TMSS Parsing Test

MIL-M-9977J, Appendix I, NATO Stage B Cross-Servicing Checklist (CL1)

Document Type Definition

MAXIMA Corporation

DISA Contract #DCA100-93-D-0065

Quick Short Test Report

24 June 1994

Prepared for
Electronic Systems Center
Air Force CALS Program Office
HQ ESC/AV-2
4027 Colonel Glenn Hwy Suite 300
Dayton OH 45431-1672

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24 June 1994

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Air Force CALS Test Bed

Notification of Test Results

24 June 1994

This notice documents the results of an Air Force CALS Test Bed (AFCTB) Quick Short Test Report (QSTR) evaluation of data submitted by:

MAXIMA Corporation

Identified as follows:

Title: MIL-M-9977J, Appendix I, NATO Stage B Cross-Servicing Checklist (CL1), DTD Parsing Test
Program: DISA
Program Office: DISA
Contract No.: DCA100-93-D-0065
QSTR No.: AFCTB-ID 94-090

Received on the following media: 3.5" Diskette

The results of the QSTR evaluation are as follows:

MIL-STD-1840A Media Format: N/A
MIL-D-28000A IGES: N/A
MIL-M-28001B SGML: Pass
MIL-R-28002A Raster: N/A
MIL-D-28003 CGM: N/A

Formal results with associated disclaimer are documented and available from the AFCTB.

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1. Introduction

1.1 Background

The Department of Defense (DoD) Air Force Continuous Acquisition and Life-cycle Support (CALS) Test Network (AFCTN) is conducting tests of the military standard for the Automated Interchange of Technical Information, MIL-STD-1840A, and its companion suite of military specifications. The AFCTN is a DoD sponsored confederation of voluntary participants from industry and government managed by the Electronic Systems Center (ESC).

The primary objective of the AFCTN is to evaluate the effectiveness of the CALS standards for technical data interchange and to demonstrate the technical capabilities and operational suitability of those standards. Two general categories of tests are performed to evaluate the standards; formal and informal.

Formal tests are large and comprehensive, which follow a written test plan, require specific authorization from the DoD, and may take months to prepare, execute, and report.

Informal tests are quick and short, used by the AFCTN technical staff, to broaden the testing base. They include representative samples of the many systems and applications used by AFCTN participants. They also allow the AFCTN staff to gain feedback from many industry and government interpretations of the standards, to increase the base of participation in the CALS initiative, and respond to the many requests for help that come from participants. Participants take part voluntarily, benefit by receiving an evaluation of their latest implementation (interpretation) of the standards, interact with the AFCTN technical staff, gain experience using the standards, and develop increased confidence in them. The results of informal tests are reported in Quick Short Test Reports (QSTRs) that briefly summarize the standard(s) tested, the hardware and software used, the nature of the test, and the results.
1.2 Purpose

The purpose of this informal test is to analyze Air Force Document Type Definitions (DTDs) for Standard Generalized Markup Language (SGML) syntax, using several commercial and public domain SGML parsers, prior to placing them in the Defense Information Systems Agency (DISA) Asset Source for Software Engineering Technology (ASSET) repository.
2. Test Parameters

Test Plan: AFCTB 94-090

Date of Evaluation: 24 June 1994

Evaluator: George Elwood
Air Force CALS Test Bed
DET 2 HQ ESC/AV-2P
4027 Colonel Glenn Hwy
Suite 300
Dayton OH 45431-1672

Data Originator: Kay Hill
MAXIMA Corporation
2372 Lakeview Drive
Beavercreek OH 45431
(513) 427-5888

Data Description: Technical Manual Test 1 DTD

Data Source System:

Text/SGML SOFTWARE

Unknown

Evaluation Tools Used:

MIL-M-28001 (SGML)
PC 486/50
Exoterica XGMLNormalizer v1.2e3.2
Exoterica Validator v2.2 ex1
McAfee & McAdam Sema Mark-it v2.3
Public Domain sgmls 1.1

Standards Tested: MIL-M-28001B
3. 1840A Analysis

3.1 External Packaging

The 3.5" diskette was hand delivered to the Air Force CALS Test Bed (AFCTB). It was not enclosed in any type of container.

