trace

|          |                       |                |       | 0 :                 | 1 2              | 3                 | 4        | 5      | 6    | 7 8              | 9    | 10 11     | 12      | 2 1              | L3 14        | 4 15         | 5 16 | 17           | 18           | 19       | 20     | 21 22  | 2 2    |      |      |        | 6 2        |   |
|----------|-----------------------|----------------|-------|---------------------|------------------|-------------------|----------|--------|------|------------------|------|-----------|---------|------------------|--------------|--------------|------|--------------|--------------|----------|--------|--------|--------|------|------|--------|------------|---|
| # 1      | Registers: PC FP FS R | ET Hoon.       | nownw | , mar               |                  | newpwlen newpw[0] | 1        | 1      | 2    | 3 4              | 5    | 6 7       | 7 nudon | pw[0],           | 1            | 1 2          | 2 3  | 3 4          | 5.0          | C E      | D EC   | DET    | userid | 0 1  |      |        | 3 4<br>X   | 4                                       |
| 1        | 8 0 0                 | .ст пеар.<br>0 | null  | null                |                  | null null         |          | ıll nu |      |                  |      | null null | null    | null             | null         |              |      | null         |              | ull nu   |        |        | null   | null |      |        | null       |   |
| 2        | 9 0 0                 | 0              |       | 3 null              |                  | 8 null            | nu       |        |      |                  |      | null null | null    | null             | null         |              |      | null         |              |          | ıll nu |        | null   | null |      |        | null       |   |
| 3        | 10 0 0                | 0              |       | 3 null              |                  | 8                 | 18 nu    |        |      |                  |      | null null | null    | null             | null         |              |      | null         |              | ull nu   |        | l null | null   | null |      |        | null       |   |
| 4        | 11 0 0                | 0              |       | <mark>3</mark> null | null             | 8                 | 18       | 0 nu   | l nu | ll null n        | ıull | null null | null    | null             | null         | null         | null | null         | null n       | ull nu   | ıll nu | l null | null   | null | null | null   | null       |   |
| 5        | 12 <mark>0</mark> 0   | 0              |       | <mark>3</mark> null | null             | 8                 | 18       | 0      | 0 nu | ll null n        | null | null null | null    | null             | null         | null         | null | null         | null n       | ull nu   | ıll nu | l null | null   | null | null | null   | null       |   |
| 6        | 13 <mark>0</mark> 0   | 0              |       | <mark>3</mark> null | null             | 8                 | 18       | 0      | 0    | 0 null n         | ıull | null null | null    | null             | null         | null         | null | null         | null n       | ull nu   | ull nu | l null | null   | null | null | null   | null       |   |
| 7        | 14 <mark>0</mark> 0   | 0              |       | <mark>3</mark> null | null             | 8                 | 18       | 0      | 0    | 0 14 n           | ıull | null null | null    | null             | null         | null         | null | null         | null n       | ull nu   | ıll nu | l null | null   | null | null | null   | null       |   |
| 8        | 15 <mark>0</mark> 0   | 0              |       | 3 null              |                  | 8                 | 18       | 0      | 0    | 0 14 n           |      |           |         | null             | null         |              |      | null         |              | ull nu   |        |        | null   | null |      |        | null       |   |
| 9        | 16 <mark>0</mark> 0   | 0              |       | 3 null              |                  | 8                 | 18       | 0      | 0    | 0 14 n           |      |           | 3 null  | null             | null         |              |      | null         |              | ull nı   |        |        | null   | null |      |        | null       |   |
| 10       | 17 0 0                | 0              |       |                     | 2 null           | 8                 | 18       | 0      | 0    | 0 14 n           |      | 6 8       |         | 5 null           | null         |              |      |              |              | ull nu   |        |        | null   | null |      |        | null       | setpassword(14,pw,newpw)                |
| 11       | 0 23 5                | 2              |       |                     | 2 null           | 8                 | 18       | 0      | 0    | 0 14 n           |      | 6 8       |         | 5 null           | null         |              |      | null         |              | 17       | 0      | 0 (    | 1      |      |      | 3 null |            |   |
| 12       | 1 23 5<br>2 23 5      | 2              |       |                     | 2 null           | 8                 | 18       | 0      | 0    | 0 14 n           |      | 6 8       |         | 6 null           | null         |              |      | null         |              | 17       | 0      | 0 (    | 1      |      |      |        | 7 null     |   |
