FUNCTIONAL TEST
Y2K TEST PLAN

COMET – Active Component

Program Title: Cost of Manpower Estimating Tool

Acronym: COMET

NPC Code:

Language/Application: Visual Basic

System Location: «CodeLocation»

Functional Description: COMET is a manpower cost model for use in acquisition costing studies by Navy and contract personnel. The application provides cost analysis with accurate estimates of the total variable manpower costs associated with billets. The Navy cost-analysis community is currently using COMET.

Functional Test POC:

Test Plan

- Assert assumptions
- Identify Data statements and locations
- Date functions
- Define discrepancies and omissions

Test Plan General Assumptions:

- The Microsoft O/S software is or has been brought up to Y2K standard
- Users Desktop, network hardware is operating at Y2K compliance outside the O/S environment.
- Database have been constructed by MS Access97 or newer and have SR-2 applied.
- The two-digit year for Microsoft s 1930-2029
- New data should be entered as "YYYY" format
- MS Access parses dates from 30 to 99 as 1930 to 1999 and dates between 00 to 29 as 2000 to 2029.

Test Plan Database Assumptions: Program is Y2K Compliant because no date calculations are made. All dates are used for information only.

Testing areas omitted -

Dates Test – 21-Sept - 99

Tested by – Michael Mallory

Reviewed by - «Reviewed_by»

Test results – This program will function correctly into the 2000 and beyond.
Certification Levels - 5
DEFINITION OF STRATEGIES - (7) No Action Required

Report of discrepancies

Y2K Compliance Check List - attached

Supporting documentation - Microsoft Year 2000 Resource Center, Microsoft Year 2000 Test Criteria
www.Microsoft.com/technet/year2k/,
www.Microsoft.com/technet/year2k/product/user view11257EN.htm

Microsoft Year 2000 Compliance Statement

A Year 2000 Compliant product from Microsoft will not produce errors processing date data in connection with the year change from December 31, 1999 to January 1, 2000 when used with accurate date data in accordance with its documentation and the recommendations and exceptions set forth in the Microsoft Year 2000 Product Guide, provided all other products (e.g., other software, firmware and hardware) used with it properly exchange date data with the Microsoft product. A Year 2000 Compliant product from Microsoft will recognize the Year 2000 as a leap year.

Access 97 8.0 (English) - 32-Bit Win

Product Summary

Product: Access 97	Category: Compliant
Version: 8.0	Operating System: 32-Bit Win
Language: English	Release Date: 01 Nov 1996
Operational Range:	01 Jan 100 - 31 Dec 9999
Prerequisites:	see below
Product Dependencies:	Windows 95, Windows 98 or Windows NT 3.51 with SP 5 or greater, or Windows NT 4 (no specific SP is required, though SP 2 is recommended)
Clock Dependencies:	System clock
Last Updated:	01 Feb 1999

Product Details

Prerequisites: : Download the **Office 97 SR2 Patch from http://officeupdate.microsoft.com/Articles/sr2fact.htm**

How the product handles dates:

Storage. Microsoft Access stores the Date/Time data type as a double-precision, floating-point number (up to 15 decimal places). The integer portion of the double-precision number represents the date; the decimal portion represents the time. See Knowledge Base article Q130514 http://support.microsoft.com/support/kb/articles/Q130/5/14.asp for extended information.

Microsoft Access relies on the Jet database to store data. It uses shared VBA components to perform calculations on Date/Time data.

Formatting. Dates can be input in pre-defined and custom input formats, via an Input Mask. Input Masks enforce date entry in a particular format. Input Mask pre-defined formats include a Short Date format, which defaults to the Short Date format in the Regional Settings of the Control Panel when the mask is created. A custom Input Mask can be created to limit date entry to only 4-digit years. Microsoft Access does not require an Input Mask to enter dates. If an Input Mask is not used, the default behavior, dates can be entered in 2- or 4-digit year formats.

