How to use AFD Debugger

How to open the .com in AFD

There are two ways to open the .com in the AFD debugger.

> On command prompt type command afd filename.com

E.g. if we want to open ex01.com in the AFD we will give command as

C:\Windows\system32\cmd.exe	
Y:\CS401\nasm>afd ex01.com	* E

> 2nd method is just open AFD with command **afd**

C:\Windows\system32\cmd.exe		×
Y:\C\$401\nasm>afd_		× 1
		-

Once you are in the AFD



Perss spacebar to skip the intro screen and give command L filename.com

E.g. if we want to open ex01.com in the AFD we will give command as $-1 \exp(1.000)$

C:\Windows\system32\c	md.exe - afd	
AX 0000 SI 0000 BX 0000 DI 0000	CS 26C6 IP 0100 Stac DS 26C6	ick +0 0000 Flags 7202 +2 20CD
CX 0000 BP 0000 DX 0000 SP FFFE	ES 26C6 HS 26C6 SS 26C6 FS 26C6	+4 9FFF OF DF IF SF ZF AF PF C +6 9A00 0 0 1 0 0 0
CMD >1 ex01.com	<pre>> filename {parameter}</pre>	
		DS:0000 CD 20 FF 9F 00 9A F0 F DS:0008 1D F0 1B 05 3E 13 4B 0
0100 0000 0102 0000	ADD [BX+SI],AL ADD [BX+SI],AL	DS:0010 15 04 56 01 15 04 0B 0 DS:0018 01 01 01 00 02 FF FF F
0104 0000 0106 0000	ADD [BX+SI],AL ADD [BX+SI],AL	DS:0020 FF FF FF FF FF FF FF FF DS:0028 FF FF FF FF 64 26 E0 1
0108 0000 010a 0000	ADD [BX+SI],AL ADD [BX+SI],AL	DS:0030 1B 0E 14 00 18 00 C6 2 DS:0038 FF FF FF FF 00 00 00 0
010C 0000 010E 0000	ADD [BX+SI],AL ADD [BX+SI],AL	DS:0040 05 00 00 00 00 00 00 00 0 DS:0048 00 00 00 00 00 00 00 0
	3 4 5 6 7 8 9 A	
DS:0000 CD 20 FF DS:0010 15 04 56 DS:0020 EF FF	01 15 04 08 0E 01 01 01 0 01 05 05 05 05 05 05 05 05 05 05 05 05 05	05 3E 13 4B 01 = 3.001 = 1.021
DS:0020 FF FF FF DS:0030 1B 0E 14 DS:0040 05 00 00	00 18 00 C6 26 FF FF FF F	FF 00 00 00 00 &
1 Step 2ProcSter	BRetwieue 4Helm ON 5BRK M	Menu 6 7 un 8 dn 9 le 16 wi

ex01.com will be loaded

C:\Windows\system32\a	cmd.exe - afd			
AX 0000 SI 0000 BX 0000 DI 0000 CX 0013 BP 0000	CS 26C6 IP 0100 DS 26C6 FS 26C6 HS 26C6	Stack +0 0000 +2 20CD +4 9EEE	Flags 7202 OF DF LF SF ZF	AF PF CF
DX 0000 SP FFFE	SS 26C6 FS 26C6	+6 9400	0 0 1 0 0	0 0 0
CMD >		1 DS : 0000	0 1 2 3 4 CD 20 FF 9F 00	5 6 7 9A FØ FE
01.00 B80500	Moli ax 0005	DS : 0008 DS : 0010	1D F0 1B 05 3E	13 4B 01 04 08 0F
0103 BB0A00	MOU BX,000A	DS:0018	01 01 01 00 02 EF EF EF EF EF	FF FF FF
0108 BB0F00	MOU BX,000F	DS:0028	FF FF FF FF 64	26 CØ 11
0106 90 010C 01D8	ADD AX, BX	DS:0030	FF FF FF FF 00	00 00 00
010E B8004C 0111 CD21	INT 21	DS:0040 DS:0048	00 00 00 00 00 00	00 00 00
	3 4 5 6 7	8 9 A B C D E	F _ fii-	
DS:0010 15 04 56	01 15 04 0B 0E 0	1 01 01 00 02 FF FF	FF	.=/.R.
DS:0020 FF FF FF DS:0030 1B 0E 14	00 18 00 C6 26 F	F FF FF FF 64 26 C0 F FF FF FF 60 00 00	1 00 &	aa -
DS:0040 05 00 00	00 00 00 00 00 0	0 00 00 00 00 00 00		
1 Step 2ProcStep	p <mark>3</mark> Retrieve 4Help 0	N 5BRK Menu 6	7 up 8 dn 9	le 10 ri

