JBP 14-JAN-75 15:08 25105

old sndmsg's

15-NOV-74 20:20:00,1056

Net mail from site USC-ISI rcvd at 15-NOV-74 20:19:58

Date: 15 NOV 1974 2019-PST

From: BOWLES at USC-ISI

Subject: Distribution Lists

To: POSTEL at SRI-ARC

Jon:

Effective December 15, I will be working for Remote Computing Corporation in Palo Alto.

Since RCC is not involved in the ARPA Network, and probably will never be, I am going about the process of removing my name from the various mailing and distribution lists which I worked so hard to get onto. If you have anything directed to me personally as opposed to Ken Bowles at ISI, please delete on 12/15.

I am not sure who is going to take over my work on our Net stuff here. Presumably Jim Madden will, but I would not be willing to place any bets on it. Things being what they are, we may not have any Net stuff to do before long.

The new FTP protocol is finished and I am currently working on the user documentation. If you're interested in a copy, let me know. I'd like to thank you for your help; it made things a lot easier.

Kurt Barthelmess

JBP 14-JAN-75 15:08 25105

old sndmsg's

18-NOV-74 21:35:05,1025

Net mail from site SRI-AI rcvd at 18-NOV-74 21:35:03

Date: 18 NOV 1974 2117-PST

From: GEOFF at SRI-AI

Subject: SOMETHING THAT'LL GET A LAUGH ON YOUR NEXT NET DEMO,

To: NETWORK HACKERS:

HI ALL,

NEXT TIME YOU ARE SHOWING THE NETWORK OFF TO A STRANGER, FRIEND,

OR WHAT NOT, YOU MIGHT LIKE TO CONNECT TO "SRI-AI 21" (SOCKET 21(8))

WHERE THE OLD BUT NOT FORGOTTEN CCA LIMERICK HACK LIVES NOW, AND WILL

BLURT OUT ONE AT RANDOM TO YOU EVERY TIME YOU CONNECT.

HOWEVER, SHOULD YOU GET TIRED OF CONNECTING AGAIN AND AGAIN,

UPON REQUEST I WILL SEND YOU THE ENTIRE LIST. ALSO, IF YOU HAVE A

PRICELESS GEM THAT YOU WOULD LIKE THE REST OF THE WORLD TO KNOW ABOUT,

SEND ME A NOTE, AND I'LL BE HAPPY TO PASS IT ON TO THE AUTHOR (HPP@CCA)

FOR INSERTATION IN THE NEXT VERSION OF ONELIM.

[GEOFF]

P.S. IF YOU'RE WONDERING WHO ELSE IN THE WORLD IS ON THIS LIST,

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old sndmsg's

YOU CAN GET IT BY RETRIEVEING [SRI-AI]<PEOPLE>KNOWN-NETWORK.HACKERS, 44

BY USING USERNAME=ANONYMOUS PASSWORD=INITIALS, NAME, ETC. --GEOFF 45

------- 46

47

19-NOV-74 05:36:08,573 48

Net mail from site USC-ISI rcvd at 19-NOV-74 05:36:05 49

Date: 19 NOV 1974 0535-PST 50

From: FORMAN at USC-ISI 51

Subject: SETTING UP FORUM 52

To: POSTEL at SRI-ARC 53

54

JON, COULD YOU ASSIST ME IN SETTING UP FORUM. I WANT TO FAMILIARIZE 55

MYSELF WITH IT IN CONNECTION WITH A PWIN TELECONFERENCING SPEC I AM 56

WRITING, BUT THE PEOPLE AT THE INSTITUTE FOR THE FUTURE ARE BEING LESS 57

THAN HELPFUL IN GETTING IT SSET UP. JI SAID YOU HAD SET IT UP 58

PREVIOUSLY, SO I WONDER IF YOOU WOULD BE KIND ENOUGH TO HELP ME SET 59

IT UP IN THE MITRE DIRECTORY AT BBN? .....DAVE WOOD. 60

------- 61

20-NOV-74 14:08:32,2002 62

Date: 20 NOV 1974 1408-PST 63

From: POSTEL 64

Subject: rje &graphics 65

To: fields at ISI 66

cc: postel 67

old sndmsg's

Craig:

As far as i am aware there is no implementation activity in either area. i suspect that there may be some activity in the graphics area that i am not aware of. in RJE there is at least one implementation of the existing protocol (at UCSB).
the following is an exerpt from the protocol information file i am keeping. the whole file is reteriveable from

[SRI-ARC]<POSTEL>PROTOCOL-INFORMATION.TXT

RJE - Remote JOb Entry

Contact:

Jon Postel at SRI-ARC (POSTEL@SRI-ARC)

Documents:

Bressler, B. "Remote Job Entry Protocol," RFC 407, NIC 12112,

16-Oct-72

Krilanovich, M. "Annoncement of RJS at UCSB," RFC 436, NIC 13700, 10-Jan-73.

People:

John Day at Illinois (Day.CAC@MIT-Multics)

Schedule:

Recent developments:

John Day is interested in revising the specification.

RJS - CCNs Remote Job Service

old sndmsg's

Contact: 76b1

Robert Braden at UCLA-CCN (BRADEN@UCLA-CCN) 76b1a

Documents: 76b2

Braden, R, "Interim NETRJS Specification," RFC 189, NIC 7133, 76b2a

15-July-71. 76b2b

Braden, R, "Update on NETRJS," RFC 599, NIC 20854, 13-Dec-73. 76b2c

People: 76b3

Robert Braden (BRADEN@UCLA-CCN) 76b3a

Steve Wolfe (WOLFE@UCLA-CCN) 76b3b

Schedule: 76b4

Recent developments: 76b5

Graphics 76c

Contact: 76c1

Robert Sproull (SPROULL@PARC-MAXC) 76c1a

Documents: 76c2

Sproull, R, and E. Thomas, "A Networks Graphics Protocol," NIC 76c2a

24308, 16-Aug-74. 76c2b

People: 76c3

Robert Sproull (SPROULL@PARC-MAXC) 76c3a

Elaine Thomas (Thomas@MIT-Multics) 76c3b

James Michener at MIT-DMS (JCM@MIT-DMS) 76c3c

Schedule: 76c4

Recent developments: 76c5

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old sndmsg's

New document available from Robert Sproull. 76c5a

77

78

also note that the nsw project will include mechanisms that provide for 79

running jobs on batch machines. 80

81

--jon. 82

83

------- 84

20-NOV-74 11:17:47,295 85

Date: 20 NOV 1974 1117-PST 86

From: WATSON 87

Subject: promised documents 88

To: postel, white 89

90

Tomorrow is the day we were going to send out documents on File, RJE, TBH and maybe Exec packages. What is status? I would like opportunity to read anything planned to go out. Thanks Dick 91

------- 92

22-NOV-74 08:53:05,1244 93

Date: 22 NOV 1974 0852-PST 94

From: WATSON 95

Subject: Inviting BBN to Next NSW Meeting 96

To: carlson at ISI 97

cc: postel, white, watson 98

JBP 14-JAN-75 15:08 25105

old sndmsg's

99

Bill, you are about to receive a number of design documents on NSW Protocols. We are implementing the basic PCP package for the 11 and the 10, but are assuming that BBN and ADR will be implementing the support packages for file transfer, exec, TBH etc. One of the important things that should happen at the next meeting in Dec is that everybody should have a clear understanding of who is responsible for what. Therefore, if you have not already done so I would recommend that Burchfiel or someone from BBN be invited to subsequent NSW meetings and be on distribution for working documents. Thanks Dick PS any response to the suggestion of an NSW wide design document(s). Probably what is needed is what we call a "super document" which is an oveview document with NLS Links off to a network of more detailed specs. Any feedback on the scenario and Frontend issues docs is also solicited. You will shortly get an ELF status document which will indicate management attention is needed there. 100

This note seems to be expanding. Also what is happening on the IMP side interface situation? 101

------- 102

22-NOV-74 16:19:04,7966 103

Net mail from site SRI-ARC rcvd at 22-NOV-74 16:18:57 104

Date: 22 NOV 1974 1618-PST 105

From: VICTOR at SRI-ARC 106

Subject: ELF and ELF related tasks for the NSW 107

To: NSW-DISTRIBUTION: 108

109

< VICTOR, ELF/UNIX,NLS;1, >, 22-NOV-74 15:55 KEV ;;;; 110

111

The following is a list of not yet completed ELF and ELF related tasks 112

required by SRI-ARC for its NSW work, and our understanding of the 113

current status of these tasks. 114

old sndmsg's

115

The ELF KERNEL 115a

116

We need a TEST and a TESTS (test specific) system call so we can 116a
check for the occurence of an event without being put to sleep. 116b

117

Status: 117a

118

Dave Retz has indicated that it would be trivial to implement 118a
these two system calls, but has not yet gotten around to doing 118b
it. 118c

119

The ELF EXEC 119a

120

We need the ELF EXEC in a working and reliable state. 120a

121

We need to get a better understanding of the relationships that 121a
exist between the ELF KERNEL, the ELF EXEC, and user processes 121b
running on ELF. Specifically, it appears that from a users point 121c
of view, some system calls are part of the KERNEL and some system 121d
calls are part of the EXEC. Since it will eventually be 121e
necessary for us to replace the ELF EXEC with an NSW EXEC, we 121f
need to know how to separate the ELF EXEC into two parts: 121g

122

that part of the EXEC that implements system calls, and 122a

that part of the EXEC that serves as the ELF command interpreter.

Status:

The ELF EXEC is supposed to be fully operational by Dec. 1, and documentation on its structure has been promised, but no date set for the documentation.

ELF Network Programs

We need a working NCP in ELF.

We need a working TELNET in ELF.

Status:

The ELF NCP and TELNET programs are supposed to be fully operational by Dec. 1.

ELF Virtual Memory

We need the virtual memory implementation of ELF. Without this capability, only 28K of the memory on an 11 is usable.

Status:

The virtual memory features of ELF are not expected to be ready until at least Jan. 1, 1975.

Loading ELF

We need to be able to "boot load" ELF into an 11 from over the network.

Status:

Eric Mader of BBN is currently working on this procedure. However, his boot loading procedures appear to require the use of experimental NCP programs. I am not sure of the current state of his work with regards to completion of this task.

Loading User Programs

We need to be able to load user processes from over the network. There appear to be several ways to do this:

1) Have a user FTP that runs on ELF that can get a remote file and store it in core (by using the Inter Process Port

capabilites of ELF) rather than on a disk. This seems to be 141c
the most desirable approach. 141d

142

2) Have a server FTP that runs on ELF that can receive a 142a
remote file and store it in core (by using the Inter Process 142b
Port capabilites of ELF) rather than on a disk. In this case 142c
we would TELNET to the remote host that holds the file we wish 142d
to load and then use FTP on the remote host to send the file 142e
to ELF. 142f

143

3) Have a dedicated ELF process (a process that is part of the 143a
ELF operating system) that is always listening on a specific 143b
socket for files sent to it from a remote host. This process 143c
would then store the received file in core. This seems to be 143d
the least desirable approach in that it requires initiating 143e
action on a remote host and that the functions performed by 143f
this process are so similar to those that would be performed 143g
by a user FTP that it seems senseless to have a special 143h
separate process. 143i

144

All of these methods seem to require the pre-existance of a 144a
process that is waiting to load, via an IPP, the remote file. It 144b
would be desirable to have a (load) system call that would set up 144c
this process with the approriate address space and IPPs. The FTP 144d
server or user process could then issue this sytem call at the 144e

right time. 144f

145

Status: 145a

146

Full server and user FTP processes are planned for ELF, but 146a
will probably not be fully operational until Spring, 1975. It 146b
appears that we will have to write our own code for the 146c
process that will load remote files into core via IPPs. 146d

147

ELF Debugging 147a

148

We need the ELF debugging process. A debugging process, which 148a
has the ability to monitor other processes, has been designed for 148b
the ELF operating system. Our debugging plans call for the use 148c
of this process. 148d

149

Status: 149a

150

Eric Mader of BBN is writing and implementing the ELF 150a
debugging process. He thinks he will be finished around mid 150b
December, 1975. 150c

151

Space Allocation 151a

152

Given the memory limitations of an 11, it might be nice to have 152a

system buffer pool calls. 152b

153

Status: 153a

154

ADR agreed at the recent NSW meeting to investigate this path. 154a

155

PCP 155a

156

We need the PCP routines for the implementation of the NSW. 156a

157

Status: 157a

158

SRI-ARC has most of the design work done and will be starting 158a
implementation soon. 158b

159

Documentation 159a

160

There is a need for more documentation about ELF from both a 160a
user's point of view, and from a system programmer's point of 160b
view. 160c

161

Status: 161a

162

Dave Retz has plans for eventually getting around to doing all 162a
the required documentation, however, it appears that as usual 162b

in the programming world, documentation will not be available 162c
until after many of the programming tasks are completed. 162d
163
General Requirements 163a
164
In general we need an ELF that is reliable and bug free so we can 164a
devote ourselves to NSW task without being sidetracked into 164b
debugging of ELF. 164c
165
Status: 165a
166
It is hard to make any statement about the reliability of a 166a
system that is not yet in full operational use. 166b
167
The following is our understanding of which groups have responsibility 168
for the above tasks: 169
170
SCRL Tasks 170a
171
The ELF KERNEL 171a
172
The ELF EXEC 172a
173
The ELF Network Programs 173a

old sndmsg's

174

The ELF Virtual Memory Features 174a

175

Documentation 175a

176

SRI-ARC Tasks 176a

177

Loading User Programs Over the Network 177a

178

We assume we have responsibiltiy for writing any user code 178a
necessary for the loading of user programs; it is not clear 178b
who has responsibilty for getting an FTP running or for 178c
getting any new system calls needed for the support of loading 178d
user programs over the network. 178e

179

PCP 179a

180

ADR Tasks 180a

181

Memory Space Allocation 181a

182

Maintainance of ELF after it is developed 182a

183

BBN Tasks 183a

184

old sndmsg's

Loading ELF over the Network 184a

185

The ELF Debugging Process 185a

186

Conclusions 187

188

It appears that the 4 programmers working on ELF are overburdened, 188a
and that they are doing the best that is humanly possible. It may 188b
be desirable to loan them an ADR person to assist in the current 188c
development of ELF. (It's possible that this loaned person could be 188d
assigned to assist in getting the needed documentation completed.) 188e

189

At the recent (NOV. 5-6) NSW meeting ADR indicated that it would 189a
like to freeze an NSW version of ELF, possibly as early as next 189b
month. By that time, as indicated above, many of the features 189c
needed by SRI-ARC for its tasks will not be available and therefore 189d
to freeze an NSW version of ELF at this time seems premature. 189e

190

191

------- 192

22-NOV-74 20:26:27,274 193

Date: 22 NOV 1974 2026-PST 194

From: POSTEL 195

Subject: host name 196

JBP 14-JAN-75 15:08 25105

old sndmsg's

To: peters

cc: feinler, postel, norton

please change the host name table in the monitor
for all machines you have responsibility for to
use the name USC-ECL for host number 323 octal.
--jon.

23-NOV-74 14:37:27,644
Date: 23 NOV 1974 1437-PST
From: POSTEL
Subject: arpa book protocols chapter
To: cerf at ISI, crocker at ISIB, walden at BBN
cc: postel

at last i found a little time to get started on the arpa book
protocols chapter, we have about a month to get something ready for the
first draft due date, so please get your contributions in, if you want
more specific discussion of what your contribution should be let me know

if you want to check on my progress so far i am creating an nls file
named <postel>book.nls at sri-arc, if you have any online material
that should be included let me have a pointer to it.

old sndmsg's

--jon.

23-NOV-74 14:59:52,769;000000000000

Net mail from site MIT-MULTICS rcvd at 23-NOV-74 14:59:45

From: Padlipsky,CNet at MIT-Multics

Date: 11/23/74 1759-est

Subject: things

hi--

re ccl, i don't quite understand the reason why back refs, should be removed, do understand that it ought to be rfc'd, so as to eet on The List, pray expand on the refs, notion,

re logica repport, haven't seen or heeard of it, did chat for a while with their guy (name escapes me) who spent a month or three at bbn, what is it? why do you ask?

re rfc 647, was simply delighted when i finally got out to ft, meade to get superfriendly greeting from hassing with great chorties over having read the rfc the day before an loved it--esp, App, 2, which made poor old howard very unhappy, giggles and cheers, map

23-NOV-74 18:44:57,3901;000000000000

Net mail from site SRI-ARC rcvd at 23-NOV-74 18:44:53

Date: 23 NOV 1974 1844-PST

old sndmsg's

From: POSTEL at SRI-ARC

Subject: Version 2 of the Procedure Call Protocol (PCP)

To: NSW-DISTRIBUTION:

This note announces release of the second published version of the procedure Call protocol -- PCP Version 2. Version 2 is SUBSTANTIALLY different than Version 1; it and all intermediate, informally distributed PCP documents are obsoleted by this release.

Version 2 consists of the following documents. Each is available on-line in two forms: as an NLS file and as a formatted text file. The Journal number (e.g. 24459) refers to the former, of course, and the pathname (e.g. [SRI-ARC]<NLS>PCP.TXT) to the latter, accessible via FTP using USER=ANONYMOUS and PASSWORD=GUEST (no account required). Hardcopy is being forwarded by US Mail to all those who have expressed an interest in PCP. If you don't receive a copy and would like one of this and/or future releases, send a note to that effect to WHITE@SRI-ARC:

PCP (24459,) "The Procedure Call Protocol"

This document describes the virtual programming environment provided by PCP, and the inter-process exchanges that implement it.

old sndmsg's

262

Pathname: [SRI-ARC]<NLS>PCP.TXT 262a

263

PIP (24460,) "The Procedure Interface Package" 263a

264

This document describes a package that runs in the setting 264a
provided by PCP and that serves as a procedure-call-level 264b
interface to PCP proper. It includes procedures for calling, 264c
resuming, interrupting, and aborting remote procedures. 264d

265

Pathname: [SRI-ARC]<NLS>PIP.TXT 265a

266

PSP (24461,) "The PCP Support Package" 266a

267

This document describes a package that runs in the setting 267a
provided by PCP and that augments PCP proper, largely in the area 267b
of data store manipulation. It includes procedures for obtaining 267c
access to groups of remote procedures and data stores, 267d
manipulating remote data stores, and creating temporary ones. 267e

268

Pathname: [SRI-ARC]<NLS>PSP.TXT 268a

269

PMP (24462,) "The Process Management Package" 269a

270

This document describes a package that runs in the setting 270a

provided by PCP and that provides the necessary tools for 270b
interconnecting two or more processes to form a multi-process 270c
system (e.g. NSW). It includes procedures for creating, deleting, 270d
logically and physically interconnecting processes, and for 270e
allocating and releasing processors. 270f
271
Pathname: [SRI-ARC]<NLS>PMP.TXT 271a
272
PCPFMT (24576,) "PCP Data Structure Formats" 272a
273
This document defines formats for PCP data structures, each of 273a
which is appropriate for one or more physical channel types. 273b
274
Pathname: [SRI-ARC]<NLS>PCPFMT.TXT 274a
275
PCPHST (24577,) "PCP ARPANET Inter-Host IPC Implementation" 275a
276
This document defines an implementation, appropriate for mediating 276a
communication between Tenex forks, of the IPC primitives required 276b
by PCP. 276c
277
Pathname: [SRI-ARC]<NLS>PCPHST.TXT 277a
278
PCPFRK (24578,) "PCP Tenex Inter-Fork IPC Implementation" 278a
279

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This document defines an implementation, appropriate for mediating communication between processes on different hosts within the ARPANET, of the IPC primitives required by PCP.

Pathname: [SRI-ARC]<NLS>PCPFRK.TXT

The first document, PCP, is the place the interested reader should start. It gives the required motivation for the Protocol and states the substance of the Protocol proper. The reader may then, if he chooses, read the next three documents: PIP, PSP, and PMP. The latter has the most to offer the casual reader; the programmer faced with coding in the PCP environment should read all three. The final few documents -- PCPFMT, PCPHST, and PCPFRK -- are of interest only to the PCP implementer.

--jim white.

23-NOV-74 18:53:01,3831;000000000000

Net mail from site SRI-ARC rcvd at 23-NOV-74 18:52:58

Date: 23 NOV 1974 1852-PST

From: POSTEL at SRI-ARC

Subject: Version 2 of The National Software Works (NSW) Protocols

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old sndmsg's

To: NSW-DISTRIBUTION: 299

300

This note announces the release of the second published version of 301

several National Software Works (NSW) protocol documents. This set of 302

documents is labeled Version 2. Version 1, as well as all intermediate, 303

informally distributed NSW documents are obsoleted by this release. 304

305

Several of these documents specify protocols or procedure packages 306

based on the Procedure Call Protocol (PCP -- 24459,), with which the 307

reader is assumed familiar. 308

309

These documents are available online in two forms: as journal items 310

indicated by the link number [for example the HOST document is journal 311

item 24581]; and as ASCII text files by the indicated pathname [for 312

example the HOST document is text file HOST.TXT in directory NLS at host 313

SRI-ARC]. The files may be reterived from SRI-ARC using the file 314

transfer user name ANONYMOUS and the password GUEST, no account number 315

is needed. 316

317

Hardcopy is being forwarded by US Mail to all those who have expressed 318

an interest in NSW protocols.. If you don't receive a copy and would 319

like one of this and/or future releases, send a note to that effect to 320

old sndmsg's

WHITE@SRI-ARC: 321

322

The specifications are contained in the following documents: 323

324

HOST "NSW Host Protocol" (24581,) 324a

325

This document describes the host level protocol used in the NSW. 325a
The protocol is a slightly constrained version of the standard 325b
ARPANET host to host protocol. The constraints affect the 325c
allocation, RFNM wait, and retransmission policies. 325d

326

[SRI-ARC]<NLS>HOST.TXT 326a

327

EXEC "The Executive Package" (24580,) 327a

328

This document describes a package that runs in the setting 328a
provided by PCP. It includes procedures and data stores for user 328b
identification, accounting, and usage information. 328c

329

[SRI-ARC]<NLS>EXEC.TXT 329a

330

FILE "The File Package" (24582,) 330a

331

This document describes a package that runs in the setting 331a
provided by PCP. It includes procedures and data stores for 331b

opening, closing, and listing directories, for creating, deleting, and renaming files, and for transfering files and file elements between processes. 331c 331d 331e

332

[SRI-ARC]<NLS>FILE.TXT 332a

333

BATCH "The Batch Job Package" (24583,) 333a

334

This document describes a package that runs in the setting provided by PCP. It includes procedures for creating and deleting batch jobs, obtaining the status of a batch job, and communicating with the operator of a batch processing host. This package is implemented at the host that provides the batch processing facility. 334a 334b 334c 334d 334e 334f

335

[SRI-ARC]<NLS>BATCH.TXT 335a

336

LLDBUG "The Low-Level Debug Package" (24579,) 336a

337

This document describes a package that runs in the setting provided by PCP. It includes procedures for a remote process to debug at the assembly-language level, any process known to the local process. The package contains procedures for manipulating and searching the process' address space, for manipulating and searching its symbol tables, and for setting and removing 337a 337b 337c 337d 337e 337f

old sndmsg's

breakpoints from its address space. Its data stores hold process characteristics and state information, and the contents of program symbol tables. 337g 337h 337i

338

[SRI-ARC]<NLS>LLDBUG.TXT 338a

339

BOXES "Black Boxes in PCP" (24584,) 339a

340

This document describes the transliteration of the black boxes defined by Millstein and Warshall into the setting provided by PCP, especially the File Package and the Executive Package. 340a 340b 340c

341

[SRI-ARC]<NLS>BOXES.TXT 341a

342

343

--jon. 344

345

------- 346

24-NOV-74 08:01:43,2699 347

Net mail from site BBN-TENEXA rcvd at 24-NOV-74 08:01:38 348

Date: 24 NOV 1974 1101-EST 349

From: BURCHFIEL at BBN-TENEXA 350

Subject: INWG meeting 351

To: kahn at BBN 352

cc: cerf at SRI-ARC, postel at SRI-ARC, tomlinson, plummer, 353

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old sndmsg's

cc: sutherland, burchfiel 354

355

Bob, 356

You asked for a report on INWG activity. Ray and I met with 357

Vint Cerf and Jon Postel on the 19th, and Ray attended a longer 358

technical session at Stanford on the 20th. 359

The December 1 date for an initial internet demo has been 360

slipped two months to Feb. 1. This happened partly because 361

of the one month funding crack a BBN, partly because BBN is now 362

requiring Tomlinson and Plummer to take accumulated vacations 363

before Dec. 31 or forfeit them, and partly because Stanford has 364

slipped a similar amount in producing the final TCP spec. This 365

spec is due to be released by Stanford on Dec. 1. I think 366

it is now a much stronger and sounder piece of technical work 367

because of Tomlinson's crusade to get a demonstrably robust 368

protocol. 369

Postel informs me that the NSW will no longer depend 370

on the internet host-host protocol for its initial July demo. 371

Instead, NSW will initially use existing host-host protocol and 372

phase over to internet once it becomes a standard option on 373

TENEX and ELF. 374

BBN is implementing the TENEX version of internet in BCPL. 375

SU-DSL is implementing the ELF version in assembly 376

language. Of course, our plan is to make our BCPL source 377

compile compatibly for both the PDP-10 and PDP-11, just as we 378

old sndmsg's

did for our initial INWG 39 subset experimental protocol: that
implementation is still in use as our PDP-11 and PDP-10 line
printer spoolers. Vint has indicated his willingness
to phase over to our BCPL version on the PDP-11 once it is
demonstrated to work.
As an aside on message systems, Jon Postel also told me
that SRI-ARC is morally committed to providing NLS to USC-ISI
with a PCP(Procedure call protocol) interface. Don Oestreicher
indicated that some money was changing hands to make this happen,
but I didn't get a clear picture of contractual arrangements.
You should probably probe Norton to get the details on this:
I have no business meddling in ISI-SRI agreements. In any case,
NLS will be the basis of ISI's message creation, coordination,
and release system, but we have agreed that all messages moving
between ISI modules and BBN modules will be in ARPANET standard
sequential file format which can be directly processed by the
File Transfer Protocol MLFL command. We don't currently see
a need to use NLS within BBN's mail reader program, but we will
give it serious consideration when we see what (and when) SRI
delivers to ISI.
Comments?
Jerry

25-NOV-74 06:36:40,633
Net mail from site BBN-TENEX rcvd at 25-NOV-74 06:36:37

JBP 14-JAN-75 15:08 25105

old sndmsg's

Date: 25 NOV 1974 0737-EST

From: WALDEN at BBN-TENEX

Subject: ARPA BOOK PROTOCOLS CHAPTER

To: POSTEL at SRI-ARC

cc: CERF at ISI, CROCKER at ISIB, WALDEN

JON,

I THINK I HAVE ALREADY SENT YOU LOTS OF SOURCE MATERIAL;
DID YOU RECEIVE IT? I NOW PLAN TO
DO NOTHING FUTHER UNTIL YOU GIVE ME A SPECIFIC
ASSIGNMENT.