| 13<br>14 | 2 23 5<br>3 23 5      | 2<br>2         |       |                     | 2 null<br>2 null | 8<br>8            | 18<br>18 | 0      | 0    | 0 14 n<br>0 14 n |      | 6 8       |         | 3 null<br>3 null | null<br>null |              |      | null<br>null |              | 17<br>17 | 0      | 0 (    | 1      |      |      |        | 7 null     | 8 Index i=7 will override FP with x=8   |
| 15       | 4 23 5                | 2              |       |                     | 2 null           | 8                 | 18       | 0      | 0    | 0 14 n           |      | 6 8       |         | 5 null           | null         |              |      | null         |              | 17       | 8      | 0 (    | 1      |      |      | -      |            | 8                                       |
| 16       | 5 23 5                | 2              |       |                     | 2 null           | 8                 | 18       | 0      | 0    | 0 14 n           |      | 6 8       |         | 5 null           | null         |              |      | null         |              | 17       | 8      | 0 (    | 1      |      |      |        |            | 8                                       |
| 17       | 1 23 5                | 2              |       |                     | 2 null           | 8                 | 18       | 0      | 0    | 0 14 n           |      | 6 8       |         | null             | null         |              |      | null         |              | 17       | 8      | 0 (    | 1      |      |      |        |            | 8                                       |
| 18       | 2 23 5                | 2              |       |                     | 2 null           | 8                 | 18       | 0      | 0    | 0 14 n           |      | 6 8       |         | 5 null           | null         |              |      |              | null         | 17       | 8      | 0 (    | 1      |      |      |        |            | 8                                       |
| 19       | 3 23 5                | 2              |       |                     | 2 null           | 8                 | 18       | 0      | 0    | 0 14 n           |      | 6 8       |         | 3 null           | null         |              |      | null         |              | 17       | 8      | 0 (    | 1      |      |      |        | _          | Index i=6 will override PC with x=6     |
| 20       | 4 23 5                | 2              |       | 3 12                | 2 null           | 8                 | 18       | 0      | 0    | 0 14 n           |      | 6 8       | 3 6     | 5 null           | null         |              |      | null         | _            | 6        | 8      | 0 (    | 1      |      |      | 3      |            | 6                                       |
| 21       | 5 23 5                | 2              |       | 3 12                | 2 null           | 8                 | 18       | 0      | 0    | 0 14 n           | ıull | 6 8       | 3 6     | 3 null           | null         |              |      | null         |              | 6        | 8      | 0 (    | 1      | 4 12 | 2    | 3      | 5          | 6                                       |
| 22       | 1 23 5                | 2              |       | 3 12                | 2 null           | 8                 | 18       | 0      | 0    | 0 14 n           | ıull | 6 8       | 3 6     | 3 null           | null         | null         | null | null         | null         | 6        | 8      | 0 (    | 1      | 4 12 | 2    | 3      | 5          | 6                                       |
| 23       | 2 <mark>23</mark> 5   | 2              |       | 3 12                | 2 null           | 8                 | 18       | 0      | 0    | 0 14 n           | ıull | 6 8       | 3 6     | 3 null           | null         | null         | null | null         | null         | 6        | 8      | 0 (    | 1      | 4 12 | 2    | 3      | 5          | 6                                       |
| 24       | 3 <mark>23</mark> 5   | 2              |       | 3 12                | 2 null           | 8                 | 18       | 0      | 0    | 0 14 n           | ıull | 6 8       | 3 6     | 3 null           | null         | null         | null | null         | null         | 6        | 8      | 0 (    | _      |      |      |        | 5 null     | legal behaviour                         |
| 25       | 4 <mark>23</mark> 5   | 2              |       |                     | 2 null           | 8                 | 18       | 0      | 0    | 0 14 n           | ıull | 6 8       |         | 3 null           | null         |              |      | -            | null         | 6        | 8      | 0 (    | 1      |      |      |        | 5 null     |   |
| 26       | 5 23 5                | 2              |       |                     | 2 null           | 8                 | 18       | 0      | 0    | 0 14 n           |      | 6 8       |         | 3 null           | null         | null         |      | null         |              | 6        | 8      | 0 (    | _      |      |      |        | 4 null     |   |