The files received by the AFCTB were not MIL-STD-1840A. The files were not named per the standard conventions, as the stated purpose of the evaluation was the basic data structure.

4. SGML Analysis

The AFCTB has several parsers available for evaluating submitted DTD and text files. These tools are not used to generate a pass/fail but to report how commercially available software can handle the files. These products are used in the development of technical publications and are good indicators of usability. The use of these products is not an endorsement nor an indication of CALS capability. All operations were performed using the default settings unless specified in the report.

The goal was to configure the DTD under analysis as it would normally be used. However, for this analysis it was necessary to modify the DTD adding the "DOCTYPE doc [" statement to the start and the companion "]>" to the end of the DTD under evaluation, as stated in the comments of the DTD. If the parser did not support a formal file pointing to the location of the ISO character sets, this was added.

The DTD under evaluation, MIL-M-9977J, Appendix I, NATO Stage B Cross-Servicing Checklist (CL1), called a sequence of companion DTDs, each in turn, as illustrated by the diagram below. These DTDs were delivered on the same diskette as the DTD to be evaluated. The DTDs were not changed except to point to the succeeding DTD in the sequence and to insert the location of the ISO character set files in the D784CB0.A3 DTD.
MIL-M-9977J NATO Stage B Cross-Servicing Checklist (CL1) DTD

D977J10.ORG ➔ D096EF0.ORG ➔ D784CB0.A3
 ➔ D977J20.ORG ➔ D784CB0.A3

The following notes apply to the parsing analysis as indicated in the ensuing paragraphs.

Note 1. Entity parameters defined more than once is a valid SGML construct. The duplicate definition errors and/or warnings in this analysis do not indicate any problems.

Note 2. Some of the parsers report mixed content model warnings. The use of such content models is normally unnecessary and therefore not normally recommended. Record boundaries within elements of associated instances may be misinterpreted where a mixed content model exists in the DTD.

Note 3. The occurrences of warnings "references defined, but not used," appeared because portions of the called DTD, i.e., MIL-M38784C, were not used. They were not used because the entity definitions of the DTD under analysis altered the execution path in the called DTD. The warnings in this analysis do not indicate any problems.

4.1 Exoterica Validator

The DTD file was evaluated using the Exoterica Validator exl parser. The basic DTD was modified by placing the concrete syntax file and "<![DOCTYPE doc [" at the start and the "]]>" at the end. No errors were reported by the parser.

The parser reported 44 total warnings of two types. The first type warning was for a parameter entity declared more than once. See Note 1 above.

<!-- **Warning** in "c:\ws\096e.org" (entity "%m5096cl"), line 31,
         used in "\xgml\9490.dtd", line 142:
          A parameter entity name has been declared more than once.
The entity is "%frnt".
         <![ENTITY % frnt "(idinfo, lep, verstat?, contents, illuslist?, tablelist?,"
         ""
         -->
The second type warning relates to elements defined but not used in any content model. See Note 3 above.

<!-- **Warning** in "\xgml\9490.dtd", line 152:
    An element is not allowed in the document instance because it does not
    appear in any accessible content model or it is completely excluded.
    The element is "ACCPREP". -->

4.2 Exoterica XGML Normalizer

The DTD file was parsed using the Exoterica XGMLNormalizer parser. The concrete syntax and "<!DOCTYPE doc [" were added to the start and "]>" to the end of the file. No errors or warnings were issued by this utility.

4.3 Public Domain sgmls

The DTD file was evaluated using the Public Domain sgmls v1.1 parser. The file was modified by adding the "<!DOCTYPE doc [" to the start and "]>" to the end of the file as stated in the comments in the DTD. File D784CB0.A3 location was inserted into the DTD. No errors were reported by the parser.

The parser reported 32 total warnings of the same type. This warning was for duplicate definitions. See Note 1 above.

sgmls: In file included at \ws\9490.dtd, line 70:
Warning at c:\ws\096e.org, line 32 in declaration parameter 4:
Duplicate specification occurred for "%frnt"; duplicate ignored

4.4 Sema Mark-it

The DTD file was evaluated using McAfee & McAdam's Sema Mark-it v2.3 parser. The file was modified by adding the concrete syntax and "<!DOCTYPE doc [" to the start and "]>" to the end of the file. The parser reported no errors or warnings for the file.
5. Conclusions and Recommendations

The file D977JI0.ORG, MIL-M-9977J, Appendix I, NATO Stage B Cross-Servicing Checklist (CL1), conforms to the SGML syntax of ISO Standard 8879, as required by the CALS MIL-M-28001B specification.