Parts of the AFD Screen



Executing the code line by line

To move between various parts of AFD

To Move between memory/data window 1, registers and command prompt press F7 or F8, to go to and come back from data window 2 press F9

To load contents of Memory

CMD> M1 DS : 100

the above mentioned command will display the contents of memory location at offset address "0x0100" in memory window 1 (the address of the location where normally your first variable is stored, if your first variable is a word then moving two bytes ahead will display the contents of next variable e.g. M1 DS:102)

C:\Windows\system32\	C:\Windows\system32\cmd.exe - afd											
AX 0000 SI 0000 BX 0000 DI 0000 CX 0013 BP 0000	CS 26C6 IP 01 DS 26C6 FS 26C6 HS 260	00 Stack	+0 0000 Flag +2 20CD +4 9EEE OF D	s 7202 F IF SF 7F AF PF CF								
DX 0000 SP FFFE	SS 26C6 FS 26	Č6	+6 9A00 0									
CMD >m1 ds:0100	3_103		0 DS:0000 CD 2	1 2 3 4 5 6 7 0 FF 9F 00 9A F0 FE								
0100 B80500	MOU AX,0005		DS:0008 1D F DS:0010 15 0	0 1B 05 3E 13 4B 01 4 56 01 15 04 0B 0E								
0103 BB0A00 0106 01D8 0108 BB0E00	MOV BX,000A ADD AX,BX MOU BY 000F		DS:0018 01 0 DS:0020 FF F DC:0028 FF F	1 01 00 02 FF FF FF F FF FF FF FF FF FF F FF FF 64 26 C0 11								
0108 BB0F00 010B 90 010C 01D8	NOP ADD AX_BX		DS:0028 FF F DS:0030 1B 0 DS:0038 FF F	F FF FF 04 28 C0 11 E 14 00 18 00 C6 26 F FF FF 00 00 00 00								
010E B8004C 0111 CD21	MOU AX,4C00 INT 21		DS:0040 05 0 DS:0048 00 0	0 00 00 00 00 00 00 00 0 00 00 00 00 00								
2 0 1 2 DS:0000 CD 20 FF	3 4 5 6 7 9F 00 9A F0 FE	8 9 A E 1D F0 1B 05	CDEF 3E134B01	= f. ü≡∎ .≡>.K.								
DS:0010 15 04 56 DS:0020 FF FF FF	01 15 04 0B 0E FF FF FF FF FF	01 01 01 00 FF FF FF FF	02 FF FF FF 64 26 C0 11									
DS:0030 1B 0E 14 DS:0040 05 00 00	00 18 00 C6 26 00 00 00 00 00	FF FF FF FF FF 00 00 00 00	00 00 00 00	····· P& ····								
1 Step <mark>2</mark> ProcSte	p <u>3</u> Retrieve <u>4</u> Help	ON 5BRK Me	ոս 6 7 սթ	8 dn 9 le <u>10</u> ri								