| 27       | 1 23 5                | 2              |       |                     | 2 null           | 8                 | 18       | 0      | 0    | 0 14 n           |      | 6 8       |         | null             | null         |              |      |              | null         | 6        | 8      | 0 (    | _      |      |      |        | 4 null     |   |
| 28       | 2 23 5                | 2              |       |                     | 2 null           | 8                 | 18       | 0      | 0    | 0 14 n           |      | 6 8       |         | 3 null           | null         | null         |      |              | null         | 6        | 8      | 0 (    | _      |      |      |        | 4 null     |   |
| 29       | 3 23 5<br>4 23 5      | 2              |       |                     | 2 null           | 8                 | 18       | 0      | 0    | 0 14 n           |      | 6 8       |         | 5 null           | null         |              | null | null         |              | 6        | 8      | 0 (    | 1      |      |      |        |            | legal behaviour                         |
| 30<br>31 | 4 23 5<br>5 23 5      | 2<br>2         |       |                     | 2 null<br>2 null | 8<br>8            | 18<br>18 | 0      | 0    | 0 14 n<br>0 14 n |      | 6 8       |         | 3 null<br>3 null | null         |              | null |              | null<br>null | 6<br>6   | 8      | 0 (    | _      |      |      |        | 4 1<br>3 1 |   |
| 32       | 1 23 5                | 2              |       |                     | 2 null           | 8<br>8            | 18       | 0      | 0    | 0 14 n<br>0 14 n |      | 6 8       |         | 5 null           | null<br>null | null<br>null |      |              | null         | 6        | 8      | 0 (    |        |      |      |        | 3 1        |   |
| 33       | 2 23 5                | 2              |       |                     | 2 null           | 8                 | 18       | 0      | 0    | 0 14 n           |      | 6 8       |         | 5 null           | null         | null         |      |              | null         | 6        | 8      | 0 (    | _      |      |      |        | 3 1        |   |
| 34       | 3 23 5                | 2              |       |                     | 2 null           | 8                 | 18       | 0      | 0    | 0 14 n           |      | 6 8       |         | null             | null         | null         |      |              | null         | 6        | 8      | 0 (    | _      |      |      |        |            | 0 legal behaviour                       |
| 35       | 4 23 5                | 2              |       |                     | 2 null           | 8                 | 18       | 0      | 0    | 0 14 n           |      | 6 8       |         | null             | null         | null         | 0    |              | null         | 6        | 8      | 0 (    |        |      |      |        |            | 0                                       |
| 36       | 5 23 5                | 2              |       |                     | 2 null           | 8                 | 18       | 0      | 0    | 0 14 n           |      | 6 8       |         | null             | null         | null         | 0    |              | null         | 6        | 8      | 0 (    |        |      |      |        |            | 0                                       |
| 37       | 1 23 5                | 2              |       | 3 12                | 2 null           | 8                 | 18       | 0      | 0    | 0 14 n           | ıull | 6 8       | 3 6     | 3 null           | null         | null         | 0    | 14           | null         | 6        | 8      | 0 (    | 1      | 4 12 | 2    | 3      | 2          | 0                                       |
| 38       | 2 <mark>23</mark> 5   | 2              |       | 3 12                | 2 null           | 8                 | 18       | 0      | 0    | 0 14 n           | ıull | 6 8       | 3 6     | 3 null           | null         | null         | 0    | 14           | null         | 6        | 8      | 0 (    | 1      | 4 12 | 2    | 3      | 2          | 0                                       |
| 39       | 3 <mark>23</mark> 5   | 2              |       | 3 12                | 2 null           | 8                 | 18       | 0      | 0    | 0 14 n           | ıull | 6 8       | 3 6     | 3 null           | null         | null         | 0    | 14           | null         | 6        | 8      | 0 (    | 1      | 4 12 | 2    | 3      | 2          | <mark>0</mark> legal behaviour          |
| 40       | 4 <mark>23</mark> 5   | 2              |       |                     | 2 null           | 8                 | 18       | 0      | 0    | 0 14 n           | ıull | 6 8       |         | 3 null           | null         | C            |      |              | null         | 6        | 8      | 0 (    | _      |      |      |        | _          | 0                                       |
| 41       | 5 23 5                | 2              |       |                     | 2 null           | 8                 | 18       | 0      | 0    | 0 14 n           |      | 6 8       |         | 6 null           | null         | (            |      |              | null         | 6        | 8      | 0 (    | _      |      |      |        | -          | 0                                       |