Recommend the DTD be changed to eliminate the mixed content model. If this is not possible, users should be alerted to the potential problems that may occur in the application of the DTD, and proper guidance should be provided users to avoid the potential problems in the use of this DTD.
6. Appendix A - Detailed SGML Analysis

6.1 Exoterica Validator

<!-- **Warning** in "c:\ws\096e.org" (entity "%m5096c1"), line 31, 
used in "\xgml\9490.dtd", line 142: 
A parameter entity name has been declared more than once. 
The entity is "%frnt". 
-->

The entity is "%shortitleuse". 
The entity is "%shortitle". 
The entity is "%chap". 
The entity is "%bodyele". 
-->

<!-- **Warning** in "i:\dtd\784c.dtd" (entity "%m38784c"), line 37, 
used in "c:\ws\096e.org" (entity "%m5096c1"), line 80, 
used in "\xgml\9490.dtd", line 142: 
A parameter entity name has been declared more than once. 
The entity is "%shortitleuse". 
-->

The entity is "%shortitle". 
The entity is "%frnt". 
The entity is "%titles". 
The entity is "%step1con". 
The entity is "%step2con". 
The entity is "%step3con". 
The entity is "%step4con". 
The entity is "%step5con". 
The entity is "%step6con". 
The entity is "%step7con". 
The entity is "%bodyele". 
The entity is "%chap". 
The entity is "%bodyele". 
-->

<!-- **Warning** in "c:\ws\977j.dtd" (entity "%mnucbas1d"), line 31, 
used in "\xgml\9490.dtd", line 142: 
A parameter entity name has been declared more than once. 
The entity is "%cino". 
-->

<!ENTITY % cino "INCLUDE" >
The entity is "%shortitleuse".
The entity is "%shortitle".
The entity is "%titles".
The entity is "%sect".
The entity is "%ep".
The entity is "%frnt".
The entity is "%nparcon".
The entity is "%sedesc".
The entity is "%gsr".
The entity is "%aprep".
The entity is "%gproc".
The entity is "%adesc".

<!-- **Warning** in "\xgm\9490.dtd", line 152:
An element is not allowed in the document instance because it does not appear in any accessible content model or it is completely excluded.
The element is "ACCPREP".
-->

The element is "ACCPREP".
The element is "ADDRESS".
The element is "AIRPREPLD".
The element is "APPENDIX".
The element is "BASINFO".
The element is "BOMBWEAPSECT".
The element is "BOMBWEAPDESC".
The element is "BOMBWEAPLD".
The element is "CARTINS".
The element is "CHAPTER".
The element is "CHGINSSHT".
The element is "CHGLIST".
The element is "CHGREC".
The element is "DDCHAPTER".
The element is "DDDESC".
The element is "DDINDEX".
The element is "DDINTRO".
The element is "DDLINDEX".
The element is "DDSHEET".
The element is "DEPLOY".
The element is "DLAYFLT".
The element is "DOC".
The element is "DOCCL".
The element is "DOCNJUCASLD".
The element is "DOCPART".
The element is "FCTFUNCCHK".
The element is "FERRYPROC".
The element is "FOLDSECT".
The element is "GENERAL".
The element is "GLOSSARY".
The element is "ILLUSLIST".
The element is "INDEX".
The element is "INSERTTPG".
The element is "INTRO".
The element is "LOAD".
The element is "LOADPREP".
The element is "NONSTRTOSTR".
The element is "PGNO".
The element is "POSTLDINS".
The element is "PRACTBL".
The element is "PRACTBLSECT".
The element is "PREFACE".
The element is "PREUNLOAD".
The element is "PRIORLNCH".
The element is "RACKLOAD".
The element is "REAR".
The element is "SAFING".
The element is "SCOPE".
The element is "SECTION".
The element is "SHORTTITLE".
The element is "SPECSAFREQ".
The element is "STRAYVOLTCHEK".
The element is "STRNONSTR".
The element is "SUPPEQUIPDESC".
The element is "TABLELIST".
The element is "UNLOAD".
The element is "UNLOADPROC".
The element is "VOLUME".
The element is "WARNPAGE".