C:\Windows\system32\	cmd.exe - afd			
AX 0000 SI 0000 BX 0000 DI 0000 CX 0013 BP 0000 DX 0000 SP FFFE	CS 26C6 IP 010 DS 26C6 1 <t< td=""><td>Stack +0 Ø +2 2 +4 9 +6 9</td><td>0000 Flags 7202 20CD 9FFF OF DF IF SF ZI 9A00 0 0 1 0 (</td><td>FAFPFCF 0000</td></t<>	Stack +0 Ø +2 2 +4 9 +6 9	0000 Flags 7202 20CD 9FFF OF DF IF SF ZI 9A00 0 0 1 0 (FAFPFCF 0000
CMD >			0 1 2 3 4 3100 B8 05 00 BB 00 3108 BB 06 00 90 0	4 5 6 7 A 00 01 D8 1 D8 B8 00
0100 B80500 0103 BB0A00 0106 01D8 0108 BB0F00	MOU AX,0005 MOU BX,000A ADD AX,BX MOU BX,000F	DS : 0 DS : 0 DS : 0 DS : 0 DS : 0	0110 4C CD 21 00 00 0118 00 00 00 00 00 0120 00 00 00 00 00 0128 00 00 00 00 00	0 00 00 00 0 00 00 00 0 00 00 00 0 00 00
010B 90 010C 01D8 010E B8004C 0111 CD21	NOP ADD AX, BX MOU AX, 4C00 TNT 21	DS = 0 DS = 0 DS = 0 DS = 0 DS = 0	0130 00 00 00 00 00 00 0138 00 00 00 00 00 0140 00 00 00 00 00 00 0148 00 00 00 00 00 00	0 00 00 00 0 00 00 00 0 00 00 00 0 00 00
2 0 1 2 DS:0000 CD 20 FF	3 4 5 6 7 9F 00 9A F0 FE	B 9 A B C D FØ 1B Ø5 3E 1	$\begin{bmatrix} \mathbf{D} & \mathbf{E} & \mathbf{F} \\ \mathbf{I3} & \mathbf{4B} & 01 \\ \mathbf{P} & \mathbf{PP} & \mathbf{PP} \end{bmatrix} = \mathbf{f} \cdot \mathbf{U} \equiv \mathbf{I}$.≡>.к.
DS:0020 FF FF FF DS:0030 1B 0E 14 DS:0040 05 00 00	FF FF FF FF FF 00 18 00 C6 26 00 00 00 00 00	F FF FF FF 64 2 F FF FF FF 00 0 0 00 00 00 00 0	26 CØ 11 30 00 00 30 00 00	d& L.
1 Step 2ProcSte	p <u>3</u> Retrieve <u>4</u> Help	N 5BRK Menu 6	7 up 8 dn 9	le 🔟 ri

Similarly to display data contents in memory window 2 use the following command

CMD> M2 DS : 100

C:\Windows\system32\a	md.exe - afd			
AX 0000 SI 0000 BX 0000 DI 0000	CS 26C6 IP 01	00 Stack	+0 0000 Flags	s 7202
CX 0013 BP 0000 DX 0000 SP FFFF	ES 26C6 HS 26	C6	+4 9FFF OF DI	F IF SF ZF AF PF CF
$\frac{M2 \langle /A \rangle}{M2 \langle A \rangle} $	seg_reg:		n o :	
			DS 0100 B8 0	00 BB 0A 00 01 DS
0100 B80500	MOV AX,0005		DS:0108 BB 0 DS:0110 4C C	2 00 90 01 D8 B8 00 0 21 00 00 00 00 00
0103 BB0A00 0106 01D8	MOV BX,000A ADD AX,BX		DS:0118 00 00 DS:0120 00 00	00 00 00 00 00 00 00 00 00 00 00 00 00
0108 BB0F00 0108 90	MOU BX,000F NOP		DS:0128 00 00 DS:0130 00 00	0 00 00 00 00 00 00 A AA
010C 01D8 010F B8004C	ADD AX, BX		DS:0138 00 00	00 00 00 00 00 00 00 00 00 00
0111 CD21	INT 21		DS:0148 00 0	
	3 4 5 6 7	8 9 A B	C D E F	- fii-s - X V
DS:0010 15 04 56	01 15 04 0B 0E	01 01 01 00	02 FF FF FF	= J.U= .=
DS:0020 FF FF FF DS:0030 1B 0E 14	00 18 00 C6 26	FF FF FF FF FF	64 26 C0 11 00 00 00 00	d& ".
DS:0040 05 00 00	00 00 00 00 00	00 00 00 00	00 00 00 00	••••••
1 Step 2ProcStep	p <mark>3</mark> Retrieve 4 <mark>Help</mark>	ON 5BRK Men	ւա 6 7 աթ	8 dn 9 le 10 ri

