

Classic Request Client

Page application

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The request-reply test page has long been used for issuing an arbitrary Classic protocol data request. But it has some limitations, so that a newer version is probably in order. This note develops a new version.

Limitations of the current test page (PAGEREQR) include operation only as 15 Hz one-shots, display of no more than 16 bytes of reply data, ident length limited to 6 bytes, no allowance for event-based replies, single listype, single ident, and no server node. Try to imagine a new scheme that removes many of these limitations.

About the server node, the current support internally given by the ReqDat suite of routines does not allow use of a specified server node. The new program should probably still use the same suite of routines, so that this limitation will remain. (In order to support specifying a server node, one would have to build the Classic protocol request and send it using the generic UDP client routines. Such a feature could be added later, if desired.)

As for the limit of a single ident, we could add a field to allow specifying multiple copies of a single ident. This might help to remove this limit, allowing for only one ident to be entered. We can also allow for two idents, thus triggering the possibility of using multicast.

As for the limit of a single listype, plus a number of bytes, this may remain.

But we should certainly allow specifying the event-based reply option, a later addition to the Classic protocol. And we should allow for an arbitrary #cycles reply period.

As for the #bytes of reply data that are displayable, we could set it up as is done by the code in PAGENETF, for example, which displays 6 words per line and allows for scrolling.

The ident length limit can be increased to cover all possible ident types.

Consider the following possible display layout:

```

      0          1          2          3
      01234567890123456789012345678901

0      R CLASSIC REQUEST 07/19/04 1241
1      LT<   > BY<       > RP<   > L<   >
2      ID<                               > N<   >
3      ID<                               > N<   >
4      00 S=   T=           D=           nnnnnn
5      00 1234 5678 1234 5678 1234 5678
6      0C etc.
```

The listype field width is 3 digits, allowing for listype numbers up to the maximum of 127. The number of bytes is a 4-digit value, allowing for up to 9999 bytes to be requested per ident. The reply period field is 3 characters, allowing for the maximum of 255 cycles, or an event specification of "Exx" to mean a clock event number in the range 00-FF.

A listing node can be entered, which allows for serial port output of all of the latest data, in response to a click in the data area of the screen.

The ident field allows for 22 characters, which may be entered in a kind of free format in

which both ascii and hex may be represented. An ascii field should be delimited by a pair of quote marks, either single or double. Outside of an ascii field, only hex characters may be used, and blanks can delimit each word. The simple case of a channel ident might appear as 0509 0100, for example. To specify a generic name lookup ident, which requires 12 bytes, one may enter 0509 0003 "RETDLOG " in the field, which uses 20 characters out of the 22. Another long ident is that used for file transfers, such as 0509"LOOPEVTS"00000000, which needs all 22. The N field after the ident field can specify up to 99 copies of the given ident.

By allowing for two idents to be specified, we can target two different nodes, and if neither one is the local node, the local node multicast target node number will be used. In the case that both idents are used, they must be listype-compatible, which means they must be of the same length and one that is appropriate for the specified listype.

The returned status field is shown as a single digit. The elapsed time field is 6 characters wide, allowing display in units of seconds. The elapsed time is the time until the first reply. The delta time between the last two replies is also shown, also in seconds. The last 6 digit field is simply the count of replies since the request was issued. Starting a request is done by keyboard interrupt (or "click") in either line of input fields. At 15 Hz, 999999 cycles is 66666 seconds, or 1111 minutes, which is more than 18 hours.

The reply data is displayed as 6 words per line, with the low 2 hex digits of the byte offset from the beginning indicated at the beginning of the status line. This 6 word data format has been used by PAGENETF. The raise/lower console buttons can scroll this area of ten display lines, which allows for up to 60 words (120 bytes) to be displayed per page.

Programming

What functions are to be used for this application? One called `ScanIdent` will scan a 22 character ident field read from the screen, producing an array of integers and a length that will characterize the ident. It should not be necessary to build up the character representation if we only save the entire character fields in the page-private nonvolatile memory.

The function `ScanPeriod` can scan the 3-character reply-period field to produce a period byte and a event flag bit.

The `DoKbInt` routine can accept a click anywhere on the three lines that include input fields as a signal to start a new request. A click on the status line can merely mean to redisplay the last received data with the offset reset to zero.

Post implementation

The above plan was implemented as the page application `CLAS`, at first for the IRM. It was tricky to find a way to wait for the first reply, in order to measure that elapsed time. It can replace the old `REQR` page application, offering much more flexibility for test requests.

The 68K-based `CLAS` was then ported to make the PowerPC version `PAGECLAS`. Only a few wrinkles had to be dealt with, including tracking down the required include files.