-->  

<!-- Capacity points/limits:  
TOTALCAP =162605/200000  
ENTCAP =13760/200000  
ENTCHCAP =14683/70000  
ELEMCP =6144/70000  
GRPCAP =37120/70000  
EXGRPCAP =928/70000  
EXNMCAP =1760/70000  
ATTCP =63360/200000  
ATTCHCAP =1615/70000  
AVGRPCAP =22976/70000  
NOTCAP =96/70000  
NOTCHCAP =163/70000  
IDCAP =0/70000  
IDREFCAP =0/70000  

10
MAPCAP = 0/70000
LKSETCAP = 0/70000
LKNMCP = 0/70000

<!-- 0 errors and 93 warnings reported. -->

6.2 Public Domain sgmls Log

sgmls: In file included at \ws\9490.dtd, line 70:
Warning at c:\ws\096e.org, line 32 in declaration parameter 4:
Duplicate specification occurred for "%frnt"; duplicate ignored
sgmls: In file included at \ws\9490.dtd, line 70:
Warning at c:\ws\096e.org, line 34 in declaration parameter 4:
Duplicate specification occurred for "%shorttitleuse"; duplicate ignored
sgmls: In file included at \ws\9490.dtd, line 70:
Warning at c:\ws\096e.org, line 42 in declaration parameter 4:
Duplicate specification occurred for "%shorttitle"; duplicate ignored
sgmls: In file included at \ws\9490.dtd, line 70:
Warning at c:\ws\096e.org, line 44 in declaration parameter 4:
Duplicate specification occurred for "%chap"; duplicate ignored
sgmls: In file included at \ws\9490.dtd, line 70:
Warning at c:\ws\096e.org, line 46 in declaration parameter 4:
Duplicate specification occurred for "%bodyele"; duplicate ignored
sgmls: In file included at \ws\9490.dtd, line 70:
In file included at c:\ws\096e.org, line 80:
Warning at i:\dt\784c.dtd, line 37 in declaration parameter 4:
Duplicate specification occurred for "%shorttitleuse"; duplicate ignored
sgmls: In file included at \ws\9490.dtd, line 70:
In file included at c:\ws\096e.org, line 80:
Warning at i:\dt\784c.dtd, line 45 in declaration parameter 4:
Duplicate specification occurred for "%shorttitle"; duplicate ignored
sgmls: In file included at \ws\9490.dtd, line 70:
In file included at c:\ws\096e.org, line 80:
Warning at i:\dt\784c.dtd, line 109 in declaration parameter 4:
Duplicate specification occurred for "%frnt"; duplicate ignored
sgmls: In file included at \ws\9490.dtd, line 70:
In file included at c:\ws\096e.org, line 80:
Warning at i:\dt\784c.dtd, line 126 in declaration parameter 4:
Duplicate specification occurred for "%titles"; duplicate ignored
sgmls: In file included at \ws\9490.dtd, line 70:
In file included at c:\ws\096e.org, line 80:
Warning at i:\dt\784c.dtd, line 139 in declaration parameter 4:
Duplicate specification occurred for "%step1con"; duplicate ignored
Warning at c:\ws\977j.dtd, line 57 in declaration parameter 4:
Duplicate specification occurred for "%sect"; duplicate ignored

sgmls: In file included at \ws\9490.dtd, line 70:
Warning at c:\ws\977j.dtd, line 59 in declaration parameter 4:
Duplicate specification occurred for "%ep"; duplicate ignored

sgmls: In file included at \ws\9490.dtd, line 70:
Warning at c:\ws\977j.dtd, line 62 in declaration parameter 4:
Duplicate specification occurred for "%frnt"; duplicate ignored

sgmls: In file included at \ws\9490.dtd, line 70:
Warning at c:\ws\977j.dtd, line 65 in declaration parameter 4:
Duplicate specification occurred for "%nparcon"; duplicate ignored

sgmls: In file included at \ws\9490.dtd, line 70:
Warning at c:\ws\977j.dtd, line 69 in declaration parameter 4:
Duplicate specification occurred for "%sedesc"; duplicate ignored

sgmls: In file included at \ws\9490.dtd, line 70:
Warning at c:\ws\977j.dtd, line 71 in declaration parameter 4:
Duplicate specification occurred for "%gsr"; duplicate ignored
Duplicate specification occurred for "%aprep"; duplicate ignored
Duplicate specification occurred for "%gproc"; duplicate ignored
Duplicate specification occurred for "%adesc"; duplicate ignored