I WISH ANY FILES YOU CREATE WHICH ARE SUPPOSED
TO ALLOW US TO CHECK YOUR PROGRESS WERE JUST TENEX FILES;
I STILL DON'T KNOW HOW TO USE NLS.

REGARDS,
DAVE

P.S. TO CROCKER: IS THAT YOU STEVE; HAVE YOU
MADE IT TO THE WEST COAST?

26-NOV-74 17:41:02,780
Net mail from site SRI-ARC rcvd at 26-NOV-74 17:41:00

JBP 14-JAN-75 15:08 25105

old sndmsg's

Date: 26 NOV 1974 1740-PST 429

From: POSTEL at SRI-ARC 430

Subject: Announcement of RFCs 661 & 666 431

To: Request-for-Comment-Distribution: 432

433

Two RFCs are now available in online form at Office-1. The first, 434

RFC 661 (NIC 31203), is an index of protocol information about 435

current activity with protocols in the ARPA Network. The second, 436

RFC 666 (NIC 31396), is publication in RFC form of Mike 437

Padlipskys note on Unified User-Level Protocol. 438

439

The RFCs may be reterived from the formatted text files: 440

[OFFICE-1]<NETINFO>RFC661.TXT 440a

[OFFICE-1]<NETINFO>RFC666.TXT 440b

as well as from the journal using the NIC numbers. 441

The FTP server program at Office-1 will accept username=NICGUEST and 442

password=ARPA. 443

444

--jon. 445

------- 446

26-NOV-74 20:10:38,919 447

Date: 26 NOV 1974 2010-PST 448

From: POSTEL 449

Subject: rje 450

To: crain at OFFICE-1 451

JBP 14-JAN-75 15:08 25105

old sndmsg's

cc: watson, white, postel

larry:

that message that you sent to jime white some long time ago giving some real detail on the B4700 and your view of how to get it hooked up has been circulating here. While we should still get our thoughts together and make a specific response we want to call your attention to some documents that have relevance. One is RFC 647 by Padlipsky that speeks to the issue of interfacing machines to the net via front ending. This is just for info and not a point to argue about.

The other documents are the ones promissed in an earlier note on PCP and NSW protocol. I want you to especially note the discussion of the BATCH package in the collection on NSW protocols.

These are on line as:

RFC 647 ==> [OFFICE-1]<NETINFO>RFC647.TXT

BATCH ==> [SRI-ARC]<NLS>BATCH.TXT

--jon.

26-NOV-74 21:09:58,1353

Net mail from site PARC-MAXC rcvd at 26-NOV-74 21:09:57

Date: 26 NOV 1974 2108-PST

From: TAFT at PARC-MAXC

Subject: New version of PPL

To: TENEX-SITES:

old sndmsg's

476

A new, 100% pure Tenex PPL is now available for distribution to 477
interested sites. PPL is a conversational, extensible programming 478
language. It has been in use at a number of PDP-10 sites and exists 479
at most Tenex sites by virtue of its having been on <SUBSYS> at 480
BBN for several years. 481

482

The new version, besides no longer running under 10/50 compatibility, 483
also has a number of important language improvements. The PPL User's 484
Manual has just been revised and may be ordered in very limited 485
quantities, from Eleanor Sacks (SACKS@HARV-10) at the following address: 486

Center for Research in Computing Technology 487
Aiken Computation Laboratory 488
Harvard University 489
Cambridge, Mass. 02138 490

491

An on-line document describing differences between this version 492
and previous versions is available as file <PPL>PPLV53.DOC at 493
PARC-MAXC. The language processor itself is <SUBSYS>PPL.SAV, 494
and important auxiliary files (described in the document) are 495
<PPL>RENUM.PPL and <PPL>IVER.PPL. 496

497

Please direct any questions or comments to me. Also, if you or any 498
users at your site are interested in being placed on a distribution 499

JBP 14-JAN-75 15:08 25105

old sndmsg's

list for PPL announcements, please let me know. 500

Ed 501

------- 502

27-NOV-74 06:01:02,299 503

Net mail from site BBN-TENEXA rcvd at 27-NOV-74 06:01:00 504

Date: 27 NOV 1974 0900-EST 505

From: MADER at BBN-TENEXA 506

Subject: RFC #700? 507

To: postel at SRI-ARC 508

509

Jon, 510

511

What is RFC 700?? If you mean the one about my DDT protocol, 512

that's in [BBNA]<MADER>DDT-PROTOCOL.DOC. 512a

513

Eric 513a

514

------- 515

27-NOV-74 12:20:50,1067 516

Net mail from site SRI-ARC rcvd at 27-NOV-74 12:20:41 517

Date: 27 NOV 1974 1220-PST 518

From: WATSON at SRI-ARC 519

Subject: Homework for Next NSW Meeting 520

To: NSW-DISTRIBUTION: 521

522

JBP 14-JAN-75 15:08 25105

old sndmsg's

Even though I know that there will have to be some review of issues for
those who were not at the last meeting, I would like to minimize that
review as much as possible. Therefore I request everyone attending to
study the documents carefully that we have just distributed, on
Frontend Issues, Protocols (everyone should read carefully the basic
PCP document and understand it as PCP is the basis of NSW resource
sharing, protocols and interprocess communication and control), Irby's
scenario, and NLS Tasks. We will have additiona material to present at
the meeting also. I would like to have discussion at the meeting based
on our work to be questions of clarification or technical disagreements
on things written in the documents rather than tutorials that try to
cover verbally in a short time the extensive material existing in
writing.

Thanks Dick

27-NOV-74 16:02:56,1013

Date: 27 NOV 1974 1602-PST

From: IRBY

Subject: nsw meeting

To: watson, white, POSTEL

Dick,

JBP 14-JAN-75 15:08 25105

old sndmsg's

544

1)On Friday I mentioned to DIA that I had implemented a portcall mechanism and using it in the new command language interpreter but was afraid of having many call stacks around, one for each port. He called to day to tell me of a marvelously simple way of doing the coroutine-port mechanism with one stack and such that signals are processed properly. Needless to say this made my day since it removed the only fear I had for the port approach for the CLI. It, however, does call for a minor change to the runtime package and to the compiler. I think we should proceed with it and told don so. 545

546

2) After talking with Millstein and my wife about the NSW meeting I have decided not to go. I am very sorry for any inconvenience this may cause any of you and hopethat it will not make te meeting less valuable, but we have relatives visiting that we just dont get to see very often. 547

548

-- Charles, 549

------- 550

2-DEC-74 10:42:52,1023 551

Date: 2 DEC 1974 1042-PST 552

From: ENGELBART 553

Subject: TO Tasker re NSW protocol documentation 554

To: BOSLEY at ISI 555

cc: postel, white, watson, engelbart 556

557

Pete: 558

Jean Iseli suggested that your project might benefit from learning about the new generation of network and terminal-support developments in the NSW program. Jim White and Jon Postel, here at ARC, have recently published a set of documents that make good reading. 559

A general-description starter, including FTP path descriptions to all associated on-line documents, can be copied out on your typewriter.

JBP 14-JAN-75 15:08 25105

old sndmsg's

Get the file via path [OFFICE-1]<NETINFO>RFC661.TXT This is a copy of NLS Journal Item (31203,). 560

Jon Postel is cued in on your general situation, and is ready to help you with further information -- POSTEL@SRI-ARC. 561

Jean said he'd recently talked with Chuck Sheehan -- suggested that Chuck stop by here to visit us on one of his journeys. Tell him we'd welcome that very much. (Be very pleased to see you again, too.) 562

Best regards, Doug 563

------- 564

2-DEC-74 06:41:51,1067 565

Net mail from site SRI-ARC rcvd at 2-DEC-74 06:41:50 566

Date: 2 DEC 1974 0641-PST 567

From: CERF at SRI-ARC 568

Subject: Latest TCP SPECIFICATION 569

To: cerf at ISI, tomlinson at BBN, burchfiel at BBN, 570

To: mader at BBN, kleinrock at ISI, retz at ISI, plummer at BBN, 571

To: Kirstein at ISI, Kirstein at BBN, UK at ISI, Kahn at ISI, 572

To: Crocker at ISI, postel at ISI, Postel at SRI-ARC 573

574

ATTN PTK,PLH,MMG,DL,NPL 575

Gents: 576

In <cerf> at ISI and <cerf> at SRI-ARC you will find a sequential 577

file "TCPSPEC4.txt" which should be suitable for printing on a 578

terminal or a line printer. It is rather long (I haven't printed 579

the whole thing out, but guess it would be around 35-40 pages. 580

It is still not finished, in particular, sections 4.6, 4.14, 4.15, 5, 7, 8, 9, and 10 require updating. However, the bulk of the user 581

old sndmsg's

level call stuff and packet format as well as synchronization and
closing are described, as is the method of handling window
size for flow control. We will certainly try to have the rest
of the spec put on-line for you this week.
Vint

2-DEC-74 13:56:22,838
Net mail from site CCA-TENEX rcvd at 2-DEC-74 13:55:50
Date: 2 DEC 1974 1609-EST
From: TOM at CCA
Subject: ARPANET BOOK AND DATA BASES
To: IMPORTANT-PEOPLE:
cc: TOM, JMH, DALE

YOU MAY BE AWARE OF THE FACT THAT ARPA/IPT HAS AN EFFORT
UNDERWAY TO WRITE A BOOK DEALING WITH THE ARPANET. IN SUPORT
OF THIS EFFORT I HAVE AGREED TO TRY TO FIND OUT WHAT DATA
BASES ARE CURRENTLY STORED ON THE NET.

TO ACCOMPLISH THIS TASK I NEED HELP. IF YOU'RE AWARE OF ANY
DATA BASES ON YOUR MACHINE OR ON OTHER ARPANET MACHINES,
PLEASE LET ME KNOW. ANY INFORMATION WILL BE HELPFUL.

THANK YOU.

JBP 14-JAN-75 15:08 25105

old sndmsg's

607

608

I CAN BE REACHED IN THE FOLLOWING WAYS: 609

610

MAIL ADDRESS: THOMAS MARILL 611

COMPUTER CORPORATION OF AMERICA 611a

CAMBRIDGE MASS. 02139 611b

612

PHONE: 617-491-3670 613

614

ARPANET MESSAGE:TOM@CCA 615

616

------- 617

618

2-DEC-74 14:49:20,245 619

Net mail from site BBN-TENEXA rcvd at 2-DEC-74 14:49:18 620

Date: 2 DEC 1974 1750-EST 621

From: PLUMMER at BBN-TENEXA 622

Subject: INWG NOTE 623

To: POSTEL at SRI-ARC 624

625

JON, 626

[BBNA]<DOCUMENTATION>INWG.NOTE IS THE RUNOFF SOURCE FILE, 627

--BILL 628

------- 629

JBP 14-JAN-75 15:08 25105

old sndmsg's

3-DEC-74 09:06:27,544 630
Net mail from site BBN-TENEXA rcvd at 3-DEC-74 09:06:24 631
Date: 3 DEC 1974 1100-EST 632
From: DODDS at BBN-TENEXA 633
Subject: RFC'S 701,702 634
To: POSTEL at SRI-ARC 635
636
JON, 637
RFC 702 IS AVAILABLE AND READ-ACCESSIBLE IN MY DIRECTORY AS 638
<DODDS>NEWPRT.TXT;10. THE FILE <DODDS>NEWPRT.TXT;5 CONTAINS RFC 701 639
IN NOT-QUITE-FINAL FORM (I THINK IT IS JUST MISSING THE RFC NUMBER 640
HEADING). HELP YOURSELF. LET ME KNOW IF YOU NEED ANY MORE INFO. 641
THE NEXT IN THIS EXCITING SERIES OF SURVEYS SHOULD BE FORTHCOMING 642
IN ABOUT A WEEK. 643
--DOUG 643a
------- 644
3-DEC-74 20:02:48,5578 645
Net mail from site OFFICE-1 rcvd at 3-DEC-74 20:02:43 646
Date: 3 DEC 1974 1404-PDT 647
From: CARLSON at OFFICE-1 648
Subject: AGENDA FOR NSW MEETING ON 9-10 DEC 1974 649
To: crocker at ISI, balzer at ISI, carlson at ISI, crain at ISI, 650
To: baggiano at ISI, lloyd at ISI, mayhan at ISI, 651
To: jacobs at OFFICE-1, urlig at OFFICE-1, 652
To: wingfield at OFFICE-1, stone at OFFICE-1, 653

JBP 14-JAN-75 15:08 25105

old sndmsg's

To: lawrence at OFFICE-1, watson at SRI-ARC, 654

To: warshall at SRI-ARC, millstein at SRI-ARC, postel at SRI-ARC, 655

To: irby at SRI-ARC, white at SRI-ARC, waal at SRI-ARC, 656

To: thomas at BBN, burchfiel at BBN 657

658

< CARLSON, 9DEC-AGENDA.NLS;3, >, 3-DEC-74 12:00 WEC ;;;; 659

660

The following is the tentative agenda for the National Software works 661

meeting on 9-10 December 1974. Comments welcome. 662

663

Remember that the new PCP document, the scenario of NSW operations, and 664

the list of NLS support tasks are required reading for this meeting. We 665

will be much too busy to fill people in on the written materials. 666

667

I will be staying at the Lord Wakefield Motor Hotel, which is the one 668

closest to the COMPASS office. We should try to start by 9AM on Monday. 669

670

Monday morning- we will deal with some basic technical issues : 671

672

What will the NSW's analogue to TENEX control characters be? In 672a

other words, if you are waiting output from a tool, will you be able 672b

to abort it, hold it for later examination, change the destination, 672c

etc. How does one tell tools to stop what they are doing? 672d

(semantics, not syntax) 672e

673

When the Works Manager finds an error in an argument, will it be 673a

able to simply suspend the process and rely on the PCP HELP to 673b

provide it with either a correct argument or an indication that the 673c

activity should be aborted? This issue seems to be primarily a 673d

question of timing and responsibility for implementing all the 673e

components of the PCP protocol. 673f

674

Finalize design of the remote job entry system 674a

675

Monday afternoon- 676

677

Steve Warshall will present an overview of the Works Manager design. 677a

678

We must be sure that responsibility for implementing all necessary 678a

protocols is firmly established. 678b

679

Discuss the scenario of NSW operations. We must be sure that 679a

everyone understands what the system is going to look like. 679b

680

Decide: are we a facility for building tools or a facility for 680a

accepting tools from industry and making them more widely available? 680b

681

Time-sharing systems have typically been extensible- software 681a
developed under them enters the environment and can easily be 681b
made available to other people. 681c

682

Steve Warshall suggests that may not be the right model for a 682a
system which may eventually be available to a very large, 682b
nationwide constituency. He has suggested that it may be 682c
desirable to isolate different working environments in a 682d
hierarchical fashion and strictly limit lateral communication. He 682e
suggests that in the NSW the best thing may be to make it just as 682f
easy to install a foreign tool as one which has been developed 682g
within the NSW environment. 682h

683

Steve also reminds us that initially we were not going to be tool 683a
builders, but instead were going to try to get industry to 683b
install tools and machines. Are we now ready to formally modify 683c
some of those assumptions? 683d

684

It may not be desirable to make it any easier to integrate 684a
programs built within the NSW than it is to integrate programs 684b
built somewhere else. I raised the fact that both AFDSC and 684c
AFDSDC build tools for internal use. Classic cases are AFOLDS and 684d

a file compaction routine. We discussed how such programs might 684e
become "part of the NSW". Clearly there needs to be some strong 684f
quality control. Steve pointed out that the routines represent 684g
mere files, and problems only arise when you want them to have 684h
special attributes for project management purposes, or when you 684i
want to make them available outside of your immediate project. 684j
We must get a clearly written document defining these issues and 684k
the Steering Committee's decision. 684l
685

We need a model for how NSW using organizations are to go about 685a
sharing files. 685b
686

Monday night- discussion of NSW project organization and long range 687
plan. 688
689

We need to reformulate the NSW steering committee now that RADC is 689a
providing funds, Steve Crocker has gone to ISI, and Bill Carlson has 689b
gone to work for ARPA (effective Jan 19, 1974) 689c
690

We need to decide who is chairman of the steering committee- who 690a
will call meetings, organize sub-committees so everyone doesn't have 690b
to come to all meetings, etc. 690c
691

Dr Licklider has suggested we form an advisory group which should 691a

old sndmsg's

not be drawn from contractors working on the NSW effort or from 691b
AFDAA or RADC. This would provide an opportunity for the Army and 691c
the Navy to provide inputs to the program before they actually 691d
commit funds. It would also provide an outside audit of our goals 691e
and objectives. We need to talk about it, see if it is agreeable to 691f
us, decide how it might relate to the Steering Committee, and get 691g
suggestions of who might be on it. 691h
692
rt 692a
693
Tuesday Morning- How do people expect to use the service which comes up 694
in July. Who is planning for an operational test. Who will prepare an 695
acceptance plan? 696
697
Tuesday afternoon- What do we think the NSW can look like in July 698
1976, 1977, and 1978? 699
700
701
------- 702
703
4-DEC-74 16:19:36,422 704
Net mail from site BBN-TENEXA rcvd at 4-DEC-74 16:19:34 705
Date: 4 DEC 1974 1635-EST 706
From: DODDS at BBN-TENEXA 707

JBP 14-JAN-75 15:08 25105

old sndmsg's

Subject: RFC NUMBER 708

To: POSTEL at SRI-ARC 709

710

JON, 711

I AM TOLD THAT YOU ARE NOW HANDLING THE ASSIGNMENT OF RFC NUMBERS, 712

I NEED A NUMBER FOR MY LATEST OPUS ON TELNET-NEW-PROTOCOL, THE TITLE 713

IS "NOVEMBER, 1974, SURVEY OF NEW-PROTOCOL TELNET SERVERS". I THANK 714

YOU IN ADVANCE, REGARDS, 715

DOUG 715a

------- 716

4-DEC-74 16:20:49,561 717

Net mail from site SRI-ARC rcvd at 4-DEC-74 16:20:45 718

Date: 4 DEC 1974 1107-PST 719

From: POSTEL at SRI-ARC 720

Subject: Two additional NSW documents 721

To: NSW-DISTRIBUTION: 722

723

There are two additional documents in the directory <NLS> at SRI-ARC 724

one is titled "The NSW Remote Job Entry Model" and is the file 725

RJE-MODEL.TXT 725a

the other is titled "NSW Requirements on Tool Bearing Hosts" and is 726

the file TBH.TXT 726a

727

Recall that files may be pulled from SRI-ARC by FTP using the 728

username ANONYMOUS and the password GUEST. 729

old sndmsg's

--jon.

4-DEC-74 17:50:57,283
Date: 4 DEC 1974 1750-PST
From: POSTEL
Subject: rfc number
To: dodds at BBNA
cc: postel

doug:
ok, use rfc number 669 and nic number 31435.
thanks for the pointers to the online copies of rfc 701 & 702,
will you also give me a pointer to this one?
--jon.

5-DEC-74 10:02:35,493
Date: 5 DEC 1974 1002-PST
From: POSTEL
Subject: RFC Numbers
To: Hedtler at BBN
cc: Bthomas at BBN, DOdds at BBN, Schantz at BBN, Feinler,
cc: Postel

JBP 14-JAN-75 15:08 25105

old sndmsg's

Gail:

Her are the RFC NUmbers for the documents you mentioned.

RFC	NIC	Author	Title
667	31422	B Thomas	BBN Host Ports
669	31435	D Dodds	Telnet Survey
671	31439	R Schantz	... Reconnection Protocol
672	31440	R schantz	... Data Collection ...

hope that is what you wanted.

--jon

5-DEC-74 12:06:20,421

Net mail from site BBN-TENEXA rcvd at 5-DEC-74 12:06:16

Date: 5 DEC 1974 1506-EST

From: DODDS at BBN-TENEXA

Subject: NEW TELNET SURVEY

To: POSTEL at SRI-ARC, MCKENZIE, BURCHFIEL

JON,

THANKS FOR THE RFC & NIC NUMBERS. THE ON-LINE FILE IS

<DODDS>NEWPRT.TXT;14.