C:\Windows\system32\cmd.exe - afd	
AX 0000 SI 0000 CS 26C6 IP 0100 Stad BX 0000 DI 0000 DS 26C6	ck +0 0000 Flags 7202 +2 20CD
CX 0013 BP 0000 ES 26C6 HS 26C6 DX 0000 SP FFFE SS 26C6 FS 26C6	+4 9FFF OF DF IF SF ZF AF PF CF +6 9A00 0 0 1 0 0 0 0
CMD >	1 0 1 2 3 4 5 6 7
	DS:0100 B8 05 00 BB 0A 00 01 D8 DS:0108 BB 0F 00 90 01 D8 B8 00
0100 B80500 MOV AX,0005 0103 BB0A00 MOV BX,000A	DS:0110 4C CD 21 00 00 00 00 00 DS:0118 00 00 00 00 00 00 00 00
0106 01D8 ADD AX,BX 0108 BB0F00 MOV BX,000F	DS:0120 00 00 00 00 00 00 00 00 DS:0128 00 00 00 00 00 00 00 00
010B 90 NOP 010C 01D8 ADD AX,BX	DS:0130 00 00 00 00 00 00 00 00 DS:0138 00 00 00 00 00 00 00
010E B8004C MOU AX,4C00 0111 CD21 INT 21	DS:0140 00 00 00 00 00 00 00 00 00 00 DS:0148 00 00 00 00 00 00 00 00 00 00
DS:0110	$\begin{array}{cccccccccccccccccccccccccccccccccccc$
DS:0120 00 00 00 00 00 00 00 00 00 00 00 00 0	00 00 00 00 00 00 00 00 00 00
L Step ZFrocStep Sketrieve 4Help ON 5BRK	Пепи 5 7 up 8 dn 9 le <u>14</u> ri

Changing the Values of registers

If you want to change the values of the registers directly
in the debugger then here is the command:
register=value
For example, you want to set 1DD0 in DS register, you will
write like this:
ds=1DD0

and press Enter.

	• C:	\Wir	ndo	ws\sy	sten	n32\a	md.	exe -	afd																Σ	<u> </u>
Ĥ	1X 0 3X 0 3X 0	000 000 013		SI DI BP	00 00 00	00 00 00	CS DS ES	2 2 2	5C6 5C6 5C6	i	IP Ø 18 2	100 6C6		St	ack	+Ø +2 +4	00 20 9 F	00 CD FF	F1a OF	igs DF	720 IF	02 SF	ZF	AF	PF	CF
Ì	X 0	000	R>	SP	199 7=07	je alue	ŝ	20	5Č6		FS 2	6Č6				+6	9Â	ØØ	Ø	Ő	1	Ő	Ø	Ø	Ø	Ø
	CMD	>1)S =:	1 DDO	0										-		- 01	<mark>90</mark> 80	0 88 88	1 05 01	2 00	3 BB 90	4 ØA Ø1	5 00	6 01 89	7 D8
	100 103	B8	1051 10A	9 0 99			M(00		AX,0 BX,0	0005 000a					DS DS DS	01 01	10 18	4C 00	CD ØØ	21 00	00	00	00 00	00 00	00
	106 108 108	01 BE 90	.D8 10F 1	90			M(N()U)U)P		ΗΧ,Ι ΒΧ,Ι	8X 300F					DS DS DS	:01 :01 :01	20 28 30	00 00 00	00 00	00 00	00 00 00	00 00	00 00 00	00 00 00	00 00 00
)10C)10E)111	Ø1 B8 CD	.D8 100 121	4C			AI M(II)D)U \T		AX,1 AX,4 21	8X 4C00	I				DS DS DS	:01 :01 :01	38 40 48	00 00 00							
])S = 0	100		Ø B8	1 05	2	3 BB	4 ØA	5	6 01	7 D8	8 BB	9 0F	A 00	B 90	C 01	D D8	E B8	F 00		J i		.+	п - (.ć.:	н.
)S:0)S:0)S:0	110 120 130		4C 00 00	CD 00 00	21 00 00	00 00	00 00	00 00	00 00	00 00	00 00	00 00	00 00	00 00	00 00	00 00	00 00	00 00							
	0::20 2	140 ter		00 212	00 200	00 Ster	00 131	00 Ret:	00 Nie	00 1e -	00 4He1	00 n 0N	00	00 BRK	00 Mer	00 	00 61	00	00 7	In	8	ln	9	le i	G	e j
P	. 3	tep	,	2.0	ruca	stej	y or	ie ci	r Ter	Je	nei	p on	5	DVV	nei	iu i				ւթ	0	an j	Ζ.	re i	2 1	<u>.</u>

You can see the above command as changed the value of the register.

