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

- ■ Release of new software
- □ Release of modified software:
  - □ Enhancements made
  - □ Corrections made
- □ Change of access software
- □ 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** E.C.P. Date: 7/13/99

8. Remarks: **Acquired software: Not to be modified.**

SOFTWARE SUMMARY FORM

01. Summary Date: **7/07/99**	02. Summary prepared by (Name and phone) **D. Hughson (210) 522-3805**	03. Summary Action: **New**
04. Software Date: **7/07/99**	05. Short Title: **Matlab Version 5.2**	
06. Software Title: **Matlab Version 5.2**		07. Internal Software ID: **None**

08. Software Type:	09. Processing Mode:	10. Application Area
☐ Automated Data System	■ Interactive	A. General: ■ Scientific/Engineering ☐ Auxiliary Analyses ☐ Total System PA
■ Computer Program	☐ Batch	☐ Subsystem PA ☐ Other
☐ Subroutine/Module	☐ Combination	B. Specific:

11. Submitting Organization and Address:	12. Technical Contact(s) and Phone:
CNWRA/SwRI 6220 Culebra Road San Antonio, TX 78238	**Mathworks** **3 Apple Hill Drive** **Natick, MA 01760-2098**

13. Narrative: Commercial mathematical software.

14. Computer Platform:	15. Computer Operating System:	16. Programming Language(s):	17. Number of Source Program Statements:
Various	**Various**	**N/A**	**N/A**
18. Computer Memory Requirements: **Various**	19. Tape Drives: **N/A**	20. Disk/Drum Units: **N/A**	21. Graphics: **N/A**

22. Other Operational Requirements: **N/A**

23. Software Availability:	24. Documentation Availability:
■ Available ☐ Limited ☐ In-House ONLY	■ Available ☐ Inadequate ☐ In-House ONLY

Software Developer: **Mathworks** Date: **Jan 17, 1998**

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).
   interpn     - 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 triagulation 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 + ... + C(N)*X + C(N+1).

   See also POLY, RESIDUE, FZERO.
```

Matlab is designed to be an integrated programing environment. Users write their own programs, or scripts, using built-in Matlab functions. While commercial software developers attempt to maintain backward compatability, 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