ALL,

JBP 14-JAN-75 15:08 25105

old sndmsg's

IF YOU ARE INTERESTED IN STEALING A MARCH ON THE RFC DISTRIBUTION, 780

COPY THE ABOVE FILE TO TTY OR LPT (2 PAGES), 781

--DOUG 782

------- 783

5-DEC-74 14:14:59,770 784

Net mail from site OFFICE-1 rcvd at 5-DEC-74 14:14:56 785

Date: 5 DEC 1974 1413-PDT 786

From: LEE at OFFICE-1 787

Subject: page size and the xgp 788

To: postel at SRI-ARC 789

cc: michael at SRI-ARC 790

791

The txt file with numbers in it printed 48 lines - that's with the xgp defaults unchanged (1 1/2 " top margin and 1" bottom margin). 792

793

The file run through Output Printer File and Sendprint with BM=43 put page numbers on a second page 1 1/2" from the top so making BM=44 might work - I don't know. I don't remember succesfully getting page numbers on the page so I'd have to play around to see what the right setting for BM is - unless you can make an educated guess! 794

795

Hope this helps - let me know if there are other things I can check out here for you. 796

797

Susan 798

------- 799

5-DEC-74 19:33:01,500 800

Date: 5 DEC 1974 1933-PST 801

JBP 14-JAN-75 15:08 25105

old sndmsg's

From: POSTEL 802

Subject: xgp & bm 803

To: lee at OFFICE-1 804

cc: michael, postel 805

806

susan: 807

i suggest using for saftey and as a test try 808

my analysis rests on the following: 809

xgp allows 48 lines, thus BM + YBF + (footer lines) <= 48. 810

YBF is default to 5 lines, and your footer is one (the page number), so 811

Try BM=40 + YBF=5 +1 == 46 < 48 812

813

if you the maximum text on a page and still a page number at the 814

bottom try BM=45 and YBF=2. 815

--jon. 816

------- 817

9-DEC-74 09:45:28,641 818

JBP 14-JAN-75 15:08 25105

old sndmsg's

Net mail from site OFFICE-1 rcvd at 9-DEC-74 09:45:26 819

Date: 9 DEC 1974 0944-PDT 820

From: LEE at OFFICE-1 821

Subject: printing nls files on the xgp 822

To: postel at SRI-ARC 823

cc: michael at SRI-ARC 824

825

Thanks for your research! Your numbers are working as you expected.
I guess the next thing that would be helpful would be for output
termina file to leave off the ------ at the bottom of each page,
Then we could ue that command without sendprint, Thanks 826

827

I'll probably write up a scenario of how to print an nls file on the
xgp - when I get it finished or near finished I'll let you know in
case you'd like to take a look... 828

------- 829

9-DEC-74 09:36:47,3697 830

Net mail from site SRI-ARC rcvd at 9-DEC-74 09:36:41 831

Date: 9 DEC 1974 0936-PST 832

From: NORSAR-TIP at SRI-ARC 833

JBP 14-JAN-75 15:08 25105

old sndmsg's

To: Postel at SRI-ARC 834

835

836

837

Jon Postel, 838

839

I have with great interest read your survey of implemented NCP's in the ARPA Net. It has been of good help for us in clearing up various problems in connection with the NCP. 840

841

As you probably know we have tried since the summer to approach ARPA in connection with their satellite plans, but up till now we have got no serious response> personally I think these plans are too advanced for us now since we must be considered as beginners in this field. A better approach would be to get connected to the ARPA Nat and have everything running smothly before we are proceeding futher. Hopefully we can partissipate in ecperimental activities in the Net in order to get more experience. 842

843

In your survey you advertise for certain spesific meassurements revealing the performance of the NCP. I would like to get more information about this topic and to here what type of experiments you suggest. 844

Also I would like to get in contact with persons or groups which

old sndmsg's

would be interested in having us as a counterpart in Network experiments. Do you have any suggestions. For your information I will give a brief description of the facilities here. 845

846

field it is very difficult to establish a sound platform for the work. I would threfore be very happy if you could give us any advice in this direction. Personally I would prefere to partisipate in experiments with other groups or persons. Any suggestion is welcome 847

848

For the time being we dispose of two SM-3 computers (Norwegian Make) each with 64 k of memory. They share a disc unit and a mag. tape station. It is also possible to transfer data on a word by word basis between the two machines. This makes it possible to test the various protocols on the two machines before they are tested on the Net. 849

850

We have choosen the Elf system as a model for our operating system That's finnished now and is working well I belive. At the moment I am working on the reliable transmission package which I hope to finnish before Christmas. Then I can start with the main part of the NCP. We have allready done some flowcharting on it, so I hope that we can finnish it in a reasonable time. We are also working on the TELNET protocol. At a later stage we intend to implement the FILE transfer protocol. Well, that's the status here. 851

852

With my background in experimental nuclear physics I see a great need for communication network as means, in a remote way, to do physics experiments. Experiments done at for example Brookhaven or Argonne

old sndmsg's

are mostly done with computers on-line. With such a computer connected to the ARPA Net, I could in principle do or partisipate in experiments at for example Brookhaven. Do you know if thes aspects of the Net has been discussed inside ARPA and eventually whom are involved in this.

Probably I am asking too many questions, but I hope that you have time at least to answer some of them.

With the best regards Paul (Spilling)

You can reach me by means of Yngvar Lundh's network address.

P.S. I see that part of a block has disappeared from the text. The following block should bi niserted after the block beginning with:In your survey ..

For the time being we are two persons working on this project. We started about 3/4 of a year ago without any experience in this field at all. Myself I had about 10 years of experience in experimental nuclear physics before I started in this game. My institute feels that we have to be involved in some way in the field of data communication, but due to the lack of experience in this....

---

old sndmsg's

9-DEC-74 11:42:33,4184 864

Date: 9 DEC 1974 1142-PST 865

From: POSTEL 866

Subject: interest in measurements 867

To: cerf, cerf at ISI, opderbeck at SRI-AI, lou at ISI 868

cc: postel, norsar-tip 869

870

Vint, Lou and Holger 871

Paul Spilling sent me the following message which in part 872

suggests a willingness to participate in network measurement 873

experiments, i think that you should be able to utilize his 874

talents and this oppertunity to good result, particularly interesting 875

is the possibility for cooperative experiments to an extream reach of 876

the network. 877

878

Net mail from site SRI-ARC rcvd at 9-DEC-74 09:36:41 879

Date: 9 DEC 1974 0936-PST 880

From: NORSAR-TIP at SRI-ARC 881

JBP 14-JAN-75 15:08 25105

old sndmsg's

To: Postel at SRI-ARC 882
883
884
885

Jon Postel, 886
887

I have with great interest read your survey of implemented NCP's 888
in the ARPA Net. It has been of good help for us in clearing up 889
various problems in connection with the NCP. 890
891

As you probably know we have tried since the summer to approach ARPA 892
in connection with their satellite plans, but up till now we have got 893
no serious response> personally I think these plans are too advanced 894
for us now since we must be considered as beginners in this field. 895
A better approach would be to get connected to the ARPA Nat and have 896
everything running smothly before we are proceeding futher. Hopefully 897
we can partissipate in ecperimental activities in the Net in order
to 898

get more experience. 899

900

In your survey you advertise for certain spesific meassurements 901

revealing the performance of the NCP. I would like to get more 902

information about this topic and to here what type of experiments you 903

suggest. 904

Also I would like to get in contact with persons or groups which would 905

be interested in having us as a counterpart in Network experiments. 906

Do you have any suggestions. For your information I will give a brief 907

description of the facilities here. 908

909

I see that part of a block has disappeared from the text. The following 910

911

For the time being we are two persons working on this project. 912

We started about 3/4 of a year ago without any experience in this field 913

at all. Myself I had about 10 years of experience in experimental 914

nuclear physics before I started in this game. My institute feels that 915

we have to be involved in some way in the field of data communication, 916

but due to the lack of experience in this 917

field it is very difficult to establish a sound platform for the work. 918

I would threfore be very happy if you could give us any advice in this 919

direction. Personally I would prefere to partisipate in experiments with 920

other groups or persons. Any suggestion is welcome 921

922

For the time being we dispose of two SM-3 computers (Norwegian Make) 923

each with 64 k of memory. They share a disc unit and a mag. tape 924

station. It is also possible to transfer data on a word by word basis 925

between the two machines. This makes it possible to test the various 926

protocols on the two machines before they are tested on the Net. 927

928

We have choosen the Elf system 929

as a model for our operating system That's finnished now and is working 930

well I belive. At the moment I am working on the reliable transmission 931

package which I hope to finnish before Christmas. Then I can start with 932

the main part of the NCP. We have allready done some flowcharting on it, 933

so I hope that we can finnish it in a reasonable time. We are also 934

working on the TELNET protocol. At a later stage we intend to implement 935

the FILE transfer protocol. Well, that's the status here. 936

937

With my background in experimental nuclear physics I see a great need 938

for communication network as means, in a remote way, to do physics 939

experiments. Experiments done at for example Brookhaven or Argonne are 940

mostly done with computers on-line. With such a computer connected to 941

the ARPA Net, I could in principle do or partisipate in experiments at 942

for example Brookhaven. Do you know if thes aspects of the Net has been 943

old sndmsg's

discussed inside ARPA and eventually whom are involved in this. 944

945

Probably I am asking too many questions, but I hope that you have time 946

at least to answer some of them. 947

948

With the best regards Paul (Spilling) 948a

949

You can reach me by means of Yngvar Lundh's network address. 950

951

952

------- 953

9-DEC-74 17:49:27,9477 954

Date: 9 DEC 1974 1749-PST 955

From: POSTEL 956

Subject: File Format Standards 957

To: DCrocker at ISI, Hathaway at AMES, Krilanov at UCSB, 958

To: Pogran.CompNet at MIT-MULTICS, Tomlinson at BBN 959

JBP 14-JAN-75 15:08 25105

old sndmsg's

cc: postel 960

961

I would like you to look over the following draft RFC on file format 962
standards and give me your comments as soon as conviently possible, I 963
would like to firm up my suggestion with your contribution and sent 964
this out within one week. 965
thank you 966
--jon. 967

968

969

970

971

< POSTEL, FILE=STANDARDS.NLS;9, >, 5-DEC-74 10:23 JBP ;;;; 972

Network Working Group J. postel
(SRI-ARC) 973

Request for Comments: rrr dd December
1974 974

975

NIC: jjjjj 976

old sndmsg's

977

978

979

Standard File Formats 979a

980

981

982

983

Introduction 984

985

In an attempt to provide online documents to the network community we 985a

have had many problems with the physical format of the final 985b

documents. Much of this difficulty lies in the fact that we do not 985c

have control or even knowledge of all the processing steps or devices 985d

that act on the document file. A large part of the difficulty in the 985e

past has been due to some assumptions we made about the rest of the 985f

world being approximately like our own environment. We now see that 985g

the problems are due to differing assumptions and treatment of files 985h

to be printed as documents. We therefore propose to define certain 985i

standard formats for files and describe the expected final form for 985j

printed copies of such files. 985k

986

These standard formats are not additional File Transfer Protocol data 986a

types/modes/structures, but rather usage descriptions between the 986b

originator and ultimate receiver of the file. It may be useful or 986c

even necessary at some hosts to construct programs that convert files 986d

between common local formats and the standard formats specified here. 986e

987

Standardization Elements 988

989

The elements or aspects of a file to be standardized are the 989a

Character or code set used, the format control procedures, the area 989b

of the page to be used for text, and the method to describe 989c

overstruck or underlined characters. 989d

990

The area of the page to be used for text can be confusing to discuss, 990a

in an attempt to be clear we define a physical page and a logical 990b

page. 990c

991

Physical Page 991a

992

The physical page is the medium that carries the text, the 992a

height and width of its area are measured in inches. 992b

993

The typical physical page is a piece of paper eleven inches 993a

high and eight and one half inches wide. 993b

994

Typical print density is 10 characters per inch 994a

horizontally and 6 characters per inch vertically. This 994b
results in the typical physical page having a maximum 994c
capacity of 66 lines and 85 characters per line. It is 994d
often the case that printing devices limit the area of 994e
the physical page by enforcing margins. 994f
995
996

Standard File Formats [2] 996a
997
998
999

Logical Page 999a
1000

The logical page is the area that can contain text, the height 1000a
of this area is measured in lines and the width is measured in 1000b
characters. 1000c
1001

A typical logical page is 60 lines high and 72 characters 1001a

wide. 1001b

1002

Code Set 1002a

1003

The character encoding will be the network standard Network 1003a
Virtual Terminal (NVT) code as used in Telnet and File Transfer 1003b
protocols, that is ASCII in an eight bit byte with the high order 1003c
bit zero. 1003d

1004

Format Control 1004a

1005

The format will be controlled by the ASCII format effectors: 1005a

1006

Form Feed <FF> 1006a

1007

Moves the printer to the top of the next logical page, and 1007a
to the left edge of the logical page. [Note that this 1007b
differs from the NVT specification]. 1007c

1008

Carriage Return <CR> 1008a

1009

Moves the printer to the left edge of the logical page 1009a
remaining on current line. 1009b

1010

Line Feed <LF> 1010a

1011

Moves the printer to the next print line, keeping the same 1011a
horizontal position. 1011b

1012

Horizontal Tab <HT> 1012a

1013

Moves the printer to the next horizontal tab stop. 1013a

1014

The default stops for horizontal tabs will be every eight 1014a
characters, that is character positions 9, 17, 25, ... 1014b
within the logical page. 1014c

1015

Vertical Tab <VT> 1015a

1016

Moves the printer to the next vertical tab stop. 1016a

1017

The default stops for vertical tabs will be every eight 1017a
lines starting at the first printing line on each logical 1017b
page. 1017c

1018

1019

Standard File Formats [3] 1019a

1020

1021

1022

Back Space <BS> 1022a

1023

Moves the printer one character position toward the left 1023a
edge of the logical page. 1023b

1024

Not all these effectors will be used in all format standards, any 1024a
effectors which are not used in a format standard are ignored. 1024b

1025

1025a

1026

Page Length 1026a

1027

The logical page length will be specified in terms of a number of 1027a
lines of text. This describes the number of lines per physical 1027b
page available for text. This does not specify the size of the 1027c
physical page or the font. 1027d

1028

Page Width 1028a

1029

The logical page width will be specified as a number of 1029a
characters. This describes the number of characters per line of 1029b
the physical page available for text. This does not specify the 1029c

physical size of the page or the font. 1029d

1030

Overstriking 1030a

1031

Overstriking (note that underlining is a subset of overstriking) 1031a
may be specified to be done in one or both of the following ways, 1031b
or not at all: 1031c

1032

By Line 1032a

1033

The text of the line will be followed by a <CR> then the 1033a
overstriking will follow as a series of space and overstrike 1033b
characters followed by <CR><LF>. 1033c

1034

By Character 1034a

1035

Each character to be overstruck is to be immediately 1035a
followed by a <BS> and the overstrike character. 1035b

1036

1037

Standard File Formats [4] 1037a

1038

1039

1040

Standard Formats 1041

1042

Format 1 1042a

1043

This format is designed to be used for documents to be printed on 1043a
line printers, which normally have 66 lines to a physical page, 1043b
but often have forced top and bottom margins of 3 lines each. 1043c

1044

Active Format Effectors 1044a

<FF>, <CR>, <LF>. 1044a1

Page Length 1044b

60 lines. 1044b1

Page Width 1044c

72 Characters. 1044c1

Overstriking 1044d

By Line. 1044d1

1045

Format 2 1045a

1046

This format is designed to be used with hard copy terminals, which 1046a
in the normal case have 66 lines to a physical page. 1046b

1047

Active Format Effectors 1047a

<FF>, <CR>, <LF>, <HT>, <VT>, <BS>. 1047a1

Page Length 1047b

66 lines. 1047b1

Page Width 1047c

72 Characters. 1047c1

Overstriking 1047d

By Character. 1047d1

1048

Format 3 1048a

1049

This format is designed to be used with full width (11 by 14 inch 1049a
paper) line printer output. 1049b

1050

Active Format Effectors 1050a

<FF>, <CR>, <LF>. 1050a1

Page Length 1050b

60 lines. 1050b1

Page Width 1050c

132 Characters. 1050c1

Overstriking 1050d

None. 1050d1

1051

1052

Standard File Formats [5] 1052a

1053

1054

1055

Format 4 1055a

1056

This format is designed to be used for simulated card input. The 1056a
page width is 80 characters, each card image is followed by 1056b
<CR><LF>, thus each card is represented by 82 characters in the 1056c
file. 1056d

1057

Active Format Effectors 1057a

<CR>, <LF>. 1057a1

Page Length 1057b

Infinite. 1057b1

Page Width 1057c

80 Characters. 1057c1

Overstriking 1057d

None. 1057d1

1058

Implementation Suggestions 1059

1060

Overflow 1060a

1061

Overflow can result from two causes, first if the physical page is 1061a
smaller than the logical page, and second if the actual text in 1061b
the file violates the standard under which it is being processed. 1061c

1062

In either case the following suggestions are made to implementors 1062a
of programs which process files in these formats. 1062b

1063

Length 1063a

1064

If more lines are processed than fit within the minimum of the 1064a
physical page and the logical page length since the last top of 1064b
page action, then the top of page action should be forced. 1064c

1065

Width 1065a

1066

If more character positions are processed than fit on the 1066a
minimum of the physical page width and the logical page width 1066b
since the last left edge action, then characters are discarded 1066c
up to the next format effector. 1066d

1067

or 1067a

1068

If more character positions are processed than fit on the 1068a
minimum of the physical page width and the logical page width 1068b
since the last left edge action, then the left edge and next 1068c
line actions should be forced. 1068d

1069

1070

Standard File Formats [6] 1070a

1071

1072

1073

JBP 14-JAN-75 15:08 25105

old sndmsg's

References 1074

1075

A. McKenzie "TELNET Protocol Specification," NIC 18639, Aug-73. 1075a

1076

"USA Standard Code for Information Interchange," United States of 1076a
America Standards Institute, 1968. 1076b

------- 1077

10-DEC-74 09:00:26,342 1078

Date: 10 DEC 1974 0900-PST 1079

From: MICHAEL 1080

Subject: dashes 1081

To: lee 1082

cc: postel 1083

1084

Susan, I have just discovered this strange directiveNumDash 1085

If you put in a directive at the beginning of the file 1086

that says all but the very first line of dashes 1087

will go away. 1088

old sndmsg's

Norton wouldn't let me take them out all together. 1089

--- 1090

10-DEC-74 10:38:41,4437 1091

Net mail from site AMES-67 rcvd at 10-DEC-74 10:38:32 1092

FROM: HATHAWAY AT AMES-67 1093

DATE: 10 DEC 1974 1039-PST 1094

RE: Comments on "File Format Standards" 1095

1096

Some first-reading comments on Jon's draft RFC on "Standard File 1097

Formats": 1098

1098a

The idea appeals in general, especially to a non-TENEXer who has 1099

had to fight EOL's and tabs and control-whatever's for years ... 1100

However, I am having a bit of trouble seeing what it is actually 1101

intended for. I mean, would someone who is preparing a document 1102

simply choose a likely format (depending on what he thinks the 1103

most likely use of it will be) and then publicize which format 1104

he chose when he announces the thing? That's about the only use 1105

I can think of right off, so please let me know what others I 1106
have missed. Anyway, even in that light the thing seems some- 1107
what valuable, so on with nits etc ... 1108

1108a

How come you need to redefine Form Feed (FF)? I can't see any 1109
real reason it has to imply a CR also, and that could get con- 1110
fusing. That is, it seems the straightforward thing to do with 1111
FF anyway would be to include it after a "line" (i.e., after a 1112
<CR><LF> pair) so the redefinition seems unnecessary. Also to 1113
someone working on a terminal which really supports FF he may 1114
well use it to stay in the same column from one page to another 1115
(perhaps you wanted to exclude that use by the redefinition?). 1116

1116a

You say "default stops for horizontal tabs ..." but don't dis- 1117
cuss changing them -- are those in fact fixed stops or merely 1118
defaults? Same for VT, and I guess there is a default VT stop 1119
on line one, even though there is no HT stop needed at position 1120
one? 1121

1121a

Under "Page Length" you reference the number of lines on the 1122
physical page -- that seems a bit confusing, although it is 1123
obvious what "page length" means. And you say that does not 1124
describe the font, but nowhere do you say how (or if) you do 1125
describe the font! "Page Width" has the same problem of ref- 1126
erencing the physical page. 1127

1127a

I like your comment on underlining versus overstriking! Small 1128
nit on "By Line" -- you say a series of space and overstrike 1129
characters. Do you really mean to exclude control characters 1130
from this, notably HT? I realize that in the formats defined 1131
later "By Line" and use of HT are mutually exclusive, but ... 1132

1132a

On Standard Format 1, is it valid to use LF in the general 1133
case, and not as a partner with CR? That would be a nuisance 1134
for sure to mine printers ... In fact, what we really seem 1135
to need is the New Line (NL) control rather than <CR><LF>, 1136

old sndmsg's

but ... 1137

1137a

On Standard Format 2 it is true that 11-inch paper does have 1138
a full 66 lines and typewriter terminals can normally print on 1139
all of them, but what is the "top line" of the page supposed 1140
to be? I mean if I put line one at a reasonable distance down 1141
the page (really necessary on some terminals just to get the 1142
paper to feed through rollers etc) then the 66th line is of 1143
course way off the bottom. Alternatively I could try to put 1144
line one exactly at the top of the page and expect the text 1145
to skip a few lines -- which is meant? 1146

1146a

And how come no overstriking on Standard Format 3? What's the 1147
difference between narrow line printer forms and wide ones? I 1148
might also mention that we use 8.5X14 inch forms here at Ames 1149
(yep, wide but not tall -- weird I know, but we are the U.S. 1150
Gummint, so ...), but I'm not sure that's worth another Stan- 1151
dard Format. However, I am aware that many shops are in the 1152

process of changing to 8.5X14 inch paper and 8 lines per inch, 1153
as a tree-saving move, so mayhaps something on that? 1154
1154a
On Standard Format 4, how come you all of a sudden mention the 1155
<CR><LF> on each line specifically? Aren't they on all the 1156
others too? Would suggest mentioning it everywhere, actually. 1157
1157a
1157b
Anyway, I think the idea is interesting -- wonder how much co- 1158
operation you will get from people preparing documents? Al- 1159
though I guess any is better than now ... As I said, all of 1160
the above is just first-cut nitting -- looks pretty good in 1161
general. And of course feel free to comment on my comments! 1162
1162a
Wayne, 1162a1
1163
1164
CC: DCrocker at ISI, Krilanov at UCSB, Pogran.Compnet at MIT- 1165

JBP 14-JAN-75 15:08 25105

old sndmsg's

MULTICS, Tomlinson at BBN (my mail system doesn't handle 1165a
it's own copies ...) 1165b

------ 1166

10-DEC-74 13:03:48,433 1167

Net mail from site CCA-TENEX rcvd at 10-DEC-74 13:03:42 1168

Date: 10 DEC 1974 1559-EST 1169

From: HGM at CCA 1170

Subject: NSW 1171

1172

- - - - 1173

MAP WAS JUST HERE, NE MEMTIONED THAT YOU HAVE BEEN DOING A LOT 1174
OF WORK ON PROTOCOL FOR NSW, I'M INTERESTED - PROBABLY DON'T HAVE 1175
TIME TO DO MUCH MORE THAT TRY TO KEEP UP, BUT I WOULD LIKE TO KNOW 1176
WHAT NSW MIGHT EXPECT THE DATACOMPUTER TO DO. CAN I GET COPIES OF 1177
THE RELEVANT STUFF EASILY? 1178

------- 1179

10-DEC-74 13:24:54,1721 1180

Net mail from site USC-ISI rcvd at 10-DEC-74 13:24:50 1181

old sndmsg's

Date: 10 DEC 1974 1322-PST 1182

From: DCROCKER at USC-ISI 1183

Subject: MY two cents on File Standards 1184

To: Postel at ARC 1185

cc: Hathaway at AMES-67, Krilanov at UCSB, Pogran at MULTICS, 1186

cc: Tomlinson at BBNA 1187

1188

I like the basic document and agree with most of 1189

Wayne's comments. 1190

1191

1. An interesting point about the short, wide paper now coming 1192

into vogue is that the printer generally still produces 1193

66 lines (max) to the page. It may, therfore, be best not to talk of 1194

inches, but only lines and characters. 1195

1196

2. I'm partial to names, so I suggest that Format 1, 2, etc. 1197

have reference names of Document Printer, Terminal, Full Printer, 1198

and Card. A minor point, admittedly. 1199

1200

3. The discussion of width, under Implementation Suggestions, 1201
says that you can 1202

1203

a) discard up to next format effector. Don't you mean <cr>, <ff> or 1204
<vt>, only? (side note: I just realized that <vt> doesn't have the 1205
same eol effect defined into it as <ff>. Why?) I would expect 1206
characters to be discarded until one of the indicated characters 1207
is encountered, thereby reseting the column count to one. 1208
An alternative idea is to continue "virtual" printing so 1209
that if peculiar backspacing is done and some characters 1210
could still validly be printed, they wouldn't be lost. I can't 1211
believe this approach is worth doing, tho. 1212

1213

b. "left edge action" seems like an awkward phrasing; and 1214
"line action" even more so. And in combination, they 1215
confuse me completely. Do you mean that a <cr><lf> should be 1216
forced? I assume that you don't mean to discard until encountering 1217

old sndmsg's

the next left edge/line action characters, since that is 1218
taken care of in case a). 1219
1220
Dave, 1221
------- 1222
1223
11-DEC-74 06:50:11,660 1224
Net mail from site SRI-ARC rcvd at 11-DEC-74 06:50:10 1225
Date: 11 DEC 1974 0010-PST 1226
From: NORSAR-TIP at SRI-ARC 1227
To: Postel at SRI-ARC 1228
1229
1230
1231
Jon, 1232
1233

Thank you for your message. The ideas for measurements which you suggested will be considered in details, and we will certainly build

old sndmsg's

in the posibilities of gathering statistics on the various types of messages and of timing properties. 1234

1235

I have already sent a letter to Irving Cohen about the Brookhave connection to ARPA. 1236

1237

If I should have some problems in connection with the NCP, I hope that I may ask you again ffor advices. 1238

1239

Regards and all the best for the comming year 1240

1241

Paul. 1242

1243

1244

------- 1245

1246

11-DEC-74 12:35:59,1107 1247

Date: 11 DEC 1974 1235-PST 1248

From: POSTEL 1249

JBP 14-JAN-75 15:08 25105

old sndmsg's

Subject: NSW 1250

To: hgm at CCA 1251

cc: white, watson, postel 1252

1253

Hal: 1254

The NSW could use the Datacomputer to good effect if there were a 1255

quick effecient instance of what we call a File Package implemented 1256

there, this would be our first priority for Datacomputer use. Second 1257

i would expect that your group would want to make the power of 1258

Datalanguage available to users as what we call a "tool" or application 1259

package, 1260

1261

I am sending you hard copy of our documents on protocols etc to be used 1262

in the NSW, but you might want to get a preview by copying to your lpt 1263

the txt files in the directory <NLS> at SRI-ARC, let me emphasize that 1264

JBP 14-JAN-75 15:08 25105

old sndmsg's

these are ascii text files not nls files. The main documents you should 1265

look at are PCP.TXT, PSP.TXT, PMP.TXT, EXEC.TXT, and FILE.TXT 1266

you can pull them via ftp by using the username ANONYMOUS and password 1267

GUEST. 1268

if you have any more questions please dont hesitate to call either 1269

me or Jim White at (415) 326 6200 x3718 (postel) or x2960 (White). 1270

SNDMSG is also a fine communications mechanism too. 1271

--jon. 1272

------- 1273

11-DEC-74 12:49:22,1084 1274

Date: 11 DEC 1974 1249-PST 1275

From: POSTEL 1276

Subject: NSW 1277

To: Kanodia at MIT-MULTICS 1278

cc: Clark at MIT-MULTICS, Pogran at MIT-MULTICS, White, Watson, 1279

cc: Postel 1280

1281

JBP 14-JAN-75 15:08 25105

old sndmsg's

Raj: 1282

You expressed some interest in the NSW protocols and NSW does have 1283
interest in having a Multics system involved some time and thus it is 1284
everybodys interest for you to know what we are up to and for us to know 1285
if our ideas are implementable in the Multics environment. 1286
1287
I am sending you a set of our documents via hard copy, but you may 1288
also want to access our online copies. The files are in the 1289
directory <NLS> at SRI-ARC as txt files let me emphasise that 1290
these are ascii text files not nls files. The documents are 1291
numerous, but the main ones are PCP PSP PMP TBH the path names for 1292
ftp would be <NLS>PCP.TXT for example. One can use the username 1293
ANONYMOUS and password GUEST for pulling files from SRI-ARC. 1294
1295
Please feel free to contact either Jim White or me at (415) 326-6200 1296
x 3718 (postel) or x 2960 (White) or use network mail POSTEL@SRI-ARC or 1297
WHITE at SRI-ARC. 1298

old sndmsg's

--jon.