	si C:	Wind	lows\s	/sten	n32\(md.	exe -	- afd									2					-		X	
f)X 0 3X 0	000 000	SI DI	00 00	00 00	CS DS	2 1	6 C 6 D D Ø]	IP Ø	100		St	ack	+Ø +2	000 200	90 :D	Fla	ıgs	72	82				
	X S X S	013 000	BP SP	00 FF	00 FE	ES SS	20	6C6 6C6	ł	1S 2 FS 2	6C6 6C6				+4 +6	9F) 9A(?F 30	OF Ø	DF 0	IF 1	SF Ø	ZF Ø	AF Ø	PF Ø	CF Ø
ľ	CMD	>													1			Ø	1	2	3	4	5	6	7
															DS DS	:01 :01(30 38	5A A3	59 50	58 ØC	C3 A2	53 5B	51 ØC	33 A2	CØ 56
	01.00 01.03	BBE BBE	1500 1400			MO MO)U)U		AX,0 BX,0	0005 000a					DS DS	:01: :01:	10 18	ØС ØС	89 84	68 87	ИИ 5е	51 ØC	8 B ØA	1E CØ	5C 74
	0106 0108	01 I BB0)8)F00			Al Mo)D]	AX,1 BX,0	8X 900F					DS DS	:012 :012	20 28	1C 73	3C ØC	Ø2 88	74 1E	11 5A	E8 ØC	81 C6	FF Ø6
	010B 010C	90 01 I 02 I	8			AI)P)D	ļ	AX,1	BX					DS DS	:01: :01:	30 38	56 50	ЮC ØC	01 0B	59 EB	EB D8	20 59	83 C7	Ø6
e	910E 9111	CD2	104C			I	U IT		HX,4 21	1C00					DS DS	:014 :014	10 18	5C E2	ЮC CA	90 33	00 С0	FE A3	06 5С	5 B ØC	9С А2
	2	100	0	1 50	2	3	4	5	_6 22	-7 ca	6	9	Â	B	C	D	E 02	F		702	leo	2 L	45	бГ	жш
I)S:0	110 120	00	B9 30	08 02	00 74	51	8B F8	1E 81	5C FF	00	8A 0C	87	5E 1 F	ÖC 54	ЮA ИC	CØ	74 96		-ij-	Qï	<u>``</u>	.è	Ŷ.	ť
Î)S:0)S:0	130 140	56 5C	ØČ ØC	01 00	59 00	ÊB FE	20 06	83 5B	06 0C	50 E2	0C CA	ØB 33	ÊB CØ	D8 A3	59 5C	C7 ØC	06 A2		Ū	δ	â. L.	È.	読	
1	S	tep	2 P	roc	Ste	0 3	let	rie	ve	Hel	р OM	5	BRK	Mei	nu	6		Ζι	ւթ	8	ln	9	le i	19 H	•i

Or there is also another way, you can move between these different windows (register window, memory window etc.) by pressing F8 or F9 keys in the debugger and then typing the value in the respective window at desired location.

Changing content of memory

To change the contents of the memory, Press F8 or F9 to go to memory area 1 or memory area 2 $\,$

C:\Windows\system32\	cmd.exe - afd		
AX 0000 SI 0000 BX 0000 DI 0000 CX 0013 BP 0000 DX 0000 SP FFFE	CS 26C6 IP 0100 DS 1DD0 ES 26C6 HS 26C6 SS 26C6 FS 26C6	Stack +0 0000 +2 20CD +4 9FFF +6 9A00	Flags 7202 OF DF IF SF ZF AF PF CF 0 0 1 0 0 0 0 0
CMD > 5100 B80500 0103 BB0A00 0106 01D8 0108 BB0F00 0108 90 010C 01D8 010E B8004C 0111 CD21	MOU AX,0005 MOU BX,000A ADD AX,BX MOU BX,000F NOP ADD ADD AX,BX MOU BX,000F NOP ADD ADD AX,BX MOU AX,200 INT 21	I DS : 01.00 DS : 01.08 DS : 01.10 DS : 01.20 DS : 01.28 DS : 01.30 DS : 01.40 DS : 01.48	0 1 2 3 4 5 6 7 5A 59 58 C3 53 51 33 C0 A3 5C 0C A2 5B 0C A2 56 0C B9 08 00 51 8B 1E 5C 0C 8A 87 5E 0C 0A C0 74 1C 3C 02 74 11 E8 81 FF 73 0C 88 1E 5A 0C 66 66 56 0C 01 59 EB 20 83 06 5C 0C 08 E9 57 76 6 58 0C 5C 0C 00 FE 06 5B 0C A2 E2 CA 33 C0 A3 5C 0C A2
2 0 1 2 DS:0100 5A 59 58 DS:0110 0C B9 08 DS:0120 1C 3C 02 DS:0130 56 0C 01 DS:0140 5C 0C 00 1 Step 2 ProcStep	3 4 5 6 7 8 C3 53 51 33 C0 A3 ØØ 51 8B 1E 5C ØC 74 11 E8 81 FF 73 59 EB 20 83 Ø6 5C ØØ FE Ø6 5B ØC E2 p 3Retrieve 4Help ON	9 A B C D E 5C ØC A2 5B ØC A2 8A 87 5E ØC ØA CØ 0C 88 1E 5A ØC C6 ØC ØB EB D8 59 C7 CA 33 CØ A3 5C ØC 5BRK Menu 6	F 56 ZYX \$ 03 L ú \.ó[.ó] 74