Dates can be displayed in pre-defined and custom formats, using the Format property and Format function. By default, dates are displayed in General Date format, which is a combination of Short Date and Short Time, as specified in the Regional Settings applet of the Control Panel. Custom formats can be created to display years as 4-digits.

Parsing on date entry. Dates are parsed using OLE Automation. For more information, see the "OLE Automation Technology" Year 2000 compliance information document.

Two-digit shortcut handling:

Microsoft Access 97 interprets dates entered with a 2-digit shortcut to mean the 21st century in the following way.
1/1/00 through 12/31/29 are interpreted as 1/1/2000 through 12/31/2029
1/1/30 through 12/31/99 are interpreted as 1/1/1930 through 12/31/1999

Common date usage errors:

Using the Short Date Input Mask will limit the ability of users to enter dates outside of the 2-digit year shortcut range (see the above section on 2-digit shortcuts).

Use Date/Time fields in tables to store date data. Avoid using Text fields to store date data.

Use a 4-digit year format to display dates. Avoid the use of the Short Date format (mm/dd/yy). Use the Long Date format (mm/dd/yyyy), the Short Date format in conjunction with the Regional Settings in the Control Panel, or a custom format to display all digits of the year (mm/dd/yyyy).

Text export, including the use of the VBA TransferText, method should always be set for export of four digit years.

Tables	Passed
All date fields store 4 digit year.	N/A
Text fields are not used to store dates.	No
Text import is set for four digit years.	N/A
Date validation rules are applied.	N/A
Databases converted from previous versions of MS Access are monitored for date parsing rules.	N/A
Sorting of dates before and after year 2000 is verified.	N/A
Application is tested as a whole before and after the year 2000.	YES
Dates verified: 12/31/98, 1/1/99, 1/4/99, 9/9/99, 12/31/99, 1/1/2000, 1/2/2000, 1/3/2000, 1/4/2000, 1/5/2000, 1/31/2000, 2/28/2000, 2/29/2000, 3/1/2000, 3/31/2000, 10/10/2000, 1/2/2001, 10/1/1999, 1/0/2000, 1/1/2002, and 2/29/2004.	YES

Queries	Passed
All date strings store 4 digit year.	N/A
Text fields are not used to store dates.	N/A
Text export is set for four digit years.	N/A
Text import is set for four digit years.	N/A
Text import is monitored for date parsing rules.	N/A
Date validation rules are applied.	N/A
Databases converted from previous versions of MS Access are monitored for date parsing rules.	N/A
Leap year calculation functions perform properly.	N/A
Sorting of dates before and after year 2000 is verified.	N/A
Application is tested as a whole before and after the year 2000.	N/A
Date range selected can cross the year 2000.	N/A
Dates verified: 12/31/98, 1/1/99, 1/4/99, 9/9/99, 12/31/99, 1/1/2000, 1/2/2000, 1/3/2000, 1/4/2000, 1/5/2000, 1/31/2000, 2/28/2000, 2/29/2000, 3/1/2000, 3/31/2000, 10/10/2000, 1/2/2001, 10/1/1999, 1/0/2000, 1/1/2002, and 2/29/2004.	N/A

Forms	Passed
All date strings store 4 digit year.	YES
All date input format supports 4 digit years.	N/A
All date displays support 4 digit years.	YES
"Short Date" input mask is not used.	YES
"Short Date" format is not used for display.	YES
Text fields are not used to store dates.	NO
Date validation rules are applied.	N/A
Databases converted from previous versions of MS Access are monitored for date parsing rules.	N/A
Leap year calculation functions perform properly.	N/A
Sorting of dates before and after year 2000 is verified.	N/A
Application is tested as a whole before and after the year 2000.	YES
Date range selected can cross the year 2000.	YES
Dates verified: 12/31/98, 1/1/99, 1/4/99, 9/9/99, 12/31/99, 1/1/2000, 1/2/2000, 1/3/2000, 1/4/2000, 1/5/2000, 1/31/2000, 2/28/2000, 2/29/2000, 3/1/2000, 3/31/2000, 10/10/2000, 1/2/2001, 10/1/1999, 1/0/2000, 1/1/2002, and 2/29/2004.	YES