12-DEC-74 06:52:56,4630

Net mail from site MIT-MULTICS rcvd at 12-DEC-74 06:52:03

From: Pogran.CompNet at MIT-Multics

Date: 12/12/74 0952-est

Subject: Comments on Postel's File Format Standards

Congratulations to Jon on making an attempt at trying to crack a very hard nut! Also, it's nice to see that lots of responses still do pop up promptly when a good new Networking idea is presented. It helps one to maintain one's faith in the citizens of the Network Working Group (the WHAT?).

First I'll present my own comments, and then my comments on Wayne's comments:

old sndmsg's

Jon has embraced the Multics interpretation of <FF>: namely, the NewPage interpretation. Our experience has been that, at least in document presentation, one rarely wants to go to the top of a new page with the horizontal position other than at the left margin.

If TELNET ASCII is to be used in the document file, then <CR> must actually be transmitted as <CR> <NULL>. I strongly suggest that this be done.

Of course, TELNET ASCII leaves no provision for <LF> without a preceding <CR>. I agree with Wayne that the NewLine function is what is most often required, and that the <CR> <LF> TELNET NewLine sequence be used for this purpose. Is there really a need in document presentation for a stand-alone <LF>? We have gotten along without it here for a long time.

About tabs, both horizontal and vertical: Different systems assume

different "native" (or default) tab stops. Almost all systems provide 1334
software for handling terminals which do no have a hardware tab 1335
feature, converting the tabs to the "right" number of spaces. Writing 1336
software to do this is considerably easier than writing software to 1337
convert from one tab-stop convention to another! I suggest, 1338
therefore, that rather than define tab stops for Network document 1339
files, we preclude the use of tabs in such files. While this will 1340
mean that we will have to transmit more characters, I think it will 1341
mean less hassle in the long run. 1342
1343
Overstriking: Yes, yes, we need it! People might discover that 1344
terminals should print underscores for code 137 rather than 1345
back-arrows! 1346
1347
Line length for document files: Is 72 characters appropriate? Note 1348
that if one indents one inch from the left edge of the paper and uses 1349
a 65-character line, you will have one-inch margins on each side of 1350

your 8.5 in. wide paper! This is our default standard on Multics. 1351
1352
Format 2: for hard copy terminals. Note that IBM terminals (yes, some 1353
people still use them when they want high quality hardcopy; not 1354
everyone has Diablo's yet) do NOT have FormFeed. Nor do 1355
thermal-printing terminals such as TI's. Perhaps the standard file 1356
should contain instead the "right" number of NewLines instead. 1357
1358
Simulated card input: Must we completely represent card images? I 1359
think it would be fairly easy to handle the "early" occurrence of a 1360
NewLine at the receiving end, and pad out the remaining 80-N columns 1361
with spaces. Avoids transmitting extra spaces this way. 1362
1363
On to Wayne's comments: 1364
1365
I've already mentioned my feelings about the NewPage interpretation 1366
about <FF>. Wayne talks about describing page length and type fonts. 1367

old sndmsg's

Please, let's not re-implement NLS! 1368

1369

As for the meaning of the "top line" of the page on a hardcopy 1370
terminal, we havve found only one satisfactory assumption: The "top 1371
line" of a page on a hardcopy terminal is defined to be one linespace 1372
down from the edge of the sheet. No one in his right mind would begin 1373
printing a document there, so a document file in this format 1374
invariably begins with some number of NewLine characters. As for how 1375
you do type "up high" on the sheet -- well, we presume you are using 1376
continuous forms. Our runoff does optionally pause after each page if 1377
you are using individual sheets; if you're using this feature, though, 1378
your document had better be formatted properly (top margin-wise) so 1379
that the paper is fed through the rollers before serious typing 1380
begins. 1381

1382

I think Jon specified no overstriking on Format 3 beause he wanted to 1383

old sndmsg's

describe something approximating "ordinary" lineprinter output. Now, Wayne, I know that the lineprinter software on MY system will do overstriking, and perhaps the lineprinter software on YOUR system will too, but I would wager that the "normal" lineprinter control software on many systems would balk at the idea. The real question here, I think, is whether we need to specify a document file format for "ordinary" line printer output at all. I'm not sure how I feel about it, actually.

Well, folks, are we ready for the next go-round?

Regards,
Ken

12-DEC-74 11:45:56,12668
Net mail from site SRI-ARC rcvd at 12-DEC-74 11:45:41
Date: 12 DEC 1974 1145-PST
From: POSTEL at SRI-ARC

JBP 14-JAN-75 15:08 25105

old sndmsg's

Subject: Procedure Call Protocol 1401

To: Request-for-Comment-Distribution: 1402

1403

1404

1405

1406

1407

<GJOURNAL>31484,NLS;1, 12-DEC-74 04:32 XXX ;;;; Title: Author(s): 1408

Jonathan B. Postel/JBP; Distribution: /NAG([ACTION]) NLG([
ACTION] 1409

) NSW([ACTION]) PI([ACTION]) ; Sub-Collections: NIC NWG
SRI-ARC 1410

NAG NLG NSW PI; RFC# 674; Clerk: JAKE; Origin: < NETINFO, 1411

RFC674.NLS;2, >, 11-DEC-74 17:58 JAKE ;;;;####; 1412

1413

NWG/RFC# 674 JBP 11-DEC-74 18:04
31484 1414

Procedure Call Protocol Documents 1415

1416

JBP 14-JAN-75 15:08 25105

old sndmsg's

Request for Comments 674 Jon Postel

NIC 31484 Jim White

SRI-ARC

12 December 1974

Procedure Call Protocol Documents

Version 2

1

As many of you may know SRI is part of a team working on the National Software Works project. In the course of our work we have developed a Procedure Call Protocol to be used between the modules which make up the NSW. We are interested in your comments on this protocol. Please

JBP 14-JAN-75 15:08 25105

old sndmsg's

foreward your remarks to either:
2 1430

1431

James E. White (WHITE@SRI-ARC) or Jon Postel (POSTEL@SRI-ARC)
2a 1431a

1432

Augmentation Research Center 1432a

Stanford Research Institute 1432b

Menlo Park, California 94025 2b 1432c

1433

(415) 326-6200 x2960 (White) or x3718 (Postel) 2c 1433a

1434

This note announces the release of the second published version of 1435

several National Software Works (NSW) and Procedure Call Protocol 1436

(PCP) documents. Version 2 is SUBSTANTIALLY different than Version 1; 1437

it and all intermediate, informally distributed PCP documents are 1438

obsoleted by this release.
3 1439

1440

old sndmsg's

Each of the following documents is available on-line in two forms: as an NLS file and as a formatted text file. The Journal number (e.g. 24459) refers to the former, of course, and the pathname (e.g. [SRI-ARC]<NLS>PCP.TXT) to the latter, accessible via FTP using USER=ANONYMOUS and PASSWORD=GUEST (no account required). Let it be emphasised that files indicated by pathname of the form [SRI-ARC]<NLS>name.TXT are ASCII text files not NLS files.
4

The specifications are contained in the following documents:
5

HOST (24581,) "NSW Host Protocol"
5a

This document describes the host level protocol used in the NSW. The protocol is a slightly constrained version of the standard ARPANET host to host protocol. The constraints affect the allocation, RFNM wait, and retransmission policies.
5a1

JBP 14-JAN-75 15:08 25105

old sndmsg's

1452

NWG/RFC# 674 JBP 11-DEC-74 18:04
31484 1453

RFC 674; PCP
Announcement 1454

1455

1456

1457

Pathname: [SRI-ARC]<NLS>HOST.TXT
5a1a 1457a

1458

PCP (24459,) "The Procedure Call Protocol"
5b 1458a

1459

This document describes the virtual programming environment 1459a

provided by PCP, and the inter-process exchanges that implement 1459b

it.
5b1 1459c

1460

Pathname: [SRI-ARC]<NLS>PCP.TXT
5b1a 1460a

old sndmsg's

1461

PIP (24460,) "The Procedure Interface Package"
5c 1461a

1462

This document describes a package that runs in the setting 1462a
provided by PCP and that serves as a procedure-call-level 1462b
interface to PCP proper. It includes procedures for calling, 1462c
resuming, interrupting, and aborting remote procedures.
5c1 1462d

1463

Pathname: [SRI-ARC]<NLS>PIP.TXT
5c1a 1463a

1464

PSP (24461,) "The PCP Support Package"
5d 1464a

1465

This document describes a package that runs in the setting 1465a
provided by PCP and that augments PCP proper, largely in the 1465b
area of data store manipulation. It includes procedures for 1465c
obtaining access to groups of remote procedures and data stores, 1465d

manipulating remote data stores, and creating temporary ones.
5d1 1465e

1466

Pathname: [SRI-ARC]<NLS>PSP.TXT
5d1a 1466a

1467

PMP (24462,) "The Process Management Package"
5e 1467a

1468

This document describes a package that runs in the setting 1468a

provided by PCP and that provides the necessary tools for 1468b

interconnecting two or more processes to form a multi-process 1468c

system (e.g. NSW). It includes procedures for creating, 1468d

deleting, logically and physically interconnecting processes, 1468e

and for allocating and releasing processors.
5e1 1468f

1469

Pathname: [SRI-ARC]<NLS>PMP.TXT
5e1a 1469a

1470

JBP 14-JAN-75 15:08 25105

old sndmsg's

PCPFMT (24576,) "PCP Data Structure Formats"
5f 1470a

1471

This document defines formats for PCP data structures, each of 1471a

which is appropriate for one or more physical channel types.
5f1 1471b

1472

Pathname: [SRI-ARC]<NLS>PCPFMT.TXT
5f1a 1472a

1473

1474

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1476

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1478

1 1478a

1479

NWG/RFC# 674 JBP 11-DEC-74 18:04
31484 1480

JBP 14-JAN-75 15:08 25105

old sndmsg's

RFC 674; PCP
Announcement 1481

1482

1483

1484

PCPHST (24577,) "PCP ARPANET Inter-Host IPC Implementation"
5g 1484a

1485

This document defines an implementation, appropriate for 1485a

mediating communication between Tenex forks, of the IPC 1485b

primitives required by PCP.
5g1 1485c

1486

Pathname: [SRI-ARC]<NLS>PCPHST.TXT
5g1a 1486a

1487

PCPFRK (24578,) "PCP Tenex Inter-Fork IPC Implementation"
5h 1487a

1488

This document defines an implementation, appropriate for 1488a

mediating communication between processes on different hosts 1488b

within the ARPANET, of the IPC primitives required by PCP.
5h1 1488c

1489

Pathname: [SRI-ARC]<NLS>PCPFRK.TXT
5h1a 1489a

1490

EXEC (24580,) "The Executive Package"
5i 1490a

1491

This document describes a package that runs in the setting 1491a

provided by PCP. It includes procedures and data stores for 1491b

user identification, accounting, and usage information.
5i1 1491c

1492

Pathname: [SRI-ARC]<NLS>EXEC.TXT
5i1a 1492a

1493

FILE (24582,) "The File Package"
5j 1493a

1494

old sndmsg's

This document describes a package that runs in the setting provided by PCP. It includes procedures and data stores for opening, closing, and listing directories, for creating, deleting, and renaming files, and for transfering files and file elements between processes.
5jj1

Pathname: [SRI-ARC]<NLS>FILE.TXT
5jja

BATCH (24583,) "The Batch Job Package"
5k

This document describes a package that runs in the setting provided by PCP. It includes procedures for creating and deleting batch jobs, obtaining the status of a batch job, and communicating with the operator of a batch processing host. This package is implemented at the host that provides the batch processing facility.
5kl

JBP 14-JAN-75 15:08 25105

old sndmsg's

1498

Pathname: [SRI-ARC]<NLS>BATCH.TXT
5k1a 1498a

1499

RJE-MODEL (24655,) "The NSW Remote Job Entry Model"
51 1499a

1500

1501

1502

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1505

2 1505a

1506

NWG/RFC# 674 JBP 11-DEC-74 18:04
31484 1507

RFC 674; PCP
Announcement 1508

1509

1510

old sndmsg's

1511

This document discusses the process of utilizing a batch 1511a
processing facility to complete a programming task in the NSW 1511b
environment. This same activity in another environment might 1511c
utilize a remote job entry system.
511 1511d

1512

Pathname: [SRI-ARC]<NLS>RJE-MODEL.TXT
511a 1512a

1513

LLDBUG (24579,) "The Low-Level Debug Package"
5m 1513a

1514

This document describes a package that runs in the setting 1514a
provided by PCP. It includes procedures for a remote process to 1514b
debug at the assembly-language level, any process known to the 1514c
local process. The package contains procedures for manipulating 1514d
and searching the process' address space, for manipulating and 1514e
searching its symbol tables, and for setting and removing 1514f

breakpoints from its address space. Its data stores hold 1514g

process characteristics and state information, and the contents 1514h

of program symbol tables.
5m1 1514i

1515

Pathname: [SRI-ARC]<NLS>LLDBUG.TXT
5m1a 1515a

1516

TBH (24656,) "NSW Requirments on Tool Bearing Hosts"
5n 1516a

1517

This document discusses the environment needed in the tool 1517a

bearing host and the interfaces to the operating system 1517b

components by various PCP packages.
5n1 1517c

1518

Pathname: [SRI-ARC]<NLS>TBH.TXT
5n1a 1518a

1519

BOXES (24584,) "Black Boxes in PCP"
5o 1519a

old sndmsg's

1520

This document describes the transliteration of the black boxes 1520a
defined by Millstein and Warshall into the setting provided by 1520b
PCP, especially the File Package and the Executive Package.
5o1 1520c

1521

Pathname: [SRI-ARC]<NLS>BOXES.TXT
5o1a 1521a

1522

The document on the Host level protocol, HOST, is a suggestion for 1523
some restrictions on the regular ARPANET host protocol for use in
NSW, 1524
this topic has little impact on the remainder of the NSW protocols, 1525
The reader is urged to begin with the major Procedure Call Protocol 1526
documents.
6 1527

1528

The document on PCP is the place the interested reader should start, 1529
It gives the required motivation for the Protocol and states the 1530

old sndmsg's

substance of the Protocol proper.
7

3

NWG/RFC# 674 JBP 11-DEC-74 18:04
31484

RFC 674; PCP
Announcement

The reader may then proceed to the next three documents: PIP, PSP and PMP. The latter has the most relavence to the casual reader; the

programmer faced with coding in the PCP environment should read all three.

8

The three documents PCPFMT, PCPHST, and PCPFRK specify low level details of the communication formats and are of interest only to PCP implementers.

9

The documents EXEC, FILE and BATCH describe procedure packages to be implemented as appropriate to provide the services of the accounting/status/usage statistics subsystem, the file subsystem or batch processing subsystem respectively.

10

The document RJE-MODEL describes how a user would utilize various tools in the NSW in the process of carrying out tasks he might in the absence of NSW achieve using a remote job entry system. This should be

read with the document on BATCH. 1561

11 1561a

1562

The LLDBUG package specifies a debugging package that operates in the 1563
PCP environment.
12 1564

1565

The document called BOXES describes a mapping between the PCP 1566
mechanisms and the File Package procedures and the Black Boxes needed 1567
by the Works Manager.
13 1568

1569

The document TBH speaks to the requirements placed on the Tool
Bearing 1570
Host. This document indicates how and where various PCP packages 1571
interface to an operating system.
14 1572

1573

1574

1575

old sndmsg's

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1593

JBP 14-JAN-75 15:08 25105

old sndmsg's

1594

4 1594a

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12-DEC-74 11:50:21,333 1596

Net mail from site OFFICE-1 rcvd at 12-DEC-74 11:50:17 1597

Date: 12 DEC 1974 1149-PDT 1598

From: LEE at OFFICE-1 1599

Subject: Printing nls files on the xgp 1600

To: postel at SRI-ARC 1601

1602

My file describing how to print nls files on the xgp is in my office-1 dir - (lee,nls-xgp,) - it shouldn't be protected. 1603

Any comments are welcome! 1604

------- 1605

12-DEC-74 22:00:36,567 1606

Net mail from site BBN-TENEX rcvd at 12-DEC-74 22:00:34 1607

Date: 13 DEC 1974 0100-EST 1608

From: OMALLEY at BBN-TENEX 1609

JBP 14-JAN-75 15:08 25105

old sndmsg's

Subject: RFC 674 1610

To: POSTEL at SRI-ARC 1611

1612

THIS IS NOT MIKE HIMSELF BUT ONE OF HIS MINIONS WHO OFTEN 1613

HAS OCCASION TO READ THE MAIL FOR HIM. IN DEFERENCE TO THOSE OF 1614

US WHO STILL HAVE TO STRUGGLE ALONG WITH HARDCOPY 1615

DEVICES AND DIAL-UP LINES PLEASE IN THE FUTURE RE-FORMAT 1616

YOUR MESSAGES OUT OF NLS FORMAT BEFORE DISTRIBUTING 1617

THEM. IT TOOK OVER TEN MINUTES TO TYPE ON A TI, 1618

MOSTLY DEVOTED TO WHITE SPACE. 1619

THANKS FOR LISTENING 1620

HT 1620a

------- 1621

13-DEC-74 09:39:47,781 1622

Net mail from site CCA-TENEX rcvd at 13-DEC-74 09:39:42 1623

Date: 13 DEC 1974 1239-EST 1624

From: HGM at CCA 1625

Subject: NSW 1626

JBP 14-JAN-75 15:08 25105

old sndmsg's

To: POSTEL at SRI-ARC, WHITE at SRI-ARC 1627

cc: map at MULTICS 1628

1629

THANKS FOR THE GOODIES. THEY WERE ON MY DESK THIS MORNING. 1630

THE PART THAT I WAS LOOKING FOR WAS THE 'HOST' SECTION, I'LL GET TIME 1631

TO LOOK AT THE REST SOON. 1632

A FEW QUESTIONS... 1633

A) THE 8000 BIT RESTRICTION: IS 'NORMAL' TENEX OK? [I THINK SO, 1634

BUT I'M JUST TRYING TO CONFIRM... I'M NOT INTERESTED IN THE NVT MODE.] 1635

B) THERE IS A CLAIM [6+7] THAT ONLY THE SEND HALF NEEDS TO BE UPDATED. 1636

I'M NOT SURE I [YET] AGREE. WHAT HAPPENS IF THE NET BOTCHES IT? 1637

IF THE NET DROPS ONE MESSAGE, DON'T THINGS ARRIVE OUT OF ORDER..... 1638

DOESN'T THE RECVR HAVE TO BE PREPARED TO SORT THINGS OUT? 1639

------- 1640

16-DEC-74 14:26:01,1523 1641

Net mail from site USC-ISI rcvd at 16-DEC-74 14:25:57 1642

Date: 16 DEC 1974 1425-PST 1643

JBP 14-JAN-75 15:08 25105

old sndmsg's

From: UCSB at USC-ISI 1644

Subject: YOUR PROPOSED RFC ON STANDARD FILE FORMATS 1645

To: POSTEL at SRI-ARC 1646

cc: DCROCKER at ISI, HATHAWAY at AMES-67, 1647

cc: POGRAN,COMPNET at MIT-MULTICS, TOMLINSON at BBN, 1648

cc: KRILANOV at UCSB 1649

1650

I AGREE WITH ALL OF WAYNE AND DAVE'S COMMENTS; PARTICULARLY: 1651

1652

(1) I HAVE LONG FELT THAT IT WOULD BE MUCH BETTER TO HAVE SOME 1653
SINGLE CHARACTER FOR NEW LINE RATHER THAN <CR><LF>. BESIDES BEING 1654
BASICALLY LOGICAL, IT WOULD MAKE EVERYONE'S CODE SIMPLER. I 1655
WOULD MAKE A PUSH FOR THIS IF ONLY I COULD COME UP WITH A GOOD 1656
IDEA AS TO WHAT CHARACTER TO USE. 1657

1658

(2) I LIKE DAVE'S IDEA OF CALLING THE FORMATS BY NAMES RATHER 1659
THAN NUMBERS, AND I IN FACT LIKE THE NAMES HE CHOSE. HE SAID HE 1660
FELT THIS WAS A MINOR POINT, BUT ASSUMING YOU MEAN FOR THESE 1661

old sndmsg's

IDENTIFIERS TO BE USED BY PEOPLE RATHER THAN COMPUTERS, I FEEL 1662
STRONGLY THAT THEY SHOULD BE NAMES. 1663
1664
(3) I AGREE THAT 'LEFT-EDGE ACTION' AND 'NEXT-LINE ACTION' ARE 1665
AWKWARD; ASSUMING I GUESSED CORRECTLY WHAT THEY MEAN (I DON'T 1666
THINK YOU DEFINED THEM, DID YOU?), I WOULD RATHER SEE JUST <CR> 1667
AND <LF> USED. 1668
1669
(4) AS WAYNE SAYS, IT WOULD BE NICE TO KNOW WHAT THE INTENDED 1670
USE IS. IF IT IS INTENDED (HOPED) THAT AS A RESULT OF THIS, TENEX 1671
WILL NO LONGER SEND EOL'S THROUGH FTP WHEN <CR><LF> WAS MEANT, FOR 1672
EXAMPLE, I AM WHOLEHEARTEDLY FOR IT, AND I THINK STATING SUCH 1673
WOULD HELP GATHER SUPPORT FOR YOUR PROPOSAL. 1674
1675
--MARK KRILANOVICH 1675a
------- 1676
17-DEC-74 08:41:38,706 1677
Net mail from site SRI-ARC rcvd at 17-DEC-74 08:41:34 1678

JBP 14-JAN-75 15:08 25105

old sndmsg's

Date: 17 DEC 1974 0841-PST 1679

From: CERF at SRI-ARC 1680

Subject: RFC 675 (NIC 31505) Internetwork Protocol 1681

To: Request-for-Comment-Distribution: 1682

1683

This note announces the release of RFC 675, 1684

'Transmission Control Program Specification' 1685

which defines an internetwork protocol for inter- 1686

process communication. Copies of the spec may be 1687

obtained by sending your mailing address to 1688

CERF at ISI along with a request for a copy. 1689

I have intentionally not sent it out to everyone 1690

because it is about 50 pages long. An on-line 1691

copy without figures is in <CERF>TCPSPEC8.txt at ISI. It may be TCPSPECx.TXT 1692

bythe time you see it. 1693

1694

Vint Cerf 1695

JBP 14-JAN-75 15:08 25105

old sndmsg's

17-DEC-74 10:35:58,410

Net mail from site BBN-TENEXA rcvd at 17-DEC-74 10:35:53

Date: 17 DEC 1974 1324-EST

From: JOHNSON at BBN-TENEXA

Subject: RFC #

To: JBP at NIC

cc: BTHOMAS

Jon:

Could you send us an RFC number for a paper we wish to distribute?

