                    Procedure Call Protocol Documents
                               Version 2

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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
foreward your remarks to either: 2

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This note announces the release of the second published version of
several National Software Works (NSW) and Procedure Call Protocol
(PCP) documents. Version 2 is SUBSTANTIALLY different than Version 1;
it and all intermediate, informally distributed PCP documents are
obsoleted by this release.   3

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

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

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

      This document describes the virtual programming environment
      provided by PCP, and the inter-process exchanges that implement
      it.   5b1

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

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

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

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

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

      This document describes a package that runs in the setting
      provided by PCP and that augments PCP proper, largely in the
      area of data store manipulation. It includes procedures for
      obtaining access to groups of remote procedures and data stores,
      manipulating remote data stores, and creating temporary ones. 5d1

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

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

      This document describes a package that runs in the setting
      provided by PCP and that provides the necessary tools for
      interconnecting two or more processes to form a multi-process
      system (e.g. NSW). It includes procedures for creating,
      deleting, logically and physically interconnecting processes,
      and for allocating and releasing processors.   5e1

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

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

      This document defines formats for PCP data structures, each of
      which is appropriate for one or more physical channel types.   5f1

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

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

       This document defines an implementation, appropriate for
       mediating communication between Tenex forks, of the IPC
       primitives required by PCP.   5g1

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

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

       This document defines an implementation, appropriate for
       mediating communication between processes on different hosts
       within the ARPANET, of the IPC primitives required by PCP.   5h1

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

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

       This document describes a package that runs in the setting
       provided by PCP. It includes procedures and data stores for
       user identification, accounting, and usage information.   5i1

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

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

       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.   5j1

           Pathname: [SRI-ARC]<NLS>FILE.TXT   5j1a

    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.   5k1

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

    RJE-MODEL (24655,) "The NSW Remote Job Entry Model"   5l

This document discusses the process of utilizing a batch
processing facility to complete a programming task in the NSW
environment. This same activity in another environment might
utilize a remote job entry system.   5l1

    Pathname: [SRI-ARC]<NLS>RJE-MODEL.TXT   5l1a

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

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
breakpoints from its address space. Its data stores hold
process characteristics and state information, and the contents
of program symbol tables.   5m1

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

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

This document discusses the environment needed in the tool
bearing host and the interfaces to the operating system
components by various PCP packages.   5n1

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

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

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.   5o1

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

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

The document on 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.   7

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

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

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

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