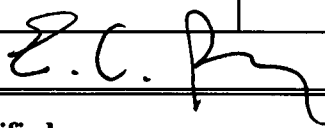


SOFTWARE RELEASE NOTICE

1. SRN Number: GHGC-SRN-193		
2. Project Title: N/A		Project No. N/A
3. SRN Title: Matlab, Version 5.2		
4. Originator/Requestor: Debra Hughson		Date: 7/07/99
5. Summary of Actions <ul style="list-style-type: none"> <input checked="" type="checkbox"/> Release of new software <input type="checkbox"/> Release of modified software: <ul style="list-style-type: none"> <input type="checkbox"/> Enhancements made <input type="checkbox"/> Corrections made <input type="checkbox"/> Change of access software <input type="checkbox"/> Software Retirement 		
6. Persons Authorized Access		
Name	Read Only/Read-Write	Addition/Change/Delete
D. Hughson	RO	A
O. Pensado-Rodriguez	RO	A
Others as Needed	RO	A
7. Element Manager Approval: English Pearcy 		Date: 7/13/99
8. Remarks: Acquired software: Not to be modified.		

CNWRA Form TOP-4-1

Memo to Bruce Mabrito
Regarding TOP-018 Control of Matlab
From Debra L. Hughson
July 7, 1999

The version of Matlab which can be executed as */solapps/bin/matlab* is 5.2.0.3084, dated Jan. 17, 1998. It falls under the category of "ACQUIRED/EXISTING SOFTWARE Not to be modified" in Table 1 of TOP-018, Revision 6, Change 0, Page 7 of 27 and thus has the requirements of Acceptance Testing, Configuration Control, Design Verification & Release, and Software Validation Test Plan (SVTP).

ACCEPTANCE TESTING

The acceptance testing requirement of TOP-018 is for installation testing only.

Status: The software is currently installed and is executable as */solapps/bin/matlab*. I have no knowledge of the whereabouts of the installation media. The box below shows the results of a test calculation.

```
< M A T L A B (R) >
(c) Copyright 1984-98 The MathWorks, Inc.
All Rights Reserved
Version 5.2.0.3084
Jan 17 1998

To get started, type one of these: helpwin, helpdesk, or demo.
For product information, type tour or visit www.mathworks.com.

>> 2+2

ans =

    4

>>
```

CONFIGURATION CONTROL, DESIGN VERIFICATION & RELEASE

The whereabouts of the Matlab User's Manual is unknown to me. A list of help topics is displayed in Matlab by typing *help* as shown below. Further help in a particular area can be obtained by typing *help topic*, as for example *help polyfun*.

```
>> help
```

HELP topics:

matlab/general	- General purpose commands.
matlab/ops	- Operators and special characters.
matlab/lang	- Programming language constructs.
matlab/elmat	- Elementary matrices and matrix manipulation.
matlab/elfun	- Elementary math functions.
matlab/specfun	- Specialized math functions.
matlab/matfun	- Matrix functions - numerical linear algebra.
matlab/datafun	- Data analysis and Fourier transforms.
matlab/polyfun	- Interpolation and polynomials.
matlab/funfun	- Function functions and ODE solvers.
matlab/sparfun	- Sparse matrices.
matlab/graph2d	- Two dimensional graphs.
matlab/graph3d	- Three dimensional graphs.
matlab/specgraph	- Specialized graphs.
matlab/graphics	- Handle Graphics.
matlab/uitools	- Graphical user interface tools.
matlab/strfun	- Character strings.
matlab/iofun	- File input/output.
matlab/timefun	- Time and dates.
matlab/datatypes	- Data types and structures.
matlab/demos	- Examples and demonstrations.
toolbox/local	- Preferences.
toolbox/tour	- MATLAB Tour

```
>> help polyfun
```

Interpolation and polynomials.

Data interpolation.

interp1	- 1-D interpolation (table lookup).
interp1q	- Quick 1-D linear interpolation.
interpft	- 1-D interpolation using FFT method.
interp2	- 2-D interpolation (table lookup).
interp3	- 3-D interpolation (table lookup).
interp	- N-D interpolation (table lookup).
griddata	- Data gridding and surface fitting.

Spline interpolation.

spline	- Cubic spline interpolation.
ppval	- Evaluate piecewise polynomial.

Geometric analysis.

delaunay	- Delaunay triangulation.
dsearch	- Search Delaunay triangulation for nearest point.
tsearch	- Closest triangle search.
convhull	- Convex hull.
voronoi	- Voronoi diagram.
inpolygon	- True for points inside polygonal region.
rectint	- Rectangle intersection area.
polyarea	- Area of polygon.

Polynomials.

roots	- Find polynomial roots.
poly	- Convert roots to polynomial.
polyval	- Evaluate polynomial.
polyvalm	- Evaluate polynomial with matrix argument.
residue	- Partial-fraction expansion (residues).
polyfit	- Fit polynomial to data.
polyder	- Differentiate polynomial.
conv	- Multiply polynomials.
deconv	- Divide polynomials.

Help on a specific function is given by typing *help function name* as, for example *help roots*

```
>> help roots
```

ROOTS Find polynomial roots.

ROOTS(C) computes the roots of the polynomial whose coefficients are the elements of the vector C. If C has N+1 components, the polynomial is $C(1)*X^N + \dots + C(N)*X + C(N+1)$.

See also POLY, RESIDUE, FZERO.

Matlab is designed to be an integrated programming environment. Users write their own programs, or scripts, using built-in Matlab functions. While commercial software developers attempt to maintain backward compatibility, there is no guarantee that the version of Matlab available ten years from now will run scripts written for the version documented here without modification. For this reason it would be prudent for you to maintain a copy of the version of Matlab used with any Matlab scripts submitted for QA records.

SOFTWARE VALIDATION TEST PLAN

Included below are two sample calculations from Matlab 5.2 which can be verified by inspection

```
>> sqrt(4)
```

```
ans =
```

```
2
```

```
>>
```

```
>> pi
```

```
ans =
```

```
3.1416
```

```
>> cos(pi)
```

```
ans =
```

```
-1
```

```
>>
```

and one which you can check with your hand calculator.

```
>> a=rand(7,1)*5+10
```

```
a =
```

```
14.4565  
13.8105  
12.2823  
10.0925  
14.1070  
12.2235  
13.0772
```

```
>> sort(a)
```

```
ans =
```

```
10.0925  
12.2235  
12.2823  
13.0772  
13.8105  
14.1070  
14.4565
```

```
>> sum(a)
```

```
ans =
```

```
90.0495
```

```
>>
```

SUPPORTING DOCUMENTS

Attached are TOP-018 Software Summary Form and Software Release Notice