The paper is:

The Maintainance of Duplicate Databases

by

Paul R. Johnson

JBP 14-JAN-75 15:08 25105

old sndmsg's

Robert H. Thomas 1714

Bolt Beranek and Newman, Inc. 1714a

1715

Thanks. 1716

---Paul 1717

------- 1718

18-DEC-74 15:32:31,251 1719

Net mail from site USC-ISI rcvd at 18-DEC-74 15:32:28 1720

Date: 18 DEC 1974 1512-PST 1721

From: FARBER at USC-ISI 1722

Subject: MISC 1723

To: POSTEL at SRI-ARC 1724

1725

1. WILL PAY BILL ASAP. 1726

2. WOULD YOU ASK ENGELBART TO READ 1727

THE MAIL I SENT HIM. 1728

DAVE 1729

------- 1730

JBP 14-JAN-75 15:08 25105

old sndmsg's

1731

18-DEC-74 17:26:22,660 1732

Net mail from site USC-ISI rcvd at 18-DEC-74 17:26:21 1733

Date: 18 DEC 1974 1719-PST 1734

From: DCROCKER at USC-ISI 1735

Subject: RD 1736

To: Postel at ARC 1737

1738

Actually, I mistyped that note. I meant NLS, not RD. I have 1739

made several attempts to retrieve enough files to get 1740

tnls running at isi, and I keep running into a few files 1741

I don't have. Latest one is some file which indicates 1742

what idents are associated with what directory. It's 1743

really too bad. I couldn't seem to convince Norton that 1744

it is reasonable to make nls a standard Tenex subsys 1745

(with no user assistance from Arc as an explicit condition 1746

of its release). Sigh. 1747

1748

old sndmsg's

Thanks anyhow, Dave. 1749

------- 1750

1751

19-DEC-74 09:09:54,634 1752

Date: 19 DEC 1974 0909-PST 1753

From: WHITE 1754

Subject: IBM TBHs 1755

To: watson 1756

cc: postel 1757

1758

Dick-- I talked to Steve Crocker yesterday, and he told me that NSW has 1759

found interest in and funds for bringing up an IBM machine (probably 1760

CCN's or RAND's) as a TBH this first year. He is bringing Braden and 1761

Fredrickson up to speed starting now. He asked that I send each a copy 1762

of all TBH-related protocol documentation, which I did. 1763

1764

JBP 14-JAN-75 15:08 25105

old sndmsg's

We have now used up all 50 copies of the PCP document, and all but one 1765

or two of the NSW document. If we're going to prepare another version 1766

for printing, now's the time. --Jim 1767

1768

------- 1769

23-DEC-74 16:33:15,911 1770

Net mail from site USC-ISI rcvd at 23-DEC-74 16:33:13 1771

Date: 23 DEC 1974 1633-PST 1772

From: BINDER at USC-ISI 1773

Subject: PROC, CALL PROTOCOL 1774

To: POSTEL at SRI-ARC 1775

cc: WHITE at SRI-ARC, BINDER 1776

1777

HAVE READ SOME OF THE INTRO STUFF TO YOUR PROC, CALL PROT., 1778

AND LOOKS INTERESTING, TWO IMMEDIATE QUESTIONS: 1779

1780

1, CAN (AT LEAST A BASIC SUBSET) OF IT BE IMPLEMENETED 1781

old sndmsg's

ON A SMALL MACHINE, SUCH AS A PDP11/40? 1782

1783

2. WHO (OR WHAT) DO YOU KNOW WHO IS PLANNING TO USE IT 1784

IN THE NEAR FUTURE? LONGER RANGE FUTURE? 1785

1786

I AM INTERESTED IN IT FOR SOME MEDICAL APPLICATION 1787

PROGRAMS WHICH WOULD INTERACT BETWEEN HAWAII 1788

(THE 11/40) AND THE SUMEX SYSTEM AT STANFORD. 1789

(3. DO YOU KNOW IF TTHE PROT. WILL BE ON THE 1790

SUMEX SYSTEM?) 1791

THE 11/40 WILL HAVE A SIMPLE I/O INTERFACE TO ANOTHER 1792

SMALL MINI WHICH RUNS ARRPANET HOST-HOST PROTOCOL 1793

(HAWAII-ALOHA), AND WHICH COULD MEET THE HOST-PCP 1794

SPEC. 1795

REGARDS, 1796

DICK BINDER 1797

------- 1798

23-DEC-74 17:38:47,1623 1799

JBP 14-JAN-75 15:08 25105

old sndmsg's

Date: 23 DEC 1974 1738-PST 1800

From: POSTEL 1801

Subject: regarding cryptic messages about protocol documents 1802

To: jmc at SU-AI 1803

cc: engelbart, postel 1804

1805

Appologies for the cryptic message i sent concerning Procedure Call 1806

Protocol Documents [RFC 674, NIC 31484]. As you may know the 1807

Augmentation Research Center is working (with others) on IPT's National 1808

Software Works program. As part of our effort we have developed a set of 1809

procedure oriented protocols which we feel may be of use in other 1810

contexts as well. The intent of the unfortunately widely distributed 1811

message was to call attention to the availability of the documents 1812

describing this Procedure Call protocol. 1813

1814

The documents are available as online files both in the nls 1815

journal and as text files. The 4 page announcement cited in the earlier 1816

message is available via File Transfer Protocol at OFFICE-1 as file 1817

<NETINFO>RFC647.TXT 1817a

1818

The actual documents describing the new protocol are 1819

available at SRI-ARC via FTP as files: 1820

<NLS>HOST.TXT 1820a

<NLS>PCP.TXT 1820b

<NLS>PSP.TXT 1820c

<NLS>PIP.TXT 1820d

<NLS>PMP.TXT 1820e

<NLS>PCPFMT.TXT 1820f

<NLS>PCPHST.TXT 1820g

<NLS>PCPFRK.TXT 1820h

<NLS>EXEC.TXT 1820i

<NLS>FILE.TXT 1820j

<NLS>BATCH.TXT 1820k

JBP 14-JAN-75 15:08 25105

old sndmsg's

<NLS>RJE-MODEL.TXT 18201

<NLS>LLDBUG.TXT 1820m

<NLS>TBH.TXT 1820n

1821

Note that one can pull files from either OFFICE-1 or SRI-ARC via FTP 1822

using the username ANONYMOUS and the password GUEST. 1823

1824

--jon. 1825

[POSTEL at SRI-ARC] 1825a

------- 1826

24-DEC-74 09:35:59,1214 1827

Date: 24 DEC 1974 0935-PST 1828

From: POSTEL 1829

Subject: Accessing Files at other Hosts 1830

To: triolo 1831

cc: postel, watson 1832

1833

Vic: 1834

old sndmsg's

In the absence of a running NSW we have to work a little in order to 1835
get a hold of files at other hosts, the scenario goes as follows: 1836
1837
Assuming that you are in the exec at your home host, 1838
1839
FTP % start the FTP user program % 1840
--- % FTP says hello etc. % 1841
CONN OFFICE-1 % establish a connection to the 1842
% place that has the file e.g. OFFICE-1 % 1842a
--- % Office-1 says hello % 1843
LOG ANONYMOUS GUEST % tell office-1 a ftp username and password 1844
% it likes (note that most tenexes will take 1844a
% ANONYMOUS GUEST % 1844b
GET <NETINFO>RFC674.TXT % get the distant file specifing the 1845
%file name exactly % 1845a
(to) MYCOPY.TXT % to local file with a name i want % 1846
--- % ftp says it is starting the transfer % 1847
<wait> 1848

old sndmsg's

--- % ftp says transfer completed % 1849

QUIT % leave ftp 1850

1851

1852

-i hope this helps FTP also has a help command and a ? lists commands. 1853

--jon. 1854

------- 1855

24-DEC-74 10:24:43,788 1856

Date: 24 DEC 1974 1024-PST 1857

From: POSTEL 1858

Subject: Procedure Call Protocol 1859

To: BINDER at ISI 1860

cc: WHITE, POSTEL 1861

1862

DICK: 1863

SRI-ARC is using the Procedure Call Protocol in the implementation 1864

of the National Software Works. In this we will have PCP implementations 1865

old sndmsg's

on TENEX and a large PDP 11/45. The eleven is large because there are many things for it to do not because PCP is necessarily large, the eleven will run the elf system.

I think the SUMEX system is TENEX so there should not be much difficulty in getting PCP running there but as far as i know they have not expressed any interest in PCP. The ISI COTCO project has expressed interest in and plans to utilize PCP in their work. We are encouraged by your interest and welcome your suggestions.

--jon.

24-DEC-74 10:31:51,8722

Net mail from site OFFICE-1 rcvd at 24-DEC-74 10:31:42

Date: 24 DEC 1974 1022-PDT

From: CRAIN at OFFICE-1

Subject: dialogue on bjp

To: NSW-DISTRIBUTION:

cc: av at 70

JBP 14-JAN-75 15:08 25105

old sndmsg's

1883

For those of you who havent been in on a series of messages(via 1884

Journal) between Jon Postel and myself, here is what has transpired so 1885

far: 1886

++ 1887

1 Jim and Jon, 1888

May I suggest that the "CRTJOB" procedure of the BJP 1888a

(Journal,24583,1;w) requires at least two and possibly three additional 1889

parameters, 1890

1891

1A PRIORITY- Most batch scheduling systems allow the user to specify 1891a

a Priority/Class/Queue or some other similiar term. Differences in 1891b

cost and resources available within the different classes are 1891c

usually significant. It is reasonable for us to expect that the user 1891d

will want to take advantage of a lower priced priority if he can 1891e

tolerate a slower turnaround, of conversely to want to be able to 1891f
select a higher priced, quick turnaround class. There needs to be a 1891g
way to specify this priority in the CRTJOB call. I would suggest a 1891h
third input parameter: 1891i

priority - INTEGER 1891i1

1892

1A1 We should also recognize that some systems actually have a 1892a
multiple priority scheme. The B4700, for example, has a separate 1892b
specifyable priority for a job's being scheduled, recieving 1892c
processing slices, and holding control of memory against other 1892d
jobs when core is needed for a realtime job. However, i think it 1892e
is probably acceptable to combine these three fields into one 1892f
three digit integer 1892g

1893

1B PRE/CO-REQUISITE JOBS- It should also be recognized that one job 1893a
may have as a prerequisite the successful completion of another 1893b
(perhaps because it uses that job's output file for input). The 1893c

most obvious case is the execution of a program which must first be 1893d

compiled, but many other programs also require serial execution of 1893e

two or more jobs. A few also require parallel execution. 1893f

1894

1B1 We must certainly allow the user to generate a string of 1894a

jobs, each of which will be executed only if the previous one 1894b

went to normal completion. Thus there is an absolute requirement 1894c

for a Prerequisite field: 1894d

1895

1B1A <preq>= LIST ((%host#%INTEGER, %jobid%INTEGER)...) 1895a

1896

1B1B Initially we should probably administratively require 1896a

that any jobs linked in this way reside in the same machine, 1896b

but a multi-machine structure will probably someday become 1896c

quite desirable, and thus should be allowed for in the call. 1896d

1897

1B2 The need for a co-requisite parameter is not as clear-cut. 1897a

JBP 14-JAN-75 15:08 25105

old sndmsg's

Giving two (or more) jobs the same prerequisite might suffice in a single machine environment. However, by the time a multi-machine environment is implemented, such a parameter might be necessary. This idea needs more exploration to determine whether it is a real need. 1897b 1897c 1897d 1897e 1897f

1898

2 /Larry Crain 1899

1900

1 JBP 16-DEC-74 19:26 24768 1901

RE: 31493 -- comments on BJP 1902

Message: Larry: 1903

Thanks for your comments, the ideas on priority can be easily incorporated, in the CRTJOB call. As for the Prerequsite job information, that seems to be somthing like job steps in the ibm world. 1904 1905 1906

Is there such a concept in the B3500,B4700 control language now? 1907

I think that we should be careful not to reconstruct the entire job control language in the crtjob call, prehaps even the priority is 1908 1909

old sndmsg's

best handled in the job control language in the input files. 1910

Comments ? 1911

--jon. 1912

*****Note: [INFO-ONLY] ***** 1913

1914

1915

< CRAIN, BJP-REPLY.NLS;2, >, 24-DEC-74 09:25 LAC ;;;; 1916

1917

1918

Jon: 1919

1920

1 I think if pressured on the Priority field, i could probably be 1921

convinced to forget about it. As you say, priority can be handled 1922

within the JCL of about any machine which implements priority. Thus it 1923

is machine specific, and even more important, requires no contact with 1924

other hosts. 1925

1926

2 On the other hand i am going to be significantly more stubborn on the 1927
idea of Prerequisite jobs. As you say, this is not an uncommon idea in 1928
the environment of single independant computers, the IBM jobstep is 1929
such a system. I think we must recognize, also, that to the user, NSW 1930
should "look like" such a large machine, not a network of several. 1931
Since the concept of a string of jobs is recognized as important (ie, 1932
it's implemented and used) in the current single machine environment, i 1933
think that it should be available to the NSW user also, unless there 1934
are large technical problems to its implementation. 1935
1936

3 One example of how sush a facility might be used is in the area of 1937
programming. Suppose I have written a program in Structured COBOL, and 1938
now want to compile and test execute it. I might wish to do so by 1939
invoking the following batch steps: 1940
1941

3A 1. a Structured->Standard COBOL preprocessor. 1941a

1942

3B 2. a source language instrumentation package (which instruments 1942a
the source code to trace execution through the control paths and 1942b
count how many times each path is taken, flagging any path not 1942c
exercised) 1942d

1943

3C 3. Standard COBOL Compile and go 1943a

1944

3D 4. A Listing->NLS file formatter 1944a

1945

4 It can reasonably be expected that this job stream will execute on at 1946
least two machines (Steps 2 and 3 on a B4700, step 4 on a TENEX, step 1 1947
on either or even a third machine-maybe RADC's Multics). It is clearly 1948
undesirable for the user to view this as three separate batch jobs, 1949
each of which he cannot call for until informed the previous one went 1950
to completion. That would involve at least three separate 1951

logins/querries of the status of the previous job. He should 1952
(eventually) be able to specify a string of such batch jobs, and let 1953
NSW worry about where and when to execute them. 1954
1955
5 Now, that could be done by a little 'demon' setting in the NSW works 1956
manager, but that would add complexityWM, not to mention unnecessary 1957
work, for the WM. It is my opinion that a batch job should be 1958
scheduled, and then not bother the WM until it is done. Clearly having 1959
the WM controling an unlimited number of batch job strings is not 1960
consistent with what we had hoped would be its function. 1961
1962
6 Next, let's assume for the moment that such a facility could 1963
(technically) be implemented within the operating system of each Batch 1964
TBH. This would imply rather massive surgery to cause the Batch queuing 1965
mechanism to recognize the existance of NSW, and either querry the WM 1966
or the prerequisite host on the status of a prerequisite job. Again, 1967

possible (with great effort) but undesirable.

7 finally, let us consider the option of making prerequisites (including host- which will be necessary to completely specify JOBID in a multi-computer system anyway) part of the CRTJOB call to the BJP. In this case, a job with prerequisites is not put directly into the hosts batch queue. Instead, it is put into a holding area. Periodically, the BJP will querry the Prerequisite host(s) for STATUS of the prerequisite JOBID. If an "incomplete" reply is recieved, the job is left in storage. If a "complete-success" indication is recieved, the BJP retrieves the necessary files and schedules the job in the Batch queue.

If a "complete-unsuccessful" reply is recieved, the BJP deletes the job. Note that in this case, all following jobs in the string will also be eventually deleted, as the next time BJP #(n+1) querries BJP#n, it

will find the prerequisite job was completed unsuccessfully(by deletion) and thus delete its job. Thus the deletions will ripple through the string/tree of all jobs after the unsuccessful one, cleaning up the slate.

8 As I mentioned in my first message, I don't feel Prerequisite jobs on foreign hosts are required for the initial implementation. Indeed, it would be possible to use JCL to implement prerequisites within any single host. However, I feel strongly that if we dont make allowances for such job linking, when we want to implement it across hosts- AND I'M POSITIVE WE EVENTUALLY WILL if NSW is to realize its full potential- It will be alot more difficult than if we recognize this future requirement by reserving a field in the CRTJOB call at the outset to support it.

9 /Larry

JBP 14-JAN-75 15:08 25105

old sndmsg's

++ 1999
++++

now that yoou all know where we are, comments? 2000

/Larry 2001

2002

ps, for those of you at office-1, distribution lists for NSW-ALL, NSW-PI 2003

(primary investigators), and NSW-STEERING (committee) are now available 2004

under <CRAIN>whatever,DISTRIBUTION-LIST, 2005

------- 2006

24-DEC-74 11:15:37,909 2007

Date: 24 DEC 1974 1115-PST 2008

From: POSTEL 2009

Subject: Notice of Journal Distribution 2010

To: DEUTSCH at PARC 2011

cc: Lampson at PARC, TAFT at PARC, POSTEL 2012

2013

Yes, the note that the arc & office-1 journal sends to notify people 2014

for whom it has only a network (not local) address is obscure to thoses 2015

who havent used the journal recently. we are trying to agree on a 2016

more informative message for use in the future. 2017

2018

in any case the files in question are available in text form 2019

at office-1 in the directory <NETINFO> with filenames RFCxxx.TXT where 2020

xxx is replaced by the RFC number of the document cited. To pull the files using FTP supply the user name NICGUEST and password ARPA to the 2021

FTP-server at OFFICE-1. 2022

2023

The document in the recent obscure announcement is RFC 674. 2024

2025

A RFC that discusses how to pull files from the journal give an 2026

anncouncement such as you received is 629. 2027

2028

--jon. 2029

------- 2030

JBP 14-JAN-75 15:08 25105

old sndmsg's

24-DEC-74 11:22:09,3470 2031

Net mail from site BBN-TENEX rcvd at 24-DEC-74 11:21:55 2032

Date: 24 DEC 1974 1414-EST 2033

From: ERWIN at BBN-TENEX 2034

Subject: RFC 663 2035

To: POSTEL at SRI-ARC 2036

cc: WALDEN, BURCHFIEL, CERF at ISI, MCKENZIE, TOMLINSON 2037

2038

I HAVE READ IT OVER ONCE BUT NOT STUDIED IT DEEPLY ENOUGH TO REALLY 2039

UNDERSTAND IT. NONETHELESS I HAVE SEVERAL REMARKS: 2040

1. I THINK THERE IS NO SERIOUS "LOST MESSAGE" PROBLEM IN THE 2041

CURRENT ARPA NETWORK. 2042

2043

2. THERE IS, I THINK, A GENERAL LACK OF ROBUSTNESS TO THE 2044

ARPA HOST/HOST PROTOCOL WHICH HAS CAUSED SOME PROBLEMS. E.G. THE 2045

INCREMENTAL ALLOCATE--I AM CONVINCED THAT THE MAJORITY OF THE 2046

"LOST ALLOCATE" TROUBLES SEEN ARE A RESULT OF HOST 2047

SOFTWARE BUGS OR HOST HARDWARE ARITHMATIC ERRORS. ED MEYER WAS 2048

WRONG IN RFC492 IN OPPOSING RESYNCHRONIZATION MECHANISMS BECAUSE 2049
THEY MASK UNDERLYING PROBLEMS; THE UNDERLYING PROBLEMS ARE INEVITABLE 2050
AND RESYNC MECHANISMS MUST EXIST; OF COURSE AN ATTEMPT 2051
SHOULD BE MADE TO MINIMIZE THE UNDERLYING PROBLEMS FOR EFFICIENCY 2052
REASONS; BUT NOTE, IF IT BECOMES MORE EFFICIENT TO RESYNC 2053
THAN PREVENT A PROBLEM THEN ONE SHOULD STOP TRYING TO PREVENT 2054
AND TO RESYNC. 2055
2056

3. THE BURCHFIEL/WALDEN RFC (I CANNOT REMEMBER ITS NUMBER) 2057
ON THE TIP/TENEX RELIABILITY PLAN (AN OUTGROWTH OF RFC 467) GIVES 2058
ONE LESS THAN PERFECT BUT HELPFUL WAY TO GET AROUND SOME OF 2059
HOST/HOST PROTOCOL'S LACK OF ROBUSTNESS. 2060
2061

4. KANODIA DOESN'T ADDRESS HIS OWN SECOND GOAL OF DETECTION 2062
OF ERRORS IN DATA. 2063
2064

5. KANODIA DOESN'T EXPLICITLY ADDRESS THE VERY SIGNIFICANT 2065
DIFFICIENCY OF HOST/HOST PROTOCOL IN THAT IT DOESN'T PERMIT 2066

SIMULTANEOUSLY MANY MESSAGES TO BE IN TRANSIT. 2067

2068

6. I DOUBT THAT KANODIA ADEQUATELY SOLVES THE PROBLEMS THAT 2069
ARISE WHEN HIS CONTROL MESSAGES THEMSELVES GET LOST. 2070

2071

CONCLUSION: 2072

2073

HOST/HOST PROTOCOL BASICALLY WORKS QUITE WELL--IT'S BEEN A LONG 2074
TIME SINCE I SAW A "HUNG CONNECTION" NOT ASSOCIATED WITH A HOST 2075
INTERRUPTION (NOW THAT THE TIP/TENEX RESYNC CODE IS IN)--I'VE 2076
NEVER FELT LOSING DATA WAS A PROBLEM--LOSS OF STATE INFORMATION 2077
WAS ALWAYS THE PROBLEM. 2078

2079

PEOPLE INTERESTED IN INCREASED ROBUSTNESS OF HOST/HOST PROTOCOL 2080
MIGHT CONSIDER IMPLEMENTING THE TIP/TENEX SCHEME AS THAT SEEMS TO 2081
HELP SOME AND 23 TIPS AND SOME NUMBER OF TENEXS ALREADY DO 2082
THIS. (I KNOW, I KNOW THAT WE'LL BE ACCUSED AGAIN THAT BBN IS 2083
TRYING TO FORCE SOMETHING ON THE WORLD THROUGH UNILATERAL 2084

ACTION.) IF YOU WOULD BE INTERESTED, I CAN DOCUMENT EXACTLY 2085
WHAT WE DO; IT IS A LITTLE DIFFERENT THAN ORIGINALLY PROPOSED. 2086
2087
DOING THINGS ON A MESSAGE BASIS RATHER THAN TRYING TO HANDLE 2088
AN INFINITE BIT STREAM IS A GOOD IDEA. 2089
2090
THOSE SEEKING MULTIPLE MESSAGES IN FLIGHT SIMULTANEOUSLY MIGHT 2091
CONSIDER KANODIA'S SCHEME BUT THEN IT WOULD HAVE TO BE MADE TO 2092
REALLY WORK. THIS MIGHT BE A GOOD APPROACH FOR SOMEONE TRYING 2093
TO MINIMIZE THE CHANGE TO THEIR NCP. IN ANY CASE, I THINK 2094
KANODIA'S CHANGE (LIKE THE TIP/TENEX CHANGE) SHOULD BE VOLUNTARY 2095
AND BACKWARD COMPATIBLE. KANODIA SEEMS TO AGREE WITH THIS. 2096
2097
ANYONE REALLY WANTING A BIG IMPROVEMENT OVER THE CURRENT HOST/HOST 2098
PROTOCOL WOULD DO WELL TO CONSIDER JUST DOING A DIFFERENT BETTER 2099
ONE. CERF'S TCP IS ONE CANDIDATE ALTHOUGH I SERIOUSLY DOUBT THAT 2100
IT IS RETRANSMISSION AND ALLOCATION MECHANISMS ARE POWERFUL AND 2101
FLEXIBLE ENOUGH. 2102

old sndmsg's

HOPE THIS DISCUSSION HELPS--WHY DO YOU ASK?

REGARDS,

DAVE

P.S., IN POINT 2 ABOVE, I MEAN TO INCLUDE
THE TIP AS ONE OF THE HOSTS
WHICH SOMETIMES LOST STATE INFORMATION DUE TO BUGS.

24-DEC-74 12:47:53,805
Net mail from site SRI-ARC rcvd at 24-DEC-74 12:47:50
Date: 24 DEC 1974 1247-PST
From: POSTEL at SRI-ARC
Subject: Batch Job Package & Muliti-host Jobs
To: NSW-DISTRIBUTION:

JBP 14-JAN-75 15:08 25105

old sndmsg's

Larry:

Our view of the Batch Job Package (BJP) is that it is the PCP interface to one Batch Processing Facility (BJF) such as the B4700. For the scenario you suggest (in your point 3) we would expect that a series of four jobs would be submitted to the set of BJFs through their individual BJPs by a "super-job-processor". The super-job-processor would be a tool in the NSW which could accept as input a nsw-job-control language and schedule the job steps described there on the various real BJFs when the constraints and dependencies described in the nsw-job-contol language are fulfilled.

