial number of the hardware.
```

```
Example Output:
```

```
Page Code: $80
Page Length: 12
Serial Number: 153719010346
```

1.24   ATIP

```
                              ATIP
                              ====
```

```
The ATIP command is usually only supported by devices capable of burning
CD-ROMs. Some CD-ROM drives support ATIP, but this is usually only the very
modern drives. Q-Device! has very basic support for ATIP.
```

1.25   History

```
                            HISTORY
                            =======
```

```
Version 0.5
-----------
ADDED: tcpip-scsi.device. A psuedo (that is, not real) device for performing
       queries on remote machines running the Q-Device! daemon. Q-Device!
       daemon is only available for Linux and Solaris at the moment.
ADDED: Very basic support for ATIP
ADDED: Support for the following device parameter page:
       33, Extended Error Recovery (Direct Access Devices)
ADDED: Decoding for the following firmware logs:
       $1, Buffer Over-Run and Under-Run log
       $D, Temperature Log
ADDED: Recognition, but no decoding yet for the following firmware logs:
        $8, Format Status
        $9, Reserved to the MS59 standard
        $A, Reserved to the MS59 standard
        $B, Last number of deferred errors or asynchronous events
        $C, Sequential Access Log
        $E, Start Stop Cycle
```

```
          $F, Application Client Log
          $10, Self Test Results
          $11, DTD Status Log
          $12, Tape Alert Response
          $13, Requested Recovery Log
          $14, Device Statistics
          $17, Non Volatile Cache
          $18, Protocol Specific Port
          $2E, TapeAlert Log
          $2F, Information Exceptions
          $37, Cache Statistics
          $3E, Factory Log
```
FIXED: The command block for scanning firmware logs and displaying the logs was
        short by one byte. Luckily this shouldn't have caused any problems as the
        missing byte require's a NULL value anyway.
FIXED: Changed the page control field for scanning firmware logs to 01. Scanning
        firmware logs is now compatible with more hardware.
CHANGED: There is no longer separate buttons for reading individual logs. This
         has been replaced with a single button called "Show Firmware Logs"
CHANGED: A few of the device parameter pages marked as vendor specific before,
         are now treated as standard due to ratification in later SCSI
         standards.

Version 0.4

ADDED: Q-Device! is now able to return the product serial number if supported by
        the SCSI target.
ADDED: Increased verbosity on output. Shows page lengths, identifiers and vendor
        pages as well as reserved pages for that device class.
ADDED: Massively increased the number of decoded fields supported by Q-Device! in
        the parameter pages it already recognises.
ADDED: Support for the following vendor specific device parameter pages:
        13, Power Condition (Direct Access Devices)
        15, Data Compression Characteristics (Sequential Access Devices)
        42, CDROM Capabilties and Mechanical Status (CDROM Devices)
        57, Quantum Unique Driver Control (Direct Access Devices)
ADDED: The following standard parameter pages:
        17, Medium Partitions 1 (Sequential Access Devices)
        18, Medium Partitions 2 (Sequential Access Devices)
        19, Medium Partitions 3 (Sequential Access Devices)
        20, Medium Partitions 4 (Sequential Access Devices)
        24, Protocol Specific LUN (All Devices)
        25, Protocol Specific (All Devices)
        26, Power Control (All Devices)
        28, SCSI SMART Control (All Devices)
ADDED: Now automatically uses the MODE_SENSE_10 opcode, if your SCSI device doesn' ←
    t
        support the MODE_SENSE_6 opcode.
ADDED: Q-Device! now has its own icon and appicon.
FIXED: Slight bug in the GB calculation for true capacity, caused by a rounding
        error when doing a modulus. It would only occur under rare circumstances,
        eg if your HD was 4091MB in size, it would report 3.10GB instead of 3.9GB
FIXED: Incorrect structure size used for the block descriptor section of a mode
        sense request (device parameters). Was 6 bytes when it should have been
        8.
FIXED: Byte mis-alignment when reading the number of cyclinders in Page type 4
```

```
            of device parameters.
FIXED: Byte mis-alignment when reading the landing cylinder in Page type 4 of
        device parameters.
FIXED: When setting preferences, if the user selected cancel then all the
        gadgets were returned to the last saved settings.
CHANGED: Probe button is now highlighted differently to other buttons.


Thanks to Todd Oberly for copious amounts of beta testing!


Version 0.3
-----------


ADDED: The following device parameter pages:-
        CD-ROM Parameters (for CDROM Devices)
        Verify Error Recovery (for CD-ROM Devices)
        Sequential Device Parameters (for Sequential Devices)
        Error Recovery (for Sequential Devices).
        Cache (for CDROM Devices and Optical Devices)
ADDED: Preferences window
ADDED: Probe Devices Preference, you can choose the range of device units the
        probe option will scan. Reverse scanning is also supported
ADDED: Menus which basically mirror the query, command and diagnostic buttons.
ADDED: Q-Device! can now read the firmware logs. The following are supported:-
        Scan Firmware Logs
        Write Error Log
        Read Error Log
        Reverse Read Error Log
        Verify Error Log
        Non Medium Error Log
FIXED: Accidentally passing the simple test SCSI opcode when doing deep tests.
        Harmless, it just meant that deep mode was also performing simple tests
        :-)
FIXED: Hopefully anyway, a problem with bad drivers or devices not supporting
        REQUEST SENSE causing a recursive loop of command not supported.
CHANGED: Default probe is now 0 - 15 instead of 0 - 7
REMOVED: Request sense button. This was particularly useless because Q-Device!
          automatically returns the sense data (error codes) upon a command
          failure.


Version 0.2
-----------


ADDED: Q-Device! can now instruct devices to perform a self diagnostic test.
        Four diagnostic tests are supported.
ADDED: Q-Device can now query many of the device parameter pages. The supported
        pages are: Disconnection & Reconnection, Interface Mode, Control Mode,
        Error Recovery, Formatting, Rigid Disk Geometry, Flexible Disk Geometry,
        Cache, Supported Media, Notch, CD-ROM Audio and Verify Error Recovery
ADDED: Double clicking an appropriate entry in the listview will perform a
        full inquiry on that device and automatically add the device and unit
        number to the text-boxes.
ADDED: Popup list for selecting the device driver.
ADDED: Popup list for selecting the device unit.
CHANGED: Unit text box is now limited to numeric characters up to 999.
OPTIMISED: The listview now requires less memory.
```