Reports	Passed
All date strings store 4 digit year.	YES
All date displays support 4 digit years.	YES
"Short Date" format is not used for display.	YES
Text fields are not used to store dates.	YES
Databases converted from previous versions of MS Access are monitored for date parsing rules.	N/A

Leap year calculation functions perform properly.	N/A
Sorting of dates before and after year 2000 is verified.	N/A
Application is tested as a whole before and after the year 2000.	YES
Date range selected can cross the year 2000.	YES
Dates verified: 12/31/98, 1/1/99, 1/4/99, 9/9/99, 12/31/99, 1/1/2000, 1/2/2000, 1/3/2000, 1/4/2000, 1/5/2000, 1/31/2000, 2/28/2000, 2/29/2000, 3/1/2000, 3/31/2000, 10/10/2000, 1/2/2001, 10/1/1999, 1/0/2000, 1/1/2002, and 2/29/2004.	YES

Macros	**Passed**
All date strings store 4 digit year.	N/A
Text fields are not used to store dates.	N/A
Text export is set for four digit years.	N/A
Text import is set for four digit years.	N/A
Text import is monitored for date parsing rules.	N/A
Databases converted from previous versions of MS Access are monitored for date parsing rules.	N/A
Leap year calculation functions perform properly.	N/A
Application is tested as a whole before and after the year 2000.	N/A
Date range selected can cross the year 2000.	N/A
Dates verified: 12/31/98, 1/1/99, 1/4/99, 9/9/99, 12/31/99, 1/1/2000, 1/2/2000, 1/3/2000, 1/4/2000, 1/5/2000, 1/31/2000, 2/28/2000, 2/29/2000, 3/1/2000, 3/31/2000, 10/10/2000, 1/2/2001, 10/1/1999, 1/0/2000, 1/1/2002, and 2/29/2004.	N/A

Modules	**Passed**
All date strings store 4 digit year.	YES
Text fields are not used to store dates.	NO
Text export is set for four digit years.	YES
Text import is set for four digit years.	N/A
Text import is monitored for date parsing rules.	N/A
Databases converted from previous versions of MS Access are monitored for date parsing rules.	N/A
Rules developed and monitor for converting to and from two digit years.	N/A
Leap year calculation functions perform properly.	N/A
Application is tested as a whole before and after the year 2000.	YES
Date range selected can cross the year 2000.	YES
Dates verified: 12/31/98, 1/1/99, 1/4/99, 9/9/99, 12/31/99, 1/1/2000, 1/2/2000, 1/3/2000, 1/4/2000, 1/5/2000, 1/31/2000, 2/28/2000, 2/29/2000, 3/1/2000, 3/31/2000, 10/10/2000, 1/2/2001, 10/1/1999, 1/0/2000, 1/1/2002, and 2/29/2004.	YES

General	**Passed**
Database was developed on a computer with SR-1.	YES
Database was developed on a computer with SR-2.	NO
Database was developed on a computer with the latest MS Jet Engine.	YES
Designated user computer maintains SR-1.	N/A
Designated user computer maintains SR-2.	N/A
Designated user computer maintains the latest MS Jet Engine.	N/A

*N/A - not used for program operation

APPENDIX A: YEAR 2000 COMPLIANCE CHECKLIST

The purpose of this checklist is to aid system managers in ensuring that their systems are compliant for the Year 2000. Make sure the following items are included in your Year 2000 testing and compliance process for all of the developed, gratis, licensed, and purchased software, hardware, and firmware used in your system's operation, development/maintenance, support, and testing activities.

Y2K compliant system accurately processes date/time date from, into and between the twentieth and twenty-first centuries and the leap year calculations. Finally, "compliant" systems have no extended semantics, calendar errors, date overflow, and inconsistent semantics.