--jon.

27-DEC-74 10:06:43,1518

Date: 27 DEC 1974 1006-PST

old sndmsg's

From: ENGELBART 2138

Subject: To McCarthy re cryptic protocol-doc citation 2139

To: jmc at SU-AI 2140

cc: engelbart, postel 2141

2142

John: I looked into the situation regarding the confusing and 2143
unwelcome citation (GJournal, 31484,) that you reported to me in your 2144
20 Dec 74 message (my ref -- MDEC74, L20-1327'McCarthy). 2145

2146

The problem turned out to be that Jon Postel was a bit over-eager in 2147
distributing the newly developed NSW-protocol documentation, and used 2148
the same direct means for sending to the wider populace (e.g. all PI's) 2149
that he had for the NWG types about the Net. The citation indeed was 2150
cryptic and it didn't provide directly a contacting address for its 2151
author. 2152

2153

For people who are regularly involved in the subject matter and in the 2154

old sndmsg's

mode of document-citation distribution that was used for the original announcemnt, the original form is workable enough, but would better be less cryptic -- while for a person caught by surprise, such as you were (and we heard from one other person also), it wasn't appropriate. We will try to be more careful in the form of notificatioon used fo different categories of people. Sorry.

Jon has since produced an intermediate-stage announement message that hopefully makes more sense to the uninitiated. I believe that you already will have received the new announcement; please let me know if it's form and content seem reasonable to you.

Sorry for the inconvenience, John.

Regards, Doug

JBP 14-JAN-75 15:08 25105

old sndmsg's

27-DEC-74 13:11:47,590

Date: 27 DEC 1974 1311-PST

From: POSTEL

Subject: New PCP/NSW Documents

To: Burchfiel at BBN, Schantz at BBN, BThomas at BBN

cc: White, Watson, Postel

I would like to call your attention to two new PCP/NSW documents:

PCPTNXINT - The PCP Tenex PCP Process Internal Structure

FILE-APP - The File Package Appendix

These documents are relevant to the tasks that BBN has been asked to participate in.

The documents are being sent via US mail and are also available on-line at sri-arc as <NLS>PCPTNXINT.TXT and <NLS>FILE-APP.TXT. These are Text files.

--jon.

JBP 14-JAN-75 15:08 25105

old sndmsg's

27-DEC-74 13:15:56,427

Date: 27 DEC 1974 1315-PST

From: POSTEL

Subject: PCP/NSW Documents

To: waal, triolo

cc: watson, white, postel

Have you been reading and do you have any comments on the PCP/NSW documents ? Especially the Batch Job Package ? My view of the program you have to write in the front end is that on one side it implements a batch job package and on the other it implements something Crain specifies.

--jon.

27-DEC-74 15:30:53,402

Date: 27 DEC 1974 1530-PST

From: POSTEL

JBP 14-JAN-75 15:08 25105

old sndmsg's

Subject: RFCs 2207

To: burchfile at BBN 2208

cc: Schantz at BBN, BThomas at BBN, Johnson at BBN, postel 2209

2210

I havent received any of the RFCs that you recently requested numbers 2211

for. Have they been sent out? Am i on the Mailing list ? In particular 2212

RFC numbers 667 (BThomas), 671 & 672 (Schantz), and 677 (Johnson), are 2213

the ones i am missing. 2214

--jon. 2215

------- 2216

1-JAN-75 02:32:47,1078 2217

Net mail from site BBN-TENEX rcvd at 1-JAN-75 02:32:44 2218

Date: 1 JAN 1975 0521-EST 2219

From: WALDEN at BBN-TENEX 2220

Subject: RFC 663 2221

To: PPOSTEL at SRI-ARC 2222

cc: WALDEN 2223

old sndmsg's

2224

JON, 2225

I'D GUESS DYNAMIC WAY FOR A NEW IMPLEMENTATION 2226

TO DETECT WHETHER IT IS TALKING TO ANOTHER NEW IMPLMENTATION 2227

WOULD BE A SIMPLE ADDITION 2228

TO TIP/TENEX SCHEME. WHY NOT JUST TRY SENDING 2229

MULTIPLE MESSAGES ON A CONNECTION LINK AT ONE TIME 2230

WITHOUT MAKING ANY CHANGES TO 2231

CURRECT PROTOCOL (EXCEPT VIOLATING 1 MESSAGE IN 2232

FLIGHT RULE) AND SEE IF IT WORKS 2233

GOOD ENOUGH ENOUGH OF THE TIME. THE TIP MAG TAPE 2234

DOES THIS INCLUDING SEQUENCE NUMBERS AT "USER" 2235

LEVEL. THEN IF TROUBLE IS DETECTED, 2236

THE TIP MAG TAPE BACK-SPACES A FILE OR A RECORD 2237

OR WHATEVER IS NECESSARY AND SENDS AGAIN (KNOWING 2238

NOTHING ABOUT HOW RECORDS FIT IN TO MESSAGES). 2239

WHEN THE TIP MAG TAPE DOES HAVE TROUBLE, IN FACT, 2240

IT CLOSES THE CONNECTIONS AND REOPENS THEM 2241

old sndmsg's

BEFORE CONTINUING, 2242

WE ROUTINELY GET GOOD THROUGHPUT THIS WAY, 2243

BY THE WAY, THE EXPANSION OF THE MESSAGE NUMBER 2244

WINDOW TO 8 SHOULD HAPPEN VERY SOON, 2245

DAVE 2246

------- 2247

2-JAN-75 11:43:15,371 2248

Date: 2 JAN 1975 1143-PST 2249

From: WATSON 2250

Subject: Terminals 2251

To: hardy 2252

cc: postel, watson 2253

2254

Martin, I promised Jon a TI for Home use last summer. He is now moved in so can utilize it. My own need has been building so would like to use this opportunity to have you order a couple TI's for us and get an extra phone installed at each place. Thanks Dick 2255

------- 2256

2-JAN-75 09:35:50,835 2257

JBP 14-JAN-75 15:08 5105

old sndmsg's

Net mail from site SRI-ARC rcvd at 2-JAN-75 09:35:48 2258

Date: 2 JAN 1975 0925-PST 2259

From: POSTEL at SRI-ARC 2260

Subject: Additional PCP & NSW Documents 2261

To: NSW-DISTRIBUTION: 2262

2263

This is to announce additional documents now available online at SRI-ARC 2264

The documents are: 2265

2266

1) PCPTNXINT - Tenex PCP Process Internal Structure 2267

[SRI-ARC]<NLS>PCPTNXINT.TXT 2267a

2268

2) FILE-APP - The File Package Appendix 2269

[SRI-ARC]<NLS>FILE-APP.TXT 2269a

2270

3) RJE-MODEL - The NSW Remote Job Entry Model 2271

[SRI-ARC]<NLS>RJE-MODEL.TXT 2271a

JBP 14-JAN-75 15:08 25105

old sndmsg's

4) TBH - NSW Requirements on Tool Bearing Hosts

[SRI=ARC]<NLS>TBH.TXT

5) NVTP - The Network Virtual Terminal Package

[SRI-ARC]<NLS>NVTP.TXT

As before these and the previous documents are TEXT file and may be pulled via FTP using the username ANONYMOUS and password GUEST.

--jon.

2-JAN-75 16:14:27,811

Net mail from site SRI-ARC rcvd at 2-JAN-75 16:14:23

Date: 2 JAN 1975 1614-PST

From: POSTEL at SRI-ARC

JBP 14-JAN-75 15:08 25105

old sndmsg's

Subject: Protocol Information 2288

To: Mckenzie at BBN, Rettberg at BBN, Postel at SRI-ARC, 2289

To: Cerf at ISI, Cohen at ISIB, Mader at BBN, 2290

To: Padlipsky at MIT-MULTICS, Day at MIT-MULTICS, 2291

To: Braden at UCLA-CCN, Sproull at PARC, BThomas at BBN, 2292

To: Andrews at SRI-ARC 2293

2294

The Protocol Information file is being brought up to date, If you could 2295

look it over for errors and suggest additional information to be 2296

included i would be appreciative. Especially check the sections where 2297

you are listed as the "Contact". 2298

2299

The file is <POSTEL>PROTOCOL-INFORMATION.TXT at SRI-ARC 2300

2301

Files may be pulled from SRI-ARC via FTP using the username ANONYMOUS 2302

and the password GUEST. 2303

2304

JBP 14-JAN-75 15:08 25105

old sndmsg's

--jon.

2-JAN-75 16:34:59,2192

Net mail from site BBN-TENEX rcvd at 2-JAN-75 16:34:54

Date: 2 JAN 1975 1919-EST

From: TOMLINSON at BBN-TENEX

Subject: Release of TENEX Version 133

To: TENEX-SITES:

Version 133 of TENEX is now ready for distribution. The pertinent files are mainly found in the directory named 133-TENEX. You will find all monitor sources there plus a SOUP correction file (extension COR) for each file which has changed since the 132 distribution. Also to be found in that directory are prototype files for PARAMS and for LOD10X and CCL command file for loading a monitor. These latter files are very site dependent and no attempt has been made to indicate how to update them.

We would like to encourage all sites to use SOUP to accomplish the update procedure. This will reduce network traffic and system load substantially and should greatly simplify the incorporation of site dependent changes into the new release. The best known working versions of the SOUP programs FED and CAM are to be found in [BBN]<SUBSYS>CAM.SAV and [BBN]<SUBSYS>FED.SAV. These are unmodified copies of programs that Ed Taft at PARC made to work obtained from PARC in mid-December 74. The file [BBN]<133-TENEX>133CAM.CMD is a command file used to generate all the .COR files. You might want to run a few TECO loops over this file to produce the command file you need to generate the merged correction file.

You will undoubtedly get indications of conflicts between our changes and yours. These will be mainly in the edit comments at the beginning of each file. You resolve the conflicts by editting the resultant merged correction file. The DEC documentation explains how.

old sndmsg's

Other files you will need are: [BBN]<EXEC>*.*. Older EXEC's will not work with the new monitor due to changes in account verification. Further documentation of the EXEC is to be found in the .NEWS file in that directory.

Patches to the 133 release will be kept in the
<133-TENEX>PATCHES.GRIPE
file and a record of all messages sent concerning the 133 release will be found in <133-TENEX>133-MESSAGES.TXT.

Pointers to further documentation will be included in a subsequent message.

2-JAN-75 17:33:10,418

Date: 2 JAN 1975 1733-PST

From: WATSON

Subject: YOur RFC Draft

JBP 14-JAN-75 15:08 25105

old sndmsg's

To: oestreicher at ISIB 2357

cc: postel 2358

2359

Don, Jon is playing role of protocol czar among other things and it might be useful for you to run your draft RFC by him so that if there is any little thing that might be a stumbling block from his experience it can get caught now be fore it goes out as and RFC. He'll respond fast. Thanks Dick 2360

------- 2361

3-JAN-75 12:25:41,1939 2362

Net mail from site BBN-TENEX rcvd at 3-JAN-75 12:25:36 2363

Date: 3 JAN 1975 1524-EST 2364

From: MCKENZIE at BBN-TENEX 2365

Subject: "Protocol Information" 2366

To: postel at SRI-ARC 2367

cc: mckenzie 2368

2369

Jon, 2370

Several comments about the draft. 2371

2372

old sndmsg's

1) Perhaps the document should be reordered so that "official" protocols, in decreasing order of importance, come first. The document would then be more helpful to new entrants to the network.

2) Perhaps the document should reference some of the other useful on-line files; I am thinking particularly of

<netinfo>hosts.txt

liaisons-sndmsg.txt

liaisons.txt

in (my estimate of) decreasing order of importance.

3) I think you should add the following to the "documents" under IMP-IMP/surface:

McQuillan, J.M. et.al. "Improvements in the Design and Performance of the ARPA Network," AFIPS Conference Proceedings, 41:741-754, FJCC 1972.

McQuillan, J.M., "Throughput in the ARPA Network -- Analysis and Measurement," BBN Report No. 2491 (text contained in BBN Quarterly Technical Report No. 16, available from the National Technical Information Service [NTIS] accession number AD754441) 2383a 2383b 2383c 2383d

2384

4) Under IMP-HOST/IMP-Host [Official]/Documents: 2385

The most recent revision of BBN Report 1822 is "December 1974", 2386
Since this revision contains all pertinent data from the other 2387
three references, I would leave them out (or as a second choice, 2388
leave out all but Burchfiels RFC). 2389

2390

5) On page 18 of your text file, just above the line 2391

"RJE = Remote Job Entry" 2391a

there is the text ",SNFShow=[1,2]" which I assume is a typo or computer 2392
error. 2393

2394

6) Under RSEXEC/Recent Developments: 2395

old sndmsg's

(which is on page 20 of the text version) I suggest you say 2396

"The TIPs and some RSEXEC servers are now cooperating to perform 2396a

TIP user authentication and accounting functions." 2396b

2397

I hope this is helpful, or at least ammusing. 2398

Regards, 2399

Alex 2400

------- 2401

3-JAN-75 13:43:31,4921 2402

Net mail from site BBN-TENEXA rcvd at 3-JAN-75 13:43:21 2403

Date: 3 JAN 1975 1625-EST 2404

From: HEDTLER at BBN-TENEXA 2405

Subject: TENEX Advisory Committee Meeting #3, Agenda 2406

To: 10X-ADVISORY-COMMITTEE:, TENEX-SITE-MANAGEMENT-LIAISONS: 2407

cc: LICKLIDER at ISI, FIELDS at ISI, CARLSON at ISI, 2408

cc: RUSSELL at ISI, KAHN at ISI, CARLSTROM at ISI, STUBBS at ISI, 2409

cc: WALKER at ISI 2410

2411

JBP 14-JAN-75 15:08 25105

old sndmsg's

Gentlemen: 2412

2413

The meeting will convene on Thursday, January 9 at 2414
10 a.m. at the ARPA-IPTO office. (DaPlace to be discovered 2415
upon arrival at ARPA). 2416

2417

The agenda follows. 2418

2419

Regards, 2420
Bert Sutherland/ 2421
by Gail Hedtler 2422

2423

2424

2425

2426

2427

TENEX Advisory Committee Meeting #3 2427a

2428

old sndmsg's

Agenda Items Submitted 2428a

2429

1. ARPA's intended level of support to TENEX software development. 2430

2431

2. Difficulty of getting DEC to be interested in problems with 2432
TENEX subsystem updates. BBN is not always up-to-date. 2432a

2433

3. Methods of software updates to TENEX and subsystems. The 2434
current scheme of sending out all new sources is very wasteful 2434a
of personnel time in trying to discern the differences and fold 2434b
in the differences to site code. 2434c

2435

4. Efficiency of TENEX. Interprocess communication speedup What 2436
should be done, and who should do it? 2436a

2437

5. KL10 TENEX, is there going to be one? What will the specs look 2438
like? Who will generate the specs? 2438a

2439

old sndmsg's

6. Service site idea, what happened to it? 2440

2441

(These were submitted by Dan Lynch, SRI-AI) 2441a

2442

7. What will it cost to maintain TENEX in a professional way until DEC offers an equivalent alternative? 2443 2443a

2444

8. What will it cost to have TENEX supported for thh KI10 and KL10? 2445

2446

9. What financial arrangements are reasonable for providing for this support? In particular, how can users planning a medium to long-term commitment to TENEX be assured of reasonable upper bounds on their annual maintenance charges for the duration of the commitment? 2447 2447a 2447b 2447c 2447d

2448

(These were submitted by Bill Carlson) 2448a

2449

10. TENEX development schedule 2450

2451

11. Policies of Network accounting program, and any TENEX impacts. 2452

2453

12. Pie-slice allocation policies throughout net. 2454

2455

13. TIP/TENEX interactions. Review. 2456

2457

14. Hardware configuration control, hardware acquisition plans for '75. Any software implications? 2458 2458a

2459

(These were submitted by Bert Sutherland) 2459a

2460

15. Please refer to the attached list of detailed comments generated by a TENEX user. 2461 2461a

2462

Page 2 2462a

2463

2464

2465

2465a

2466

2467

1. Control W doesn't erase a word in TECO. 2468

2469

2. Interrogate doesn't give a list ordered like directory 2470

2471

3. Archive file doesn't immediately take file out of directory; 2472
e.g. I keep having to pay for file storage until the Computer 2472a
Center happens to feel like running the archiver. 2472b

2473

4. The archiver is not run nearly often enough, i.e. every day 2474
would be better. 2474a

2475

5. MAILER sends queued mail in the wrong order. 2476

2477

6. Control C doesn't work to break out of LOGIN messages. 2478

old sndmsg's

2479

7. There is no way to escape in Control C, i.e., control V before Control C doesn't work. 2480 2480a

2481

8. There is a bottleneck waiting for the logging TTY on login and logout. 2482 2482a

2483

9. * Doesn't work in the rename command. 2484

2485

10. A user can't change his own file protection and directory protection defaults. 2486 2486a

2487

11. User names can't include a space and commas, thus distorting peoples names. 2488 2488a

2489

12. Systems A and C are both down for P.M. at the same time. 2490

2491

13. Systems invariably return from P.M. late 2492

2493

14. Archive directory is stored in my file directory 2494

2495

15. Can type CR after enough of an EXEC command to recognize it; 2496
can't CR after enough of a SUBSYS name to recognize it; also, 2496a
can't CR after enough of a file name to recognize it. 2496b

2497

16. TENEX manuals are always way out of date. e.g., TENEX users 2498
guide was last updated almost 2 years ago. 2498a

2499

17. Typing a CR after archive status gets a question mark; typing CR 2500
after interrogate gets *,*,;* 2500a

2501

18. Typing escape in a file name does not recognize through the last 2502
character of the ambiguity. 2502a

2503

19. I believe TENEX could greatly improve its public image by being 2504
a little more careful about the printing of login messages. It 2504a

2505

Page 3 2505a

2506

2507

2508

certainly appears rediculous, for instance, for a new user 2508a
coming on the system to have to get 18 feet of old messages 2508b
since the system first was brought up (e.g., "no operator 2508c
coverage Christmas Day 1973"), or for a user who has been on 2508d
vacation for 3 weeks to have to get status reports on the days 2508e
of panic following the disk crash two weeks ago, or obsolete 2508f
announcements of TECO updates. 2508g

2509

This is the end of the message. 2510

------- 2511

4-JAN-75 10:52:38,385 2512

Date: 4 JAN 1975 1052-PST 2513

From: MILLSTEIN 2514

JBP 14-JAN-75 15:08 25105

old sndmsg's

Subject: TBH AND TOOL REQUIREMENTS 2515

To: POSTEL 2516

cc: MILLSTEIN 2517

2518

I JUST FINISHED READING TBH.TXT, I BELIEVE THAT WE ARE CONVERGING 2519

(AT LEAST ASYMPTOTICALLY) ON A COMMON UNDERSTANDING OF THE 2520

PROBLEM. I SUGGEST THAT YOU READ <MILLSTEIN>TOOLS.FILES AT YOUR 2521

EARLIEST OPPORTUNITY. 2522

REGARDS, 2522a

BOB MILLSTEIN 2522a1

------- 2523

5-JAN-75 08:58:14,620 2524

Date: 5 JAN 1975 0858-PST 2525

From: MILLSTEIN 2526

Subject: CRTPRC 2527

To: POSTEL 2528

cc: MILLSTEIN 2529

2530

JBP 14-JAN-75 15:08 25105

old sndmsg's

I AM IN GREAT NEED OF THE FORM OF THE NEW CRTPRC WHICH WILL HAVE 2531
ACCOUNTING AND AUTHORIZATION CODES AS ARGUMENTS, IN PARTICULAR, 2532
I WOULD LIKE TO HAVE A CODE RETURNED WHICH THE CREATED PROCESS 2533
ITSELF KNOWS SO THAT THE WM CAN VERIFY FUTURE WM CALLS FROM THE 2534
NEWLY CREATED PROCESS. I NEED THIS INFORMATION IN ORDER TO 2535
FINALIZE THE PROCEDURE CALLS WHICH WILL BE AVAILABLE TO TOOLS. 2536
COULD YOU PLEASE LET ME KNOW WHEN DOCUMENTATION ON THE NEW 2537
CRTPRC WILL BE AVAILABLE. 2538

REGARDS, 2538a

BOB MILLSTEIN 2538b

------- 2539

6-JAN-75 08:01:20,435 2540
Net mail from site USC-ISI rcvd at 6-JAN-75 08:01:19 2541
Date: 6 JAN 1975 0801-PST 2542
From: CRAIN at USC-ISI 2543
Subject: NSW DISTRIBUTION LISTS AT ISI 2544
To: NSW-DISTRIBUTION: 2545
2546

JBP 14-JAN-75 15:08 25105

old sndmsg's

THERE ARE NOW AVAILABLE DISTRIBUTION LISTS FOR NSW AT ISI IN THE
<NSW> 2547

DIRECTORY, FILE NAMES ARE: 2548

ALL.DISTRIBUTION-LIST EVERYONE 2549

PI.DISTRIBUTION-LIST PRIMARY INVESTIGATORS 2550

STEERING.DISTRIBUTION-LIST STEERING COMMITTEE 2551

/LARRY 2551a

------- 2552

6-JAN-75 08:46:47,637 2553

Date: 6 JAN 1975 0846-PST 2554

From: WATSON 2555

Subject: Misc Protocols 2556

To: postel, white 2557

2558

You guys are really doing a great job on the Protocol work; I'm really pleased with the way things are going. One small concen though, I notice the fairly large amount of time you are havng to spend witht the NLS people and the question enters my mind of whether or not ADR or MCA may not also meed some special attention? jAny thoughts? Also I will beging the draft of the next NSW Proposal. For Protocols I will take off from the last proposal and the recent

JBP 14-JAN-75 15:08 25105

old sndmsg's

note to Crocker. Any further input would be appreciated. Thanks
Dick 2559

------- 2560

6-JAN-75 14:36:03,1499 2561

Net mail from site BBN-TENEX rcvd at 6-JAN-75 14:35:59 2562

Date: 6 JAN 1975 1724-EST 2563

From: MCKENZIE at BBN-TENEX 2564

Subject: NTIS "AD" numbers for protocol documents 2565

To: feinler at SRI-ARC 2566

cc: postel at SRI-ARC, mckenzie 2567

2568

Jake, 2569

As you probably know, there is a piece of the government called the 2570
National Technical Information Service (NTIS). Us government 2571
contractors send them things like Technical Reports, papers, 2572
operating manuals, etc. and they distribute them, for a fee, to 2573
whoever discovers that they are there and asks for them. This 2574
morning I received an "NTIS Bibliograpy of Network Reports" and 2575

old sndmsg's

noticed that the Host/Host protocol document was on file at NTIS, 2576
BBN has no record of sending it in (although I "wrote" it) so I 2577
wondered if the NIC had sent it in. (It was apparently sent in 2578
about March 1973.) If so, what other protocol documents may have 2579
been submitted? This would be helpful to know, since one could 2580
then reference the protocols by NTIS number rather than by NIC 2581
number (now that the NIC isn't in the distribution business). In 2582
fact, if we can't find any record of previous submission, I think 2583
we will send in at least the TELNET and FTP documents ourselves, 2584
so that we can tell people where to buy copies. So please let me 2585
know if you can discover that these were already submitted, and 2586
what the NTIS numbers are! 2587
Jon, the NTIS accession number for the Host/Host Protocol document 2588
(NIC 8246) is AD-757 680. 2589
Regards, 2590
Alex 2591
------- 2592
6-JAN-75 15:36:39,1455 2593

JBP 14-JAN-75 15:08 25105

old sndmsg's

Date: 6 JAN 1975 1536-PST 2594

From: POSTEL 2595

Subject: comments on tool.files & tbh requirements 2596

To: warshall, millstein 2597

cc: postel, white 2598

2599

I find that in general we are in close agreement on how a tbh acts 2600
with respect to tools and files. 2601

2602

In the TBH Requirements paper i feel some how that the discussion of 2603
reporting crisis conditions is out of place -- a detail (albeit 2604
important) stuck in an overview. 2605
The paragraph on accounting should not be parenthesised as if it were 2606
an asside as this is a major concern, some systems will have difficulty 2607
returning accounting information in a useful form. 2608

2609

On the Files document -- 2610

old sndmsg's

2611

i t would be so nice if you could adopt the notation we have used for 2612
calling sequences and procedure definitions, not because it is good or 2613
because we did it, but for consistency. Eg. 2614

OPENFILE (username, attcode => localname, resultcode) 2614a

Argument/Result types: 2614b

username - specifies a NSW filename 2614b1

attcode - specifies an attribute code 2614b2

localname - indicates the local filename 2614b3

resultcode - indicates success or failure and if failure 2614b4
the type of error. 2614b4a

2615

i take it that a "tool candidate" is a program someone wants to make 2616
into a tool. 2617

2618

letting the tool reference local files "temporaries" that are in fact 2619
data base or cumulative history files has implications on the privacy 2620

old sndmsg's

or security of the user.

