

PDP-1 COMPUTER
ELECTRICAL ENGINEERING DEPARTMENT
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PDP-31
ASSIGNMENT AND DEASSIGNMENT
OF
IN-OUT EQUIPMENT AND DRUM FIELDS

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In the time sharing system, in-out equipment and additional drum fields are assigned and deassigned to users by the arg instruction. [Note: Assignment or deassignment of fields does not affect the ddt or running fields.] If the device is not assigned to the user, the instructions corresponding to that device are treated as illegal.

The particular assignment or deassignment requested by the arg instruction is indicated by mnemonic codes. Concise codes for these mnemonics are placed in the AC before the arg instruction is executed. Any additional information necessary for the request is placed in the IO also before the arg instruction is executed. Note that the mnemonic for a deassignment is generally the complement of the mnemonic for the assignment of that facility. Below is the table of possible requests:

<u>MNEMONIC WHOSE CONCISE CODE IS CONTENTS OF AC</u>	<u>CONTENTS OF IO</u>	<u>REQUEST</u>
-r	--	dismiss reader
r	--	assign reader
-p	--	dismiss punch
p	--	assign punch
-x	--	dismiss external register
ax	--	assign external register so that it is assigned absolutely (only) to this user.

MNEMONIC WHOSE
CONCISE CODE IS
CONTENTS OF AC

CONTENTS
OF
IO

REQUEST

sx

--

assign external register so that it may be shared with another user.

k

M

assign or deassign analog-to-digital consoles. M is a 4-bit mask for consoles to be assigned (or left assigned, in the case of deassignment) to the user. (e.g. M=14 means consoles 0 and 1 are assigned; consoles 2 and 3 are dismissed.) A console of knobs is presently assigned to console 0; thus M=10 for assignment of this knob console.

b

M

assign or deassign button consoles. M is a 4-bit mask for the consoles to be assigned (or left assigned, in the case of deassignment) to the user. (e.g. M=14 means consoles 0 and 1 are assigned; consoles 2 and 3 are dismissed.) A console of buttons is presently assigned to console 0; thus M=10 for assignment of this button console.

<u>MNEMONIC WHOSE CONCISE CODE IS CONTENTS OF AC</u>	<u>CONTENTS OF IO</u>	<u>REQUEST</u>
q1	--	assign external level 1 for user's special equipment.
q2	--	assign external level 2 for user's special equipment.
.		.
.		.
.		.
.		.
q7	--	assign external level 7 for user's special equipment.
-q	--	deassign the external level for user's special equipment.
-f	--	dismiss all fields
f	NX10000	get a total of N fields
-1f	--	dismiss one field
1f	--	assign one field; returns with <u>pseudo</u> field just assigned in high part of AC

MNEMONIC WHOSE
CONCISE CODE IS
CONTENTS OF AC

af

CONTENTS
OF
IO

AX10000+P

REQUEST

assign absolute field A
(or the first available
field if A=0) to pseudo
field p (or the first
unassigned pseudo field
if P=0). Returns with
pseudo field in high part
of AC.

-af

AX10000+P

case 1: P=x, A=0. deassign
pseudo field x and the
absolute field assigned to
it.

case 2: P=0, A=y.
deassign absolute field y
and the pseudo field
assigned to it.

case 3: P=x, A=y.
deassign pseudo field x and
the corresponding absolute
field y. If x does not
correspond to y, no
deassignment is done and
the deassignment is
unsuccessful.

case 4: P=0, A=0. No
deassignment is done, but
the deassignment is
successful.

tf	P	translate the pseudo field P and returns with its absolute field number in high part of AC.
0	--	dismiss to the administrative routine, MYSTIC.

If the assignment or deassignment of fields is successful, the instruction following the arg will be skipped. For other assignments and deassignments, the instruction following the arg will be skipped only on successful assignments. An assignment will be successful if the field(s) or device requested is not already assigned or if the assignment is already in effect.

Assignment or deassignments may be done either in the user's program or in ID. In the user's program, a convenient way to place the concise code for a mnemonic into the AC is to use the pseudo-instruction flexo. Thus, the instructions

```
law flexo r  
arg
```

will request assignment of the reader. The deassignment of the reader would be requested by the instructions

```
law i flexo r  
arg
```

To assign the external register absolutely, use the following

```
law flexo ax  
arg
```

* Note: ☐ indicates the non-printing character space.

The user may assign or deassign in-out equipment and additional fields in the ID program, also. In this way, the user can assign essential equipment before starting his program running. In ID, the above instructions may be executed by the X command. Thus, typing

```
law i flexorX *  
arqX
```

would deassign the reader. The command F when preceded by an argument provides a more convenient way to assign or deassign in-out equipment and additional fields when ID is being used. The mnemonic indicating the device requested is the argument preceding the F command. [Remember in certain cases the IO must contain additional information about the device when the F command is given.] Thus, if the user wants to deassign the reader, he may type.

```
-rF
```

or

```
law i r"X  
arqX
```

or

```
law i 51X  
arqX
```

Other acceptable commands for deassignment of the reader are:

```
51F
```

or

```
r"F
```

where the concise code, not the mnemonic, precedes the "F".

* Note: \square indicates the non-printing character space.

In ID, if the assignment or deassignment of fields is successful, then two carriage returns will occur. On the successful field assignments that return information in the AC, ID prints out the information and restores the AC to its contents before the request was made. For assignments and deassignments of in-out devices (not fields) two carriage returns will be returned only on successful assignments. [On unsuccessful assignments, in the latter case, only one carriage return is given.]