Version 0.1

Initial Release

1.26 FAQ

```
                              FAQ
                              ===
```

1. I have a Cyberstorm PPC or Mk-III, Q-Device! doesn't see drives above ID 7?

Q-Device's definition of unit number is that used my AmigaDOS. It often reflects
your SCSI ID's but this case is an exception. To access these drive's in
Q-Device, increase your probe range to 158, or for reference, here's the unit
values you can use:

```
ID 8: Unit = 88
ID 9: Unit = 98
ID 10: Unit = 108
ID 11: Unit = 118
ID 12: Unit = 128
ID 13: Unit = 138
ID 14: Unit = 148
ID 15: Unit = 158
```

1.27 Known Bugs

```
                           KNOWN BUGS
                           ==========
```

Q-device! does not chain commands, partly because many device drivers do not
support SCSIF_AUTOSENSE. The side effect of this is that if information is
requested from a SCSI device, and activity such as read or write operation
occurs on the device you are querying, then the information returned may be
stale. This problem is entirely harmless.

1.28 Contact & Bug Reports

```
                            CONTACT
                            =======
```

For comments or bug reports, please send an E-Mail to:

```
          ian.chapman@amiga-hardware.com
```

1.29 Daemon

```
tcpip-scsi.device and Q-Device! Daemon
=======================================
```

Qdd is a small daemon which executes SCSI commands sent from Q-Device! on the machine it's running on and sends back the reply to Q-Device! for processing. Q-Device! communicates with qdd by using the pseudo device, tcpip-scsi.device.

Qdd was largely developed to give me access to more SCSI devices for further development and testing of Q-Device!. Consequently it is not feature-full and will simply quit at the slightest hiccup. However it's been released as some may find it useful or interesting.

Currently binary versions of qdd are supplied for Linux/X86 and Solaris/SPARC.

The source code is also supplied in case you wish to compile it yourself, or produce binary versions for Linux and Solaris running on other processors. The source code can also be compiled on IRIX for Silicon Graphics, however the IRIX version is not even remotely stable yet.

Please consult the supplied tar.gz archives for additional information on using and compiling qdd.

1.30 Preferences

```
Preferences
===========
```

```
Probe Units
-----------
```

You can configure which units Q-Device! should scan when clicking on Probe. By default it's set to scan from 0 to 15. However if you have devices which have additional LUNs or have a wide SCSI bus, you may wish to increase this.

```
Host
----
```

This is the hostname or IP address of the machine running qdd which you wish to scan via tcpip-scsi.device.

```
Base Port
---------
```

This is the initial port that qdd starts opening for each SCSI device it finds. Leave this at 8000 unless you have a specific reason to change it.