--jon.

6-JAN-75 16:46:25,1137

Date: 6 JAN 1975 1646-PST

From: MILLSTEIN

Subject: WM PROCEDURE CALL SYNTAX

To: POSTEL, WHITE

cc: WARSHALL, MILLSTEIN

TOOLS,FILES IS NOT AN OFFICIAL COMPASS DOCUMENT. IT IS INTENDED TO DISSEMINATE OUR VIEWS ON TBH AND TOOL REQUIREMENTS AS OF A PARTICULAR DATE. I EXPECT TO PRODUCE, WITHIN THE NEXT TWO WEEKS, (MY CERVICAL SPINE PERMITTING) A DOCUMENT DESCRIBING A FAIRLY LARGE SUBSET OF WM CALLS. I WILL BE ONLY TOO HAPPY TO ACCOMODATE THE SYNTAX OF THOSE CALLS (AS DESCRIBED IN THE DOCUMENT) TO JON'S SUGGESTION.

old sndmsg's

OF MORE SUBSTANCE--IF PH IS TO BE USED BY TOOLS AS A VARIABLE OF 2639
CALL WHEN ASKING FOR WM PROCEDURES (AN ENTIRELY REASONABLE 2640
SUGGESTION), THEN A FURTHER REQUIREMENT ON TOOLS IS THAT THEY 2641
BE AWARE THAT THEY ARE CREATED PROCESSES OF THE WM, AND FURTHER 2642
THAT THEY KNOW THE PH BY WHICH THE WM KNOWS THEM. 2643
2644
THE ENTIRE ISSUE OF HOW A PROGRAM IS ENTERED INTO(?) 2645
CONTAINS(?) PCP IS NOT CLEAR TO ME, EXCEPT IN THE SPECIAL 2646
CASE OF PCPTNXINT. SOMEONE SHOULD EXAMINE THIS PROBLEM 2647
FROM THE POINT OF VIEW OF OTHER TENEX PROGRAMS AS WELL AS OTHER IBHS. 2648
REGARDS, 2648a
BOB MILLSTEIN 2648b
------- 2649
7-JAN-75 10:11:37,492 2650
Date: 7 JAN 1975 1011-PST 2651
From: POSTEL 2652
Subject: Mail systems 2653
To: watson 2654

JBP 14-JAN-75 15:08 25105

old sndmsg's

cc: postel 2655

2656

Dick: 2657

The report on mail systems design did not mention three topics 2658

that jim and i came up with: 2659

1) one network transmission for all addressees at the same host 2660

2) elimination of duplicate names in addressee lists (allows combining 2661

distribution lists) 2661a

3) Standardize the text format as well as the header formats say using 2662

the document formats prrposed in rfc678. 2662a

--jon. 2663

------- 2664

8-JAN-75 12:18:16,282 2665

Net mail from site OFFICE-1 rcvd at 8-JAN-75 12:18:15 2666

Date: 8 JAN 1975 1218-PDT 2667

From: CARLSON at OFFICE-1 2668

Subject: nv graphics terminal 2669

JBP 14-JAN-75 15:08 25105

old sndmsg's

To: postel at SRI-ARC 2670

cc: carlson 2671

2672

Who is the best person to talk to about the network 2673

virtual graphics protocol? 2674

2675

bill 2676

------- 2677

8-JAN-75 15:35:35,1840 2678

Date: 8 JAN 1975 1535-PST 2679

From: WATSON 2680

Subject: copy of what went out on vezza proposal forgot to list you in it 2681

To: postel, white 2682

2683

Reply to Vezza Proposal 2684

2685

I think that the type of goals Al is trying to achieve are good, 2685a

however for several reasons I think we should go with Don's 2685b
extensions to RFC 561 at this time, although I'm still not happy 2685c
with the reference and numbering things. 2685d

2686

First of all for a short term system, which is what we are 2686a
recommending, I think we want to have the minimum change. 2686b

2687

Second, the fact that it is difficult for a person to read what 2687a
would get transmitted and requires a "pretty print" program is 2687b
another short term drawback. 2687c

2688

Third Al indicates his proposal is a compromise between where we 2688a
want to go and what is (I agree that it is). I think a compromise 2688b
at this point is a mistake and we should as part of our medium term 2688c
to long term recommendations specify the right solution, to the best 2688d
of our present level of knowledge. 2688e

2689

old sndmsg's

Fourth, if you look at the data types that are specified, you see an 2689a

application specific set of data types that are handled in a general 2689b

way in a total environment in the PCP Protocol work. It is our 2689c

feeling that "right" mail protocols of the future should operate 2689d

within a PCP environment and the various types of functions proposed 2689e

by Al be PCP packages. We think PCP will be the basis for most new 2689f

protocol work in the future and offers many advantages to present 2689g

protocols based on Telnet etc. 2689h

2690

In conclusion I want to again emphasize my support for the 2690a

directions of Al's proposal, but feel strongly that the right 2690b

solution requires more thought for the longer term and should be 2690c

taken within the PCP context. Dick 2690d

2691

------- 2692

9-JAN-75 17:26:16,522 2693

JBP 14-JAN-75 15:08 25105

old sndmsg's

Date: 9 JAN 1975 1726-PST 2694

From: IRBY 2695

Subject: Guide for tool installers 2696

To: carlson at ISI 2697

cc: POSTEL 2698

2699

Bill, Jon Postel told me that in a conversasion with you, you had mentioned tha my recent note answering questions from Steve Warshall should be reorganized to be a guide to installers of simple tools, especially using NVIP. I was answering questions from Warshall because I thought he was writing just such a document. If it turns out that he isn't, let me know and I will write it. 2700

--Charles. 2701

------- 2702

10-JAN-75 11:54:32,1456 2703

Date: 10 JAN 1975 1154-PST 2704

From: POSTEL 2705

Subject: message to schantz 2706

To: postel 2707

2708

JBP 14-JAN-75 15:08 25105

old sndmsg's

First i would lik to get online copies of these rfcs into a directory 2709

at office 1, could you give me pointers to source files of the documents 2710

either as documents or the runoff input ? 2711

2712

Now some comments: 2713

2714

On the multi site data collection: 2715

This is a very good discussion of the problems and evaluation of 2715a

the protocol possibilities, I urge you to send a copy to Steve 2715b

Warshall at COMPASS if you havent already done so, His address is 2715c

Massachusetts Computer Associates 2715c1

26 Princess Street 2715c2

Wakefield, Mass, 2715c3

2716

On reconnection 2717

2718

one thing i judge to be an error is that in three places you 2718a

old sndmsg's

define the positive acknowledgement of a reconnectoin step with the 2718b

sequence <IAC><SE> i think that the sequences should be 2718c

<IAC><SB><RECONNECT><IAC><SE> at least and possibly should include 2718d

another byte <POSITIVE-ACK> after the <RECONNECT> byte. 2718e

Your aside on the limiting scope placed on reconnection by not 2718f

placing it at the host to host level brings to mind the original 2718g

reconnection proposal by Steve Crocker (see RFC 36). 2718h

2719

Over all i found the documents very readable and to the point, I am a 2720

bit undecided on what happens next with regard to the reconnection 2721

protocol -- are you suggesting that the protocol you present in 671 2722

should replace the existing telnet option ? 2723

2724

--jon. 2725

------- 2726

10-JAN-75 12:15:41,2099 2727

Date: 10 JAN 1975 1215-PST 2728

JBP 14-JAN-75 15:08 25105

old sndmsg's

From: POSTEL 2729

Subject: telnet,typescript 2730

To: postel 2731

2732

2733

TELNET typescript file started at FRI 10 JAN 75 1155:25 2734

2735

#isi is complete.# 2736

Message slots are now being allocated. 2737

2738

2739

2740

2741

2742

Type LOG or GLOG; type OFFQUOTA for more information. 2743

2744

2745

2746

JBP 14-JAN-75 15:08 25105

old sndmsg's

2747
2748
2749
2750
ISI-KA-TENEX 1.32.10, ISI-TENEX EXEC 1.51.4 2751
@LOG POSTEL 1000 2752
JOB 23 ON TTY16 10-JAN-75 11:54 2753
TENEX WILL GO DOWN THU 1-16-75 2345 TIL FRI 1-17-75 0500 2754
YOU HAVE A MESSAGE 2755
@RD 2756
2757
TECO 1.29 2758
2759
1672 CHARS 2760
1 10 JAN 1975 TREHAN NET FUTURE 2761
2 10 JAN 1975 RISOS NSW Host Protocol, Version 2 2762
TYPE MHS FOR HELP 2763
*1MTs 2764

JBP 14-JAN-75 15:08 25105

old sndmsg's

Date: 10 JAN 1975 0603-PST 2765

From: TREHAN 2766

Subject: NET FUTURE 2767

To: POSTEL 2768

cc: TREHAN 2769

2770

JON,WE GOT IT FROM RELIABLE SOURCE THAT THE NET WILL BE TAKEN OVER 2771

BY DCA SOON,ARPA WILL CONTINUE USING IT AND IT WILL BE AVAILABLE 2772

TO ARPA CONTRACTORS. DCA WILL TRY TO PUT UNCLASSIFIED APPLNS. 2773

ON IT PRIMARILY USAF,DCA IS ALREADY MEETING WITH BBN AND IS 2774

INTERESTED IN A DUPLICATE NCC HERE,ARPA WILL FOR SOME TIME HELP DCA 2775

IN MANAGING THE NET . INTERNAL TRANSFERS FOR ARPA USE ARE NOT WORKED OUT 2776

YET AND OUR WORK WILL ASSIST.THE EFFECT OF THE NET TRANSFER ON WWMCCS 2777

IS NOT CLEAR YET,I HOPE THIS IS USEFUL TO YOU. PLEASE TREAT IT DISCREETL 2778

**Y AND ANONYMOUSLY,WISHES,RANVIR 2779

------- 2780

2781

JBP 14-JAN-75 15:08 25105

old sndmsg's

*2MTs 2782

Date: 10 JAN 1975 1046-PST 2783

From: RISOS 2784

Subject: NSW Host Protocol, Version 2 2785

To: Postel 2786

2787

The implications of the RFNM Policy are not clear to me. 2787a

Even though the IMPs deliver messages in the order they receive 2788

them, it is possible for messages to get out of order as a result 2789

of the Retransmission policy, if more than one message is allowed 2790

to be outstanding at a time on one connection. (1) Is the receiving 2791

host expected to reOrder messages by examining the sequence counter? 2792

This requires the receiving host to maintain its own copy of the 2793

sequence counter. Are the counters synchronized to zero when a connecti 2794

**on 2795

is established? (2) It is not true that the RFNM Policy can be used 2796

for interactions with non NSW hosts, because such hosts do not 2797

JBP 14-JAN-75 15:08 25105

old sndmsg's

reorder messages.

12-JAN-75 06:10:09,1371

Net mail from site USC-ISI rcvd at 12-JAN-75 06:10:07

Date: 12 JAN 1975 0605-PST

From: CARLSON at USC-ISI

Subject: NEW ADDRESS LISTS

To: CROCKER at ISIB, BALZER at ISIB, POSTEL at SRI-ARC,

To: CARLSON at ISI, LLOYD at ISI, BAGGIANO at ISI,

To: MAYHAN at ISI, CRAIN at ISI, WATSON at SRI-ARC,

To: WARSHALL at SRI-ARC, MILLSTEIN at SRI-ARC, WHITE at SRI-ARC,

To: IRBY at SRI-ARC, STONE at OFFICE-1, WINGFIELD at OFFICE-1,

To: RIDDLE at OFFICE-1, WEEKS at OFFICE-1, LAWRENCE at OFFICE-1,

To: UHLIG at OFFICE-1, JACOBS at BBN, BURCHFIEL at BBN,

To: THOMAS at BBN, SCHANTZ at BBN, WAAL at SRI-ARC,

To: TRIOLO at SRI-ARC, SCHAFFNER at SRI-ARC, HOLG at ISIB,

To: BRADEN at CCN, POGRAN at MIT-MULTICS

JBP 14-JAN-75 15:08 25105

old sndmsg's

THERE ARE NEW ADDRESS LISTS IN MY DIRECTORY AT ISI: 2816

2817

ALL-NSW (CONTAINS THE PEOPLE RECEIVING THIS MESSAGE) 2818

NSW-BATCH (THOSE PEOPLE INVOLVED IN INSTALLATION OF BATCH TOOLS) 2819

NSW-PI (FOCAL POINT AT EACH SITE) 2820

STEERING-COM (THE NSW STEERING COMMITTEE, UNCHANGED) 2821

2822

NSW-BATCH CONTAINS: 2823

@SRI-ARC,WAAL,TRIOLO,WARSHALL,MILLSTEIN,POSTEL,WATSON,IRBY,@CCN,BRADE
N,@ISIB,CROCKER,BALZER,HOLG,@ISI,CARLSON,CRAIN,LLOYD 2824

2825

2826

NSW-PI CONTAINS 2827

@SRI-ARC,WATSON,WARSHALL,WAAL,@BBN,BURCHFIEL 2828

,BRADEN@CCN,POGRAN@MIT-MULTICS 2829

2830

2831

STEERING-COM CONTAINS: 2832

JBP 14-JAN-75 15:08 25105

old sndmsg's

@ISI,CARLSON,LLOYD,CRAIN,BAGGIANO,@ISIB,CROCKER,BALZER,@OFFICE-1,WING
FIELD,STONE 2833

,HOLG@ISIB 2834

------- 2835

2836

12-JAN-75 06:43:15,1352 2837

Net mail from site USC-ISI rcvd at 12-JAN-75 06:43:13 2838

Date: 12 JAN 1975 0637-PST 2839

From: CARLSON at USC-ISI 2840

Subject: CONNECTION OF TERMINALS TO TOOLS 2841

To: POSTEL at SRI-ARC, WHITE at SRI-ARC 2842

cc: WATSON at SRI-ARC, WARSHALL at SRI-ARC, WAAL at SRI-ARC, 2843

cc: BURCHFIEL at BBN, BRADEN at CCN, POGRAN at MIT-MULTICS, 2844

cc: CARLSON at ISI, LLOYD at ISI, CRAIN at ISI, BAGGIANO at ISI, 2845

cc: CROCKER at ISIB, BALZER at ISIB, WINGFIELD at OFFICE-1, 2846

cc: STONE at OFFICE-1, HOLG at ISIB 2847

2848

2849

JBP 14-JAN-75 15:08 25105

old sndmsg's

I HAVE BEEN READING THE DOCUMENT ON THE NETWORK VIRTUAL TERMINAL 2850
PACKAGE AND FIND THAT IT DOES NOT REALLY ADDRESS SOME FUNDAMENTAL 2851
DESIGN ISSUES. TELNET HAS BEEN AROUND FOR A LONG ENOUGH PERIOD OF 2852
TIME THAT IT HAS BEEN TIGHTLY INTEGRATED INTO THE OPERATING SYSTEM 2853
OF MANY NETWORK HOSTS. WE MUST ALSO ACCEPT THAT INITIALLY THE 2854
TOOL BEARING HOSTS MUST SUPPORT NON-NSW USERS. THUS, WE SEEM TO 2855
BE CREATING A DATA PATH FOR TERMINAL MESSAGES WHICH IS IN PARALLEL 2856
WITH TELNET AND IS LESS EFFICIENT. IT IS CERTAIN TO CAUSE MAINTENANCE 2857
HEADACHES FOR TENEX AND ELF(WHICH MUST BE BUILT TO SUPPORT NON-NSW 2858
USERS. 2859
2860
PLEASE SEND A BRIEF NOTE INDICATING WHY TERMINALS CANNOT BE CONNECTED 2861
TO NSW TOOLS VIA TELNET. IT SHOULD GO TO EVERYONE COPIED ON THIS 2862
MESSAGE AND I WOULD LIKE THEIR COMMENTS ON THE VALIDITY OF THE 2863
ARGUMENTS. 2864
2865
2866
THANKS, 2867

JBP 14-JAN-75 15:08 25105

old sndmsg's

BILL

12-JAN-75 13:01:43,6251

Net mail from site OFFICE-1 rcvd at 12-JAN-75 13:01:38

Date: 12 JAN 1975 1136-PDT

From: CARLSON at OFFICE-1

Subject: batch tools

To: WAAL at SRI-ARC, TRIOLO at SRI-ARC, WARSHALL at SRI-ARC,

To: MILLSTEIN at SRI-ARC, POSTEL at SRI-ARC, WATSON at SRI-ARC,

To: IRBY at SRI-ARC, BRADEN at CCN, carlson at ISI,

To: crain at ISI, lloyd at ISI, crocker at ISI, balzer at ISI,

To: holg at ISI

cc: pogran at MIT-MULTICS

< CARLSON, BATCH-TOOLS.NLS;2, >, 12-JAN-75 11:26 WEC ;;;;

I have a simplified model of batch tools which I use to make decision.

old sndmsg's

Plase evaluate the model and, by 16 Jan 75, send a message indicating 2885
agreement or identify pitfalls in the model by describing scenarios 2886
where it fails, and propose SIMPLE revisions which resolve the pitfalls 2887

A batch job cannot communicate with the user during execution. 2888
Background jobs on Multics or other time-sharing systems qualify as 2889
batch jobs. 2890

The following classes of batch jobs are of interest: 2891

Predefined NSW Tools: allow a user talking to the Works Manager to 2891a
say the logical equivalent of "execute TESTDATA using CRITERIA as 2891b
input and producing MONTHLY as output." CRITERIA and MONTHLY are NSW 2891c
fills. Optionally, the user might specify a host, ie "execute 2891d
TESTDATA at UCLA91". 2891e

The WM will know whether the TBH requires all files to be 2891e1
resident before a batch job is submitted, or if it supports 2891e2
delayed staging off files. If files must be prestaged, the WM 2891e3
will move or create the files and remember the local names. 2891e4
The WM will know the local name of the tool. It will send a 2891e5

message to the TBH of the form "run Local-Tool-Name on 2891e6

Local-File-1, Local-File-2, NSW-File-3 producing Local-File-4 and 2891e7

NSW-File-5 using TEXT-ARG-1,TEXT-ARG-2." If the TBH does not 2891e8

support delayed staging, then of course there will be no NSW 2891e9

files in the list. Note that since this message is in an NSW 2891e10

format, we should easily be able to mark local file names, NSW 2891e11

file names, and textual arguments. 2891e12

One implementation (not only one) would have the local tool name 2891e13

be a text file or catalogued procedure. The Foreman component in 2891e14

the TBH would ask the WORKS MANAGER for a correct local name 2891e15

corresponding to each NSW Filename (if there is delayed staging 2891e16

of files). The local filenames and the textual arguments would be 2891e17

substituted into the control file, which would be given to the 2891e18

standard scheduler to be executed at its convenience. The only 2891e19

uses I have thought of for textual arguments thus far are run 2891e20

time parameters like core size, time limit, priority, etc. 2891e21

old sndmsg's

The TBH must provide the WM with a job ID. The WM must be able to 2891e22

get job status information for a given JOBID, 2891e23

The TBH must signal the WM whenever a job terinates. 2891e24

RESPPONSIBILITIES 2891e25

COMPASS- define language for invoking tools(the WM command 2891e25a

language), provide tool for defining other tools to the WM 2891e25b

(CML is part of it, but I don't think all of it), Provide a 2891e25c

document telling how to define tools. It must identify 2891e25d

ooptions with regard to numbers and attribbutes of input & 2891e25e

output files, checking of textual arguments, optional files, 2891e25f

warranties, etc. 2891e25g

TBH Installer- provide a mechanism for accepting WM messages 2891e25h

and invoking tools, Create ident/jobid/account card with info 2891e25i

sent by WM, provide for status probing, signal WM when tools 2891e25j

complete, provide a reasonable way to send output reports onto 2891e25k

the ARPANET, Provide a document telling how to install 2891e25l

additional tools on that machine. 2891e25m

General Issue: How does the WM know how much space to allocate 2891e25n

for output files? COMPASS to take responsibility for 2891e25o

formulating and documenting some reasonable answer. 2891e25p

Sequences of NSW Batch Tools: One can envision jobs consisting of 2891f

several "standard" NSW batch tools to be run in succession on the 2891g

same TBH. On many hosts, the scheduling algorithm will make it 2891h

advantages to have the sequence lumped into a multi-activity job. 2891i

Yet the WM should know when each activity completes, and have some 2891j

options with regrard to file disposition and conditional tool 2891k

invokation. Passing files between activities may also necessitate 2891l

control stream changes. 2891m

RResponsibilities: UCLA should take the lead in resolving these 2891m1

issues, with inputs from COMPASS and all TBH installers. 2891m2

"Perfect" Batch Control Streams: contain only local file names. We 2891n

want to discourage these in the NSW, but must provide the capabiltiy 2891o

so users don't have to leave the NSW just to type in a few simple 2891p

control cards and run a batch job on their own machine. All the TBH 2891q

must do is append the ident/jobid/account into to the control stream 2891r

and retrieve status and output. 2891s

Responsibilities: 2891s1

COMPASS: WM must accept a command like "run file at place"h, 2891s1a

move the file, signal TBH to invoke it 2891s1b

TBH Installer: responsible for start-up, status and output 2891s1c

reporting. 2891s1d

Batch Control Streams Containing NSW Filenames: the user builds a 2891t

job control stream ready to run, except he wants to refer to files 2891u

by NSW names. In general case, would also want to be able to defer 2891v

file movement(not this year). Solution to delayed staging of files 2891w

should use same TBH features as for predefined NSW Tools. 2891x

Responsibility 2891x1

SRI: build an interactive tool which works on typewriter 2891x1a

terminals as well as displays and replaces NSW filenames with 2891x1b

old sndmsg's

LOCAL names. Eventually, will instead simply identify some of 2891x1c

the names as NSW names and will also be able to handle 2891x1d

priority etc. After the substitutions are complete, the tool 2891x1e

will invoke the WM to initiate the job 2891x1f

COMPASS and TBH Insjallers are responsible for providing the 2891x1g

same capabilities as for "perfect" batch control streams and 2891x1h

(eventually) as for NSW defined tools. 2891x1i

2892

--- 2893

2894

13-JAN-75 08:00:02,1616 2895

Net mail from site BBN-TENEXA rcvd at 13-JAN-75 07:59:59 2896

Date: 13 JAN 1975 1054-EST 2897

From: SCHANTZ at BBN-TENEXA 2898

Subject: RFCs 2899

To: Postel at SRI-ARC 2900

2901

JBP 14-JAN-75 15:08 25105

old sndmsg's

Jon: 2902

The RFCs exist in document form on both system A & C as: 2903

[BBN]<schantz>rfc671.doc 2904

[BBN]<schantz>rfc672.doc 2905

or 2905a

[BBNA]<schantz>rfc671.doc 2906

[BBNA]<schantz>rfc672.doc 2907

Please let me know whether you have access to them there, and if so 2908

when you've got them so I can give them a permanent home. 2909

2910

With regard to your comments on reconnection: 2911

1)By using <IAC><SE> as a positive acknowledgement, I was really 2912

arguing that there should be a reply, more than trying to specify what 2913

the reply would consist of. The reason I chose <IAC><SE> was that 2914

first it was simple to parse, and second it lent itself to the notion of 2915

finality with respect to messages over this connection (which is now to 2916

be closed). Your point is well taken, though, and perhaps should be uniformly applied to all subnegotiations that may require acknowledgement.

2)I am proposing that the protocol in 671 become" the new telnet reconnection option standard (with the possible exception of the <iac><SE> changes you mentioned. This should cause no major problem since it is based upon the existing protocol (mostly additions, some modifications), and since our Telnet surveys indicate that no one has implemented the option anyway.

3)I am not familiar with the contents of RFC 36 (Crocker reconnection), but will read it now to determine its relevance.

I'd like to thank you for taking the time to comment on the documents.