TOTALCAP 161576
ENTCAP 13760
ENTCHCAP 13622
ELEMCAP 6144
GRPCAP 37120
EXGRPCAP 960
EXNMNCAP 1760
ATTCAP 63360
ATTCHCAP 1615
AVGRPCAP 22976
NOTCAP 96
NOTCHCAP 163
IDCAP 0
IDREFCAP 0
MAPCAP 0
LKSETCAP 0
LKNMNCAP 0
6.3 Sema Mark-it Parser Log

ATTcnt --100-- 48
ATTsplen --960-- 0
Bseqlen --960-- 0
Dtagnlen --16-- 0
Dtemplen --16-- 0
Entlvl --16-- 3
Grcnt --32-- 22
Grpgcnt --96-- 27
Grplvl --16-- 5
Litten --3048-- 747
Nameen --32-- 13
Normsep --2-- 0
Pilen --240-- 0
Taglen --960-- 0
Taglvl --24-- 0
Mdslvl --24-- 1
Totalcap --200000-- 170441
Entcap --200000-- 16992
Entchcap --70000-- 13690
Elemcap --70000-- 6144
Grpccap --70000-- 42688
Exgrpccap --70000-- 960
Exnmcap --70000-- 1760
Attcap --200000-- 63360
Attcap --70000-- 1615
Avgrpcap --70000-- 22976
Notcap --70000-- 96
Notchcap --70000-- 160
Idcap --70000-- 0
Idrefcap --70000-- 0
Mapcap --70000-- 0
Lksetcap --70000-- 0
Lknmcap --70000-- 0
6.4 D977J10.ORG

<!-- **************************************** START OF FILE **************************************** -->

<!-- SUPPLEMENT NOTICE: This file is made available to provide the user with a digital representation of the DTD found in Appendix D of MIL-M-5096E. This file is incomplete without MIL-M-5096E. -->

<!-- NOTE: The start and end of this file are marked with a row of asterisks. If these rows are not present the file may not be complete! -->

<!-- MIL-M-9977J Integrated Combat Turnaround Procedures Checklist DTD -->

<!-- The following set of declarations may be referred to by using a public entity as follows:

<!ENTITY % micturncl PUBLIC "-//USA-DOD//DTD MIL-M-9977J ICTCL//EN" >

%micturncl; -->

<!-- NOTE: In order to parse the following DTD subset alone, append the following statement to the beginning of the file:

<!DOCTYPE docicturncl [ and the associated "]>" to the end of the file. -->

<!-- ENTITY DECLARATIONS -->

<!ENTITY % bodyele "(turnbrief, prepmunprep, servload)" >

<!ENTITY % m5096cl PUBLIC "-//USA-DOD//DTD MIL-M-5096E CL//EN" >

<!ENTITY % frnt "(idinfo, lep, verstat?, contents, foreword, safesum?)" >

%m5096cl;

<!-- ELEMENT and ATTRIBUTE LIST DECLARATIONS -->

<!ELEMENT airprep -- (%titles;, prelim, (para | %spcpara;)*, (step1, step1+)?) >
<!ATTLIST airprep special NMTOKENS #IMPLIED
nr NMTOKENS #REQUIRED
tocentry %yesorno; "1"
shortentry %yesorno; "0"
verified %yesorno; "0"
%bodyatt;
%secur; >

<!ELEMENT airserv -- (%titles;, prelim, (para | %spcpara;)*,
(step1, step1+)?) >
<!ATTLIST airserv special NMTOKENS #IMPLIED
nr NMTOKENS #REQUIRED
tocentry %yesorno; "1"
shortentry %yesorno; "0"
verified %yesorno; "0"
%bodyatt;
%secur; >

<!ELEMENT authrestrict - o (%parcon:, subpara2*) >
<!ATTLIST authrestrict tocentry %yesorno; "1"
shortentry %yesorno; "0"
verified %yesorno; "0"
%bodyatt;
%secur; >