Please respond to each question with the appropriate answer.

System Identification

(An asterisk indicates an optional question)

A.1. Please provide system information.

a.	Name of system	Cost of Manpower Estimating Tool (COMET) Active Component v2.0
b.	Naval Y2K Tracking System (NY2KTS) Tracking Number	
c.	Operational date of system (current or a future date)*	Oct. 1 1999
d.	Planned or actual replacement date of system (retirement or discontinuation qualifies as replacement)*	N/A
e.	For planned replacements what is the contingency plan and under what conditions will it be invoked?*	N/A
f.	What are the safety critical portions of the system, if any?*	N/A

Year 2000

A.2. Each system has its own window of time, before and after the present date, in which it functions. Planning and scheduling systems work with dates that are weeks, months, and sometimes years in the future. Likewise, trend analysis systems and billing systems regularly reference dates in the past. For your system, and its window of time, please verify its ability to successfully process data containing dates with no adverse effect on

the application's functionality and with no impact on the customer or end user beyond adjustment to approved changes in procedures and data formats.

		VERIFIED	NO	N/A
a.	Dates in 20th century (1900s)			X
b.	Dates in 21st century (2000s)			X
c.	Dates across century boundary (mix 1900s and 2000s)			X
d.	Crosses 1999 to 2000 successfully			X

Other/Indirect Date Usage

A.3. Have you verified performance (and corrected if necessary):

		VERIFIED	NO	N/A
a.	Dates embedded as parts of other fields			X
b.	Dates used as part of a sort key			X
c.	Usage of values in date fields for special purposes that are not dates (e.g. using 9999 or 99 to mean "never expire")			X
d.	Date dependent activation/deactivation of: passwords, accounts, commercial licenses			X
e.	Date representation in the operating system's file system (creation dates and modification dates of files and directories)			X
f.	Date dependent audit information			X
g.	Date dependencies in encryption/decryption algorithms			X
h.	Date dependent random number generators			X
i.	Date dependencies in firmware			X
j.	Personal Computer BIOS and RTC does not reset the year to 1980 or 1984 on reboots after 31 December 1999 *(corrections by operating system utilities allowed)*			X

Leap Year

A.4. System accurately recognizes and processes Year 2000 as a leap year.

		VERIFIED	NO	N/A
a.	February 29, 2000 is recognized as a valid date			X
b.	Julian date 2000060 is recognized as February 29, 2000			X

c.	Julian date 2000366 is recognized as December 31, 2000			X
d.	Arithmetic operations recognize Year 2000 has 366 days			X

Usage of Dates Internally

A.5. Internal application usage of dates and date fields must be clear and unambiguous in the context of the systems which use them.

		VERIFIED	NO	N/A
a.	Display of dates is clear and unambiguous (the ability to correctly determine to which century a date belongs either by explicit display, i.e. 4-digit year, or system or user inference)			X
b.	Printing of dates is clear and unambiguous			X
c.	Input of dates is clear and unambiguous			X
d.	Input of logically correct dates			X
d.	Storage of dates is clear and unambiguous			X

External System Interfaces

A.6. External interactions are identified and validated to correctly function for all dates.

		VERIFIED	NO	N/A
a.	Interaction between this system and any other external date source, if existing, has been verified for correct operation.			X
b.	You and the responsible organization for each interface have negotiated an agreement dealing with Year 2000 issues.			X
	For example, is the interface currently Y2K compliant, is it being worked on, does it have an unknown fix date, or will it be fixed by a future date you have mutually agreed on.			X
c.	For each interface that exchanges date data, you and the responsible organizations have discussed and verified that you have implemented consistent Year 2000 corrections that will correctly work for date data passed between your systems.			X
	For example, the GPS system is sometimes used as a time source. Many GPS receivers cannot correctly deal with the roll-over of the GPS 10-bit epoch counter that will occur at midnight, 21 August 1999. GPS receivers also deal with an 8-			X

bit Almanac Week counter that has a 256-week roll-over span.