-- Rick

JBP 14-JAN-75 15:08 25105

old sndmsg's

13-JAN-75 12:24:23,2029

Date: 13 JAN 1975 1224-PST

From: WHITE

Subject: Documentation for TBH Implementers

To: warshall

cc: postel

Steve-- Sorry that your request of 2-JAN fell through the cracks. Here's the reply; hope it isn't too late. --Jim

Documents of interest to TBH/Tool Implementers

- System structure overview
  - "NSWSTRUC 2 / NSW Process Structure"
  - (JEW 10-JAN-75 -- 25009,)
- Protocols that a TBH must implement
  - General
    - "Requirements on Tool Bearing Hosts"

old sndmsg's

(JBP 4-DEC-74 -- 24656,) 2944b1b

"NSW Host Protocol" 2944b1c

(JBP 22-NOV-74 -- 24581,) 2944b1d

"NTP 2 / The NSW Tool Package" 2944b1e

(JEW 10-JAN-75 -- 25008,) 2944b1f

PCP 2944b1g

"PCP 2 / The Procedure Call Protocol" 2944b1g1

(JEW 22-NOV-74 -- 24459,) 2944b1g2

"PIP 2 / The Procedure Interface Package" 2944b1g3

(JEW 22-NOV-74 -- 24460,) 2944b1g4

"PSP 2 / The PCP Support Package" 2944b1g5

(JEW 22-NOV-74 -- 24461,) 2944b1g6

"PMP 2 / The Process Management Package" 2944b1g7

(JEW 22-NOV-74 -- 24462,) 2944b1g8

"PCPV2CHANGES / PCP Inter-Version (2-3) Documentation" 2944b1g9

(JEW 10-JAN-75 -- 25062,) 2944b1g10

"PCPHST 2 / PCP ARPANET Inter-Host IPC Implementation" 2944b1g11

(JEW 22-NOV-74 -- 24577,) 2944b1g12

old sndmsg's

JBP 14-JAN-75 15:08 25105

old sndmsg's

"NVTP -- The Network Virtual Terminal Package" 2944c1

(JBP 26-DEC-74 -- 24827,) 2944c2

------- 2945

13-JAN-75 16:57:47,11591 2946

Net mail from site ISIB rcvd at 13-JAN-75 16:57:12 2947

Date: 13 JAN 1975 1701-PST 2948

From: OESTREICHER at USC-ISIB 2949

Subject: EXTENSIONS TO RFC561 2950

To: MESSAGE-SERVICE-COMMITTEE: 2951

cc: DCROCKER at ISI, POSTEL at ARC 2952

2953

ATTN: PTK 2954

This is the latest (possibly final) version of the new net 2955

message standards document. I believe that this answers 2956

most problems rasied by the various message committee 2957

coordinators, with the obvious exception of Al Vezza. 2958

2959

In line with the majority this document is the next epsilon 2960

step beyond the present set of standards (RFC561) which is not yet universally honored across the net. I feel obligated to list some of the assumptions upon which this document was based.

First, we hoped to move forward with the minimum perturbation to existing software services. We have not made the large step of requiring special support programs at every site. (e.g. we are still using the FTP mail protocol). We have also avoided deep structure within the message definition, and invisible fields.

Where do we go from here? First there should be a strong suggestion for a mail protocol committee, to design a protocol more in line with the needs and aspirations of the system builders of the second generation mail systems. I am sure we all appreciate the limitations of the enclosed document, but a full new, complete protocol is not something

which I believe we can produce this month. There are several deep issues involved, and possibly several companion protocols and servers which must also be speficied.

Second, we should go ahead with the enclosed suggested changes, (and any locally supported other additions) and build up our experience base towards providing better service to users now and in the future.

TO: ARPA Message Service Designers
CC: ARPA IPT Office, NIC Journal
BCC: ARPA Message Service Committee
FROM: ARPA Message Service Committee
BY: Oestreicher

JBP 14-JAN-75 15:08 25105

old sndmsg's

SUBJECT: Extensions to RFC 561 2996

REFERENCES: <[NIC]RFC 561> 2997

MESSAGE ID: <[ISIB]<OESTREICHER>MESSAGE-FIELDS.TXT> 2998

2999

This document defines a number of message fields beyond 3000
those discussed in RFC 561. The overall message format is 3001
compatible with RFC 561; it makes extensive use of the 3002
miscellaneous fields defined within RFC 561. The purpose of 3003
this document is to establish ARPANET standards with regard 3004
to the syntax and semantics for these additional fields. It 3005
is fully expected that all fields discussed within will not 3006
be automatically processed by all Message Servers, however 3007
the standard is necessary so that sites which wish to make 3008
use of these fields have a standard to work with. 3009

3010

This document attempts to tread the narrow line between 3011
features for people processing and features for machine 3012
processing. The general feeling is that the fields listed 3013

are useful to people even if automatic processing is not supplied. In most cases, machine readable notations have been enclosed in angle brackets (<>) to make for easy non-ambiguous ways for automatic processes to know whether and where to look in any field. The entire specification has been made excessively general to allow for experimentation. Future documents based on experience will try to be more specific. This is simply the next step following <[NIC]RFC 561>.

This document is contained in two sections. Section I contains the relevant parts of RFC 561 which define the basic message syntax. Section II lists the new (and existing) header fields together with their proposed uses.

SECTION I: BASIC MESSAGE SYNTAX

<mailtext> ::= <header> <CRLF> <message>

old sndmsg's

```
<header>        ::=  <headeritem> ! <headeritem> <header>                    3031
<headeritem>    ::=  <item> <CRLF>                                           3032
<item>          ::=  <authoritem> ! <dateitem> !                             3033
   <subjectitem> ! <miscitem>                                                3033a
<authoritem>    ::=  FROM: <SP> <user> <SP> AT <SP> <host>                   3034
<dateitem>      ::=  DATE: <SP> <date> <SP> <time> - <zone>                  3035
<subjectitem>   ::=  SUBJECT: <SP> <line>                                    3036
<miscitem>      ::=  <keyword> : <SP> <line>                                 3037
<date>          ::=  <vdate> ! <tdate>                                       3038
<vdate>         ::=  <dayofmonth> <SP> <vmonth> <SP> <vyear>                 3039
<tdate>         ::=  <tmonth> / <dayofmonth> / <tyear>                       3040
<dayofmonth>    ::=  one or two decimal digits                               3041
                                                                             3042
   Page  3                                                                   3042a
                                                                             3043
                                                                             3044
                                                                             3045
<vmonth>        ::=  JAN ! FEB ! MAR ! APR ! MAY ! JUN !                     3046
```

old sndmsg's

```
   JUL ! AUG ! SEP ! OCT ! NOV ! DEC                                    3046a
<tmonth>        ::=  one or two decimal digits                          3047
<vyear>         ::=  four decimal digits                                3048
<tyear>         ::=  two decimal digits                                 3049
<zone>          ::=  EST ! EDT ! CST ! CDT ! MST ! MDT !                3050
   PST ! PDT ! GMT ! GDT                                                3050a
<time>          ::=  four decimal digits                                3051
<user>          ::=  <word>                                             3052
<host>          ::=  a standard host name                               3053
<message>       ::=  <line> <CRLF> ! <line> <CRLF> <message>            3054
<keyword>       ::=  <word>                                             3055
<line>          ::=  a string containing any of the 128 ASCII           3056
   characters except CR and LF                                          3056a
<word>          ::=  a string containing any of the 128 ASCII           3057
   characters except CR, LF, and SP                                     3057a
<CRLF>          ::=  CR LF                                              3058
<SP>            ::=  space                                              3059
                                                                        3060
```

Please note the following: 3061

3062

(1) <authoritem>, <dateitem>, and <subjectitem> may each appear at most once in <header>; <miscitem> may occur any number of times. The order of <authoritem>, <dateitem>, and <subjectitem> is insignificant, but they must proceed all occurrences of <miscitem>. 3063 3063a 3063b 3063c 3063d

3064

(2) The case (upper or lower) or keywords -- specifically, 'FROM', 'DATE', 'SUBJECT', 'AT', <host>, <zone>, <vmonth> and <keyword> -- is insignificant. Although 'FROM', for example, appears in upper-case in the formal syntax above, in the header of an actual message it may appear as 'From' (as in the example), or 'from', or 'From', etc. 3065 3065a 3065b 3065c 3065d 3065e 3065f

3066

(3) No attempt has been made to legislate the format of <user>, except to exclude spaces from it. 3067 3067a

(4) The time has no internal punctuation.

(5) No provision is made for multiple authors.

SECTION II: MESSAGE HEADER FIELDS

A. ORIGINATOR SPECIFICATION FIELDS

FROM

This field contains the identity of the person who wished this message to be sent. This is expected to be field which may be specified by the user, if the message is being entered by one person for another. The message creation

process defaults this to be the user entering the message, 3084
[The usage for FROM and BY differs from that of RFC561,] 3085
3086
BY 3087
This field contains the identity of the person who entered 3088
the message, Ths field is expected to be set by the message 3089
creation process automatically. It is possibly that some 3090
sites will not include this in external communications. 3091
3092
AUTHENTICATION 3093
This field contains a description of which the above two 3094
fields have been verified (if any) and by which operating 3095
system. This field should be created by message 3096
transmission processes. 3097
3098
It is expected that current systems will only to be able to 3099
authenticate the BY field, however later systems might have 3100
mechanisms to verify that the FROM actually authorized the 3101

BY to act on his/her behalf. It is expected that when the 3102
FROM is authenticated, the BY will no longer be necessary 3103
for external distribution. 3104
3105
B. REFERENCE SPECIFICATION FIELDS 3106
3107
MESSAGE ID 3108
The contents of this field contains a unique identifier to 3109
refer to this message. The format for a message identifier 3110
is: 3111
[Net Address]Text String CRLF 3111a
Examples: 3112
[ISIB]DEC-7-74,14:23:45 3112a
[ARC]QJOURNAL 39273 3112b
3113
The uniqueness of the message identifier is guaranteed by 3114
each net-address message processor making the text which 3115
follows the net-address unique for that net address. This 3116

together with the net-address will guarantee the uniqueness 3117
across the net. N.B. The specification specifically says 3118
net-address and not site name. This would allow BBN (for 3119
instance) to allocate unique identifiers over all four 3120
machines, which may be addressed as BBN within the message 3121
system, thus producing a more integrated service for their 3122
users. 3123
3124

 3124a
3125
3126
3127

The text following the net-address is not defined here, as 3128
the problems associated with this specification are too 3129
great at this time. However, the net-address should allow 3130
automatic processes to determine if they can deal 3131
intelligently with the following text. Several types of 3132
automatic processing by the local message reader are thus 3133

possible: 1) If the site uses a filing mechanism known to 3134
the reader, the reader can reteive the message, 2) If the 3135
site supports remote message access (protocol not currently 3136
defined), the message id can be passed to the remote site 3137
and the message can be thus retrieved by the reader, 3) 3138
Finally, if the message has been filed in the data computer 3139
(using the entire message id [including net-address] as the 3140
handle), the reader can retreive it from the data computer. 3141
3142

REPLY TO 3143
The contents of this field identify previous correspondences 3144
to which this message answers. If message identifiers are 3145
used in this field they should be enclosed in angle brackets 3146
(<>). 3147
3148

REFERENCES 3149
The contents of this field identifies other correspondences 3150
to which this message references. If message identifiers 3151

are used they should be enclosed in angle brackets (<>). 3152
3153
KEYWORDS 3154
The contents of this field contains keywords or phrases from 3155
the message separated by commas. 3156
3157
C. RECEIVER SPECIFICATION FIELDS 3158
3159
TO 3160
This field contains the identity of the primary receivers of 3161
this message. 3162
3163
CC 3164
This field contains the identity of the secondary receivers 3165
of the message. 3166
3167
BCC 3168
This field contains the identity of the teritary receivers 3169

of the message. This field should not be made available to the primary and secondary receivers, but may be archived to provide information for access control.

D. MESSAGE TYPE SPECIFICATION FIELDS

PRECEDENCE

This field describes the importance and urgency of the message. Machine readable notations will be enclosed in angle brackets (<>). <PRIORITY> means that the message should be delivered as soon as possible. <ROUTINE> means

that Priority processing is not necessary. Plain text may also be included in this field.

old sndmsg's

3187

MESSAGE CLASS 3188

This field describes the "legal" status of the message, 3189
Examples: Official, Unoffical, Record, Off the Record, Junk 3190
Mails. No automatic processing of this field is immediately 3191
expected. Certain message creation processes might always 3192
insert: 3193
MESAGE CLASS: Unoffical ARPANET Message 3194
for example. 3195

3196

SPECIAL HANDLING 3197

This field contains any special instructions with regard to 3198
the handling of the message at the receivers end. Machine 3199
readable notations will be enclosed in angle brackets (<>). 3200
<PRIVATE> means that the message reception process should 3201
not aid the user in circulating copies to others. Plain 3202
text may also be included in this field. 3203
------- 3204

old sndmsg's

13-JAN-75 23:06:36,6677 3205

Date: 13 JAN 1975 2306-PST 3206

From: POSTEL 3207

Subject: batch tool model 3208

To: Carlson at ISI 3209

cc: watson, irby, white, postel 3210

3211

Here is a scenario of use of a batch tool which is an elaboration of 3212
the discussion contained in the RJE-MODEL document. 3213

3214

NOTE 3214a

3215

The idea of "remote" job entry -- indeed "remote" anything -- in 3215a
the National Software Works seems to me to be contradictory to 3215b
the philosophy of NSW. 3215c

3216

INTRODUCTION 3216a

3217

The remote job entry model describes how a primarily batch computing task is prepared and submitted, and how the results of the computation are collected and returned.

MODEL

First we discuss the entities involved in the process of composing a batch job, having it run, and examining the results.

The principal entity is a batch processing facility. This is expected to be an existing hardware & software unit that will be only minimally changed to interface to the NSW.

Examples of batch job proocessing facilities are the B4700 and the IBM 360.

The NSW talks to the batch processing facility via a procedure package called the Batch Job Package (BJP).

old sndmsg's

3223

The batch job package in a sense referees the flow of 3223a
information between its PCP callers and the batch 3223b
processing facility. For example the batch job package 3223c
colects all the input files that are resident on other 3223d
hosts before turning the job over to the batch processing 3223e
facility, and the batch job package may distribute the 3223f
result files to other hosts when the job is completed by 3223g
the batch processing facility. 3223h

3224

The Batch Job Package interacts with File Packages (FP) to 3224a
effect the movement of files to and from the Batch Processing 3224b
Facility. 3224c

3225

The call on the batch job package to get a job submitted to 3225a
a batch processing facility is: 3225b

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CRTJOB (infiles, outfiles => jobid) 3226a

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The files referenced in infiles and outfiles are named so 3227a
that the batch job package can get them from and put them 3227b
into the directories owned by NSW at various hosts and 3227c
manipulated by file packages. Thus these files are named by 3227d
"file-package-filenames". 3227e

3228

The user sees only NSW-filenames so there must be a 3228a
language/grammar that controls the users interaction which 3228b
results in the generation of a create job call on a batch 3228c
job package. This processing for the user must include the 3228d
mediation of the NSW-filenames the user supplies into the 3228e
file-package-filenames included in the create job call. 3228f

3229

The files themselves are created and examined using the text 3229a
editors (e.g. NLS) available in the NSW. 3229b

3230

Some files that are included in a create job call may be 3230a

standard library files and from the users point of view 3230b
part of the system. The user may not even be aware of their 3230c
existence since their names could be supplied by the 3230d
grammar internally. 3230e

3231

The input files are probably in most cases job control 3231a
files in a particular batch processing facilities specific 3231b
job control language. There might be grammars/tools to aid 3231c
the user in constructing such control files for specific 3231d
batch processing facilities and applications programs. 3231e

3232

The user interacts with the front end. The front end contains 3232a
a command language interpreter that is driven by a grammar. 3232b
The particular grammar in use for this user at any time 3232c
depends on which tool the user is accessing. 3232d

3233

A scenario for a user creating, submitting, retrieving, and 3233a
examining a batch job follows: 3233b

3234

The user interacts with an editing tool to create a source 3234a
program and to concatenate it with a standard file of job 3234b
control information particular to the Batch Processing 3234c
Facility to which it will be submitted. The concatenation is 3234d
accomplished using regular editing commands (not batch 3234e
specific commands). 3234f

3235

The user then interacts with the Works Manager and the Batch 3235a
Job Package mediated by a grammar to submit the file he has 3235b
created. The grammar and the Batch Job Package will require 3235c
enough information from the user that the Batch Job Package 3235d
can retrieve the input files from File Packages, and store the 3235e
output files. The Batch Job Package will return an identifier 3235f
for this job which can be used to request status information 3235g
at a later time. 3235h

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Some of the information needed to run a batch job could be 3236a

in a standard file that the user always appends his file 3236b
to, OR this type of information could be in a separate file 3236c
that is included by the grammar in the create job call 3236d
automatically, and the grammar could call on a function to 3236e
edit a standard file to contain user and run specific 3236f
parameters such as user-name, priority, run-time-limit. 3236g

3237

When the job has been processed the user may use an editing 3237a
tool to examine the output file. Note that the output files 3237b
have been stored as specified in File Packages and are thus 3237c
accessible to tools as permitted by the Works manager. 3237d

3238

A discussion of multi-host batch jobs. 3238a

3239

Suppose a user wanted to run a series of batch jobs steps 3239a
where each step was to be carried out on a different host. It 3239b
is not difficult to envision a NSW-batch-control-language in 3239c
which one could say things like: 3239d

3240

"If the previous job step was successful then use its 3240a
output file WALDO appended to control file DOITTOIT as card 3240b
input to the batch processing facility ABC and call the 3240c
printer output file GEORGE". 3240d

3241

This requires a tool to "execute" files of this 3241a
NSW-batch-control-langauge to be written. 3241b

3242

All this should make clear that a batch tool such as a batch 3242a
processing facility is not a special case, that batch and 3242b
interactive tools are accessed by the user and the internal NSW 3242c
procedure packages in a consistent manner. 3242d

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13-JAN-75 23:13:02,10454 3246

Date: 13 JAN 1975 2313-PST 3247

JBP 14-JAN-75 15:08 25105

old sndmsg's

From: POSTEL 3248

Subject: batch tool model (comments on carlsons model) 3249

To: postel 3250

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< POSTEL, CARLSON.NLS;2, >, 13-JAN-75 13:35 JBP ;;;; 3256

Bill: 3257

Here is commented version of your message on batch jobs, some of these 3258

questions were answered by your monday phone call with dick and me, i 3259

hope to be able to prepare a parallel discussion to yours for comparison 3260

-- the main differences are in the break down of functions to particular 3261

processes (wm, fe, grammar, tool, etc.), and in which processes touch 3262

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JBP 14-JAN-75 15:08 25105

old sndmsg's

--jon. 3264

3265

Date: 12 JAN 1975 1136-PDT 3266

From: CARLSON at OFFICE-1 3267

Subject: batch tools 3268

< CARLSON, BATCH-TOOLS.NLS;2, >, 12-JAN-75 11:26 WEC ;;;; 3269

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** How does this model compare with the model presented in the 3270a

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Millstein ? ** 3270c

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Plase evaluate the model and, by 16 Jan 75, send a message indicating 3271

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old sndmsg's

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Background jobs on Multics or other time-sharing systems qualify as 3275

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The following classes of batch jobs are of interest: 3277

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say the logical equivalent of "execute TESTDATA using CRITERIA as 3277b

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fills. Optionally, the user might specify a host, ie "execute 3277d

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** "Predefined" is a new term to me perhaps a further explaination 3277e1

would be helpful. ** 3277e2

** Which 360 should we be getting up to speed on NSW/PCP -- RAND 3277e3

or UCLA ? ** 3277e4

The WM will know whether the TBH requires all files to be 3277e5

resident before a batch job is submitted, or if it supports 3277e6

delayed staging off files. If files must be prestaged, the WM 3277e7

will move or create the files and remember the local names. 3277e8

** The idea of prestaging vs delayed staging of files is what 3277e8a

distingishes BATCH and DETACHED tools in Millstein's document, 3277e8b

lets use one set of definitions. ** 3277e8c

The WM will know the local name of the tool. It will send a 3277e9

message to the TBH of the form "run Local-Tool-Name on 3277e10

Local-File-1, Local-File-2, NSW-File-3 producing Local-File-4 and 3277e11

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old sndmsg's

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1                                                                   3282a
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                                                                    3284
NSW-File-5 using TEXT-ARG-1,TEXT-ARG-2,"                            3284a
   ** This assumes that it is easy to distinguish local (to what)   3284a1
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   ** By now everyone should think in terms of Procedure Call       3284a4
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** By "in NSW format" do you mean it is a PCP Call ? ** 3284f1

One implementation (not only one) would have the local tool name be a text file or catalogued procedure. The Foreman component in the TBH would ask the WORKS MANAGER for a correct local name corresponding to each NSW Filename (if there is delayed staging of files). The local filenames and the textual arguments would be substituted into the control file, which would be given to the standard scheduler to be executed at its convenience. The only uses I have thought of for textual arguments thus far are run time parameters like core size, time limit, priority, etc. 3284g 3284h 3284i 3284j 3284k 3284l 3284m 3284n 3284o

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aspect of host specific job control be replicated in the 3284o5
general purpose batch job package ? ** 3284o6

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get job status information for a given JOBID. 3284q

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The TBH must signal the WM whenever a job terinates. 3284r

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JBP 14-JAN-75 15:08 25105

old sndmsg's

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complete, provide a reasonable way to send output reports onto 3329a
the ARPANET, Provide a document telling how to install 3329b
additional tools on that machine. 3329c

** Shouldn't "a mechanism for accepting WM messages" be a 3329c1
"mechanism for accepting and making PCP Calls", ** 3329c2

General Issue: How does the WM know how much space to allocate 3329d
for output files? COMPASS to take responsibility for 3329e
formulating and documenting some reasonable answer. 3329f

** How does anybody know ? ** 3329f1

Sequences of NSW Batch Tools: One can envision jobs consisting of 3330
several "standard" NSW batch tools to be run in succession on the 3331
same TBH. On many hosts, the scheduling algorithm will make it 3332
advantages to have the sequence lumped into a multi-activity job. 3333
Yet the WM should know when each activity completes, and have some 3334
options with regrard to file disposition and conditional tool 3335
invokation. Passing files between activities may also necessitate 3336
control stream changes. 3337

** Why should the works manager notice the jobstep completion for 3337a

multistep one host jobs ? It may be very difficult to get access 3337b
to this information in any case. ** 3337c
RResponsibilities: UCLA should take the lead in resolving these 3337d
issues, with inputs from COMPASS and all TBH installers. 3337e
"Perfect" Batch Control Streams: contain only local file names. We 3338
want to discourage these in the NSW, but must provide the capabiltiy 3339
so users don't have to leave the NSW just to type in a few simple 3340
control cards and run a batch job on their own machine. All the TBH 3341
must do is append the ident/jobid/account into to the control stream 3342
and retrieve status and output. 3343
** This dosent seem right to me ??? ** 3343a
Responsibilities: 3343b
COMPASS: WM must accept a command like "run file at place"h, 3343b1
move the file, signal TBH to invoke it 3343b2
** BY "file" are you now refering to a control file ? ** 3343b2a
TBH Installer: responsible for start-up, status and output 3343b3
reporting. 3343b4
Batch Control Streams Containing NSW Filenames: the user builds a 3344

job control stream ready to run, except he wants to refer to files 3345
by NSW names. In general case, would also want to be able to defer 3346
file movement(not this year). Solution to delayed staging of files 3347
should use same TBH features as for predefined NSW Tools. 3348

** The user wants a nsw-wide control file that is like the 3348a
existing host specific control files but allows each job step to 3348b
be executed on a different host. The user can construct such a 3348c
file with any text editor or perhaps a special control file 3348d
construction tool. When the user wants to have this control file 3348e
"executed" a tool is called upon to translate (by calling on the 3348f
works manager) the nsw filenames to file package file names and to 3348g
call the appropriate batch job packages for each job step. ** 3348h

Responsibility 3348i

SRI: build an interactive tool which works on typewriter 3348i1
terminals as well as displays and replaces NSW filenames with 3348i2
LOCAL names. Eventually, will instead simply identify some of 3348i3
the names as NSW names and will also be able to handle 3348i4

3349

old sndmsg's

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priority etc. After the substitutions are complete, the tool 3355a
will invoke the WM to initiate the job 3355b
** This aside on typewriter terminals and display terminals 3355b1
is out of place and shows a lack of conviction that the 3355b2
front end will provide means to use a range of terminal 3355b3
classes to use thae same tools. ** 3355b4
COMPASS and TBH Insjallers are responsible for providing the 3355c
same capabilities as for "perfect" batch control streams and 3355d
(eventually) as for NSW defined tools. 3355e
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------- 3357

old sndmsg's

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old sndmsg's

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old sndmsg's

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JBP 14-JAN-75 15:08 25105

old sndmsg's

(J25105) 14-JAN-75 15:08;;;; Title: Author(s): Jonathan B.
Postel/JBP; Distribution: /JBP([INFO-ONLY]) ; Sub-Collections:
SRI-ARC; Clerk: JBP; Origin: < POSTEL, MESSAGES.NLS;2, >,
14-JAN-75 14:30 JBP ;;;;####;