Go to the desired location with arrow keys and type the new value

C:\Windows\system32\	cmd.exe - afd	1			. D X
AX 0000 SI 0000 BX 0000 DI 0000	CS 26C6 DS 1DD0	IP 0100	Stack +0 0000 +2 20CD	Flags 7202	
CX 0013 BP 0000 DX 0000 SP FFFE	ES 26C6 SS 26C6	HS 26C6 FS 26C6	+4 9FFF +6 9A00	OF DF IF SF 2 0 0 1 0	ZF AF PF CF 0 0 0 0
CMD >			DS = 0100	0 1 2 3 5A 59 90 3 1	4 5 6 7 53 51 33 C0
0100 B80500	MOV AX,	0005	DS:0108 DS:0110	A3 5C 3C A2 0C B9 08 00	5B ØC A2 56 51 8B 1E 5C
0103 BB0A00 0106 01D8 0109 DD0D00	MOU BX,0 ADD AX,1	000A BX BAGE	DS:0118 DS:0120	0C 8A 87 5E 0 1C 3C 02 74 1	0C 0A C0 74 11 E8 81 FF
0108 880F00 0108 90 010C 01D8	NOP	9995 BX	DS:0128 DS:0130 DS:0138	56 0C 01 59 1 56 0C 01 59 1 50 0C 0B FB	EB 20 83 06 D8 59 C7 06
010E B8004C 0111 CD21	MOU AX, INT 21	4000	DS:0140 DS:0148	5C 0C 00 00 1 E2 CA 33 C0 1	FE 06 5B 0C A3 5C 0C A2
	3 4 5 6	7 8 9	A B C D		L 45 AT AU
DS:0110 OC B9 08 DS:0120 1C 3C 02	00 51 8B 1E 74 11 E8 81	5C 0C 8A FF 73 0C	87 5E 0C 0A C 88 1E 5A 0C C	0 74 . Qï. 6 06 .<.t.Qü	.èç^4t s.ê.Z.⊧.
DS:0130 56 0C 01 DS:0140 5C 0C 00	59 EB 20 83 00 FE 06 5B	06 5C 00 0C E2 CA	C ØB EB D8 59 C A 33 CØ A3 5C Ø	706 U¥δâ. CA2 \∎.E	· 、、、6书件· · 『当弘、、6
1 Step 2ProcSte	p <mark>3</mark> Retrieve	Help ON 5	BRK Menu 6	7 up 8 dn 9	9 le <u>10</u> ri