| 42       | 1 23 5                | 2              |       |                     | 2 null           | 8                 | 18       | 0      | 0    | 0 14 n           |      | 6 8       |         | null             | null         | (            |      |              | null         | 6        | 8      | 0 (    | _      |      |      |        | _          | 0                                       |
| 43       | 2 23 5                | 2              |       |                     | 2 null           | 8                 | 18       | 0      | 0    | 0 14 n           |      | 6 8       |         | 5 null           | null         | (            |      |              | null         | 6        | 8      | 0 (    | _      |      |      |        |            | 0                                       |
| 44<br>45 | 3 23 5<br>4 23 5      | 2<br>2         |       |                     | 2 null           | 8<br>8            | 18       | 0      | 0    | 0 14 n           |      | 6 8       |         | 5 null           | null         |              |      |              | null         | 6        | 8      | 0 (    | _      |      |      |        |            | Olegal behaviour                        |
|          |                       |                |       |                     | 2 null           |                   | 18       | 0      | 0    | 0 14 n           |      | 6 8       |         | null             |              |              |      |              | null         | 6        |        | 0 (    | _      |      |      |        | _          | 0<br>0                                  |
| 46<br>47 | 5 23 5<br>1 23 5      | 2              |       |                     | 2 null<br>2 null | 8<br>8            | 18<br>18 | 0      | 0    | 0 14 n<br>0 14 n |      | 6 8       |         | 3 null<br>3 null | (            |              |      |              | null         | 6<br>6   | 8      | 0 (    | _      |      |      |        |            | 0<br>0                                  |
| 48       | 2 23 5                | 2              |       |                     | 2 null           | 8                 | 18       | 0      | 0    | 0 14 n           |      | 6 8       |         | 5 null           | (            |              |      |              | null         | 6        | 8      | 0 (    |        |      |      |        |            | 0                                       |
| 49       | 3 23 5                | 2              |       |                     | 2 null           | 8                 | 18       | 0      | 0    | 0 14 n           |      | 6 8       |         | 5 null           |              | ) (          |      |              | null         | 6        | 8      | 0 (    | _      |      |      |        |            | 8 legal behaviour                       |
| 50       | 4 23 5                | 2              |       |                     | 2 null           | 8                 | 18       | 0      | 0    | 0 14 n           |      | 6 8       |         |                  |              | ) (          |      |              | null         | 6        | 8      | 0 (    |        |      |      |        | 0 1        |   |
| 51       | 5 23 5                | 2              |       |                     | 2 null           | 8                 | 18       | 0      | 0    | 0 14 n           |      | 6 8       |         |                  | 18 (         |              |      |              | null         | 6        | 8      | 0 (    |        |      |      |        | 1 1        |   |
| 52       | 1 23 5                | 2              |       |                     | 2 null           | 8                 | 18       | 0      | 0    | 0 14 n           |      | 6 8       |         |                  | 18 (         |              |      |              | null         | 6        | 8      | 0 (    |        |      |      |        | 1 1        |   |
| 53       | 6 23 5                | 2              |       |                     | 2 null           | 8                 | 18       | 0      | 0    | 0 14 n           |      | 6 8       | 3 6     |                  | L8 (         | ) (          | ) (  |              |              | 6        | 8      | 0 (    | 1      |      |      |        | 1 1        |   |
|          |                       |                |       |                     |                  |                   |          |        |      |                  |      |           |         |                  |              |              |      |              |              |          |        |        |        |      |      |        |            | Indices 4-7 are being freed since FP=8- |
| 54       | 7 8 0                 | 0              |       | 3 12                |                  | 8 "               | 18       | 0      | 0    | 0 14 n           |      | 12 8      |         |                  | L8 (         | ,            |      |              | null n       |          |        |        |        | null |      |        |            | 4=4 and FP+FS-1=0+8-1=7                 |
| 55       | 19 0 0                | 0              | 1     | 4 12                | 2 null           | 8 null            | nu       | ıll nu | ı nu | ll 14 n          | ıull | 12 8      | 3 6     | 5 1              | L8 (         | ) (          | ) 0  | 14           | null n       | ull nu   | ull nu | ı null | null   | null | null | null   | null       |   |