Date Field Type

A.7. Describe the type of date fields used by the system, in either software or data bases.

		VERIFIED	NO	N/A
a.	Does the system use 4 digit year data fields?		X	
b.	Does the system use 2 digit year data fields?		X	
c.	If 2 digit, does the system use a century logic technique (e.g. procedural change or windowing) to correctly infer the century?		X	
d.	At what date will the century logic fix fail? Use date format (YYYY-MM-DD).	N/A		

		YES	NO
e.	Are there any internal data types for dates?		X

If yes to e, what is the range of dates that the date field can represent?

Minimum Date _____ Maximum Date _____

Year 2000 Testing Information

A.8. Optional: Please provide the following information for all year 2000 compliance tests that are conducted, i.e. system test, integration test, acceptance test:

		Narrative Answer
a.	Testing Organization	N/A
b.	Name of Test Team Chief	N/A
c.	Date "(YYYY-MM-DD)" that Year 2000 compliance testing was completed	N/A
d.	How was Year 2000 compliance determined? (certified by vendor or contractor, tested in-house, inspected but not tested, etc.)	Tested in-house

		YES	NO

e.	Are the test data sets available for regression testing on the next version release?		X
f.	Are the detailed test results and reports available for review and audit?	X	
g.	Do you follow a defined process for tracking the status of all Year 2000 problems reported, changes made, testing, compliance, and return to production?		X

COTS/GOTS Components

A.9. Optional: Please provide the following information with regard to COTS/GOTS components.

		YES	NO	N/A
a.	Does the system use COTS/GOTS application packages and/or infrastructure components?		x	
b.	If yes, have those items been verified to be Year 2000 compliant?			x

c. How was Year 2000 compliance determined? (certified by vendor or contractor, tested in-house, etc.)

Narrative Answer

TESTED IN-HOUSE

Certification Levels

A.10 Certification levels are defined below. Yes, verified and N/A are considered positive responses. No is considered a negative response.

LEVEL

0 System retired or replaced

1a Full independent testing completed using a two digit year format:

-All questions have positive responses except possibly 7a

1b Full independent testing completed using a four digit year format:

- All questions have positive responses except possibly 7b

2a Independent audit of system and existing testing completed using a two digit year format:

- All questions have positive responses except possibly 7a

2b Independent audit of system and existing testing completed using a four digit year format:

- All questions have positive responses except possibly 7b

3 Self-certification

CAUTION: Self-certification assumes a higher risk level of potential failures

3a Self-certification with full use of 4 digit century date fields

- All questions have positive responses except possibly 7b

3b Self-certification indicates risk due to use of 2 digit century fields

- All questions have positive responses except possibly 7a

3c Self-certification indicates risk due to ambiguous usage of dates

- Question 5-a,b,c or d have negative responses.

3d Self-certification indicates potential problems (System needs additional work before Year 2000 processing can be assured with any level of reliability)

- Question 2-a,b,c or d have negative responses, or
- Question 3-a,b,c,d,e,f,g,h,i or j have negative responses, or
- Question 4-a,b,c or d have negative responses, or
- Question 5-a,b,c or d have negative responses, or
- Question 6-a or b have negative responses, or
- Question 9-b has a negative response.

4 Not certified or not certified yet.

5 Does not process date related data

A.11 It would be advisable but not required for the system/program/project manager to have the responsible programmer(s) fill out a similar checklist covering the software they are responsible for before completing this checklist for the overall application.

LEVEL OF CERTIFICATION FOR THIS DATA SYSTEM: (*Circle only one)*

0 1a 1b 2a 2b 3a 3b 3c 3d 4 5

I certify that the information provided above is true and correct to the best of my knowledge and belief:

ADDITIONAL COMMENTS:_____

_____ _____

System Engineer Date

I certify that the information provided above is true and correct to the best of my knowledge and belief:

ADDITIONAL
COMMENTS:_____

Program Manager

10/1/99
Date