After typing the new value press enter. Vlue will be changed accordingly

C:\Windows\system32\c	md.exe - afd		
AX 0000 SI 0000	CS 26C6 IP 010	00 Stack +0 0000	Flags 7202
BX 0000 DI 0000	DS 1DD0	+2 20CD	
CX 0013 BP 0000	ES 26C6 HS 260	56 +4 9FFF	0 0 1 0 0 0 0 0 0
DX 0000 SP FFFE	SS 26C6 FS 260	56 +6 9A00	
CMD >		 DS = 0100	0 1 2 3 4 5 6 7 90 59 90 C3 53 51 33 C0
0100 B80500	MOU AX,0005	DS:0108 DS:0110	A3 5C 0C A2 5B 0C A2 56 0C B9 08 00 51 8B 1E 5C
0103 BB0A00 0106 01D8	MOV BX,000A ADD AX,BX	DS:0118 DS:0120 DS:0128	UC 8A 87 5E UC UA CU 74 1C 3C 02 74 11 E8 81 FF 73 0C 88 1E 50 0C C6 06
108 90 10C 01D8	NOP ADD AX.BX	DS:0120 DS:0130 DS:0138	56 0C 01 59 EB 20 83 06 5C 0C 0B EB D8 59 C7 06
010E B8004C	MOU AX,4CØØ	DS:0140	5C 0C 00 00 FE 06 5B 0C
0111 CD21	INT 21	DS:0148	E2 CA 33 C0 A3 5C 0C A2
2 0 1 2	3 4 5 6 7	8 9 A B C D E	F
DS:0100 90 59 90	C3 53 51 33 C0	A3 5C ØC A2 5B ØC A2	56 ÉYÉHSQ3 L ú\.ó[.óU
DS:0110 0C B9 08	00 51 8B 1E 5C	0C 8A 87 5E 0C 0A C0	74 .∥Qï.∖ .èç^'t
DS:0120 1C 3C 02	74 11 E8 81 FF	73 0C 88 1E 5A 0C C6	06 .<.t.∑ü s.ê.Z.⊧.
DS:0130 56 0C 01	59 EB 20 83 06	5C UC UB EB D8 59 C7	06 UΥδ â. \δ井Υ]].
DS:0140 5C 0C 00	00 FE 06 5B 0C	E2 CA 33 CO A3 5C 0C	A2 \∎.Γ. Γ [⊥] 3 ¼\.ό
1 Step 2ProcStep	3 <mark>Retrieve 4</mark> Help	ON 5BRK Menu 6	7 up 8 dn 9 le 10 ri

Help Window

For help press **F4** at CMD, the help window will be appeared at the bottom now either press **PageUP/PageDown** keys to move back and forth or type any command at command prompt, the command that you will type, and its help will appear in the help window.

C:\Windows\system32\cmd.exe	afd					
AX 0000 SI 0000 CS 20 BX 0000 DI 0000 DS 11 CX 0013 BP 0000 ES 20 DX 0000 SP FFFE SS 20	5C6 IP 0100 Stack DD0 5C6 HS 26C6 5C6 FS 26C6	: +0 0000 Flags 720 +2 20CD +4 9FFF OF DF IF +6 9A00 0 0 1	02 SF ZF AF PF CF 000000			
CMD > 3100 B80500 MOU 0103 BB0A00 MOU 0106 01D8 ADD 0108 BB0F00 MOU 0108 90 NOP 010C 01D8 ADD 010E 88004C MOU 0111 CD21 INT	AX,0005 BX,000A AX,BX BX,000F AX,BX AX,4C00 21	Image: 100 state Image: 100 state <th 100="" image:="" state<<="" th=""><th>3 4 5 6 7 C3 53 51 33 C0 A2 5B ØC A2 56 ØØ 51 8B 1E 5C 5E ØC ØA CØ 74 74 11 E8 81 FF 1E 5A ØC C6 66 59 EB 20 83 06 EB D8 59 C7 06 ØØ FE Ø6 5B ØC GØ FE ØC ØC A2</th></th>	<th>3 4 5 6 7 C3 53 51 33 C0 A2 5B ØC A2 56 ØØ 51 8B 1E 5C 5E ØC ØA CØ 74 74 11 E8 81 FF 1E 5A ØC C6 66 59 EB 20 83 06 EB D8 59 C7 06 ØØ FE Ø6 5B ØC GØ FE ØC ØC A2</th>	3 4 5 6 7 C3 53 51 33 C0 A2 5B ØC A2 56 ØØ 51 8B 1E 5C 5E ØC ØA CØ 74 74 11 E8 81 FF 1E 5A ØC C6 66 59 EB 20 83 06 EB D8 59 C7 06 ØØ FE Ø6 5B ØC GØ FE ØC ØC A2		
<pre>? {%)= expression Evaluate and display an arithmetic expression. With ? %= displays in decimal. Browse in text using PgUp/PgDn 1 Step 2ProcStep 3Retrieve 4Help OFF 5BRK Menu 6 7 up 8 dn 9 le 10 ri</pre>						

To exit AFD

Finally use **quit** command to exit from the shell.

On DOS command prompt type ${\tt cls}$ and press Enter to clear the screen