<!ELEMENT cursinsp -- (%titles;, prelim, (para | %spcpara;)*,
(step1, step1+)?) >
<!ATTLIST cursinsp special NMTOKENS #IMPLIED
nr NMTOKENS #REQUIRED
tocentry %yesorno; "1"
shortentry %yesorno; "0"
verified %yesorno; "0"
%bodyatt;
%secur; >

<!ELEMENT docicturncl -- (front, body) +(pgbrk | brk) >
<!ATTLIST docicturncl service %service; 'AF'
%docatt;
%secur; >

<!ELEMENT emergproc -- (%titles;, prelim, (para | %spcpara;)*,
(step1, step1+)?) >
<!ATTLIST emergproc special NMTOKENS #IMPLIED
nr NMTOKENS #REQUIRED
tocentry %yesorno; "1"
shortentry %yesorno; "0"
verified %yesorno; "0"
%bodyatt;
%secu; >

<!ELEMENT finalair -- (%titles; prelim, (para | %spcpara;)*,
 (step1, step1+)?) >
<!ATTLIST finalair special NMTOKENS #IMPLIED
nr NMTOKENS #REQUIRED
tocentry %yesorno; "1"
shortentry %yesorno; "0"
verified %yesorno; "0"
%bodyatt;
%secu; >

<!ELEMENT finalcp -- (%titles; prelim, (para | %spcpara;)*,
 (step1, step1+)?) >
<!ATTLIST finalcp special NMTOKENS #IMPLIED
nr NMTOKENS #REQUIRED
tocentry %yesorno; "1"
shortentry %yesorno; "0"
verified %yesorno; "0"
%bodyatt;
%secu; >

<!ELEMENT gensafreq -- (%titles; prelim, (para | %spcpara;)*, (step1, step1+)?) >
<!ATTLIST gensafreq special NMTOKENS #IMPLIED
nr NMTOKENS #REQUIRED
tocentry %yesorno; "1"
shortentry %yesorno; "0"
verified %yesorno; "0"
%bodyatt;
%secu; >

<!ELEMENT gunload -- (%titles; prelim, (para | %spcpara;)*,
 (step1, step1+)?) >
<!ATTLIST gunload special NMTOKENS #IMPLIED
nr NMTOKENS #REQUIRED
tocentry %yesorno; "1"
shortentry %yesorno; "0"
verified %yesorno; "0"
%bodyatt;
%secu; >
<!ELEMENT munitprep  -- (%titles;, prelim, (para |
     %spcpara;)*, (stepl, stepl+)?) >

<!ATTLIST munitprep special NMTOKENS #IMPLIED
  nr NMTOKENS #REQUIRED
toentry %yesorno; "1"
shortentry %yesorno; "0"
verified %yesorno; "0"
%bodyatt;
%secur; >

<!ELEMENT munitunld  -- (%titles;, prelim, (para |
     %spcpara;)*, (stepl, stepl+)?) >

<!ATTLIST munitunld special NMTOKENS #IMPLIED
  nr NMTOKENS #REQUIRED
toentry %yesorno; "1"
shortentry %yesorno; "0"
verified %yesorno; "0"
%bodyatt;
%secur; >

<!ELEMENT prepmunprep  -- (%titles;, scope, gensafreq,
  emergproc, suppequip, preposinsp,
  munitprep) +(figure | table |
  foldout) >

<!ATTLIST prepmunprep toentry %yesorno; "1"
shortentry %yesorno; "0"
%bodyatt;
%secur; >

<!ELEMENT preposinsp  -- (%titles;, prelim, (para |
     %spcpara;)*, (stepl, stepl+)?) >

<!ATTLIST preposinsp special NMTOKENS #IMPLIED
  nr NMTOKENS #REQUIRED
toentry %yesorno; "1"
shortentry %yesorno; "0"
verified %yesorno; "0"
%bodyatt;
%secur; >

<!ELEMENT priorlnch  -- (%titles;, prelim, (para |
     %spcpara;)*, (stepl, stepl+)?) >

<!ATTLIST priorlnch special NMTOKENS #IMPLIED
  nr NMTOKENS #REQUIRED
toentry %yesorno; "1"
shortentry %yesorno; "0"
verified %yesorno; "0"
%bodyatt;
%secur; >