



FEMA

**The Department of Homeland Security (DHS)
Federal Emergency Management Agency (FEMA)
National Training and Education Division (NTED)**

Registration and Evaluation System (RES)

**STANDARD OPERATING PROCEDURE (SOP) DOCUMENT FOR
CREATING DATA OUTPUT INTO XML FORMAT**

December 21, 2010

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1. Introduction

DHS National Training and Education Division (NTED) administers a number of programs that provide a wide array of support to our nation's emergency preparedness and response community. The Registration and Evaluation System (RES) will function as a comprehensive, centralized database of registration and course evaluation data. The system is expected to enhance stakeholders' current abilities to manage the data of sponsored courses, as well as expand current reporting capabilities.

1.1 Objective

Training Providers (TPs) will submit Registration, Level 1 Evaluation, and Level 2 Pre/Post Test average data in an XML file to the RES. This document will serve as the SOPs for creating an XML file. Its purpose is to provide TPs with the guidelines to create the output of data from their respective databases into a structured XML format.

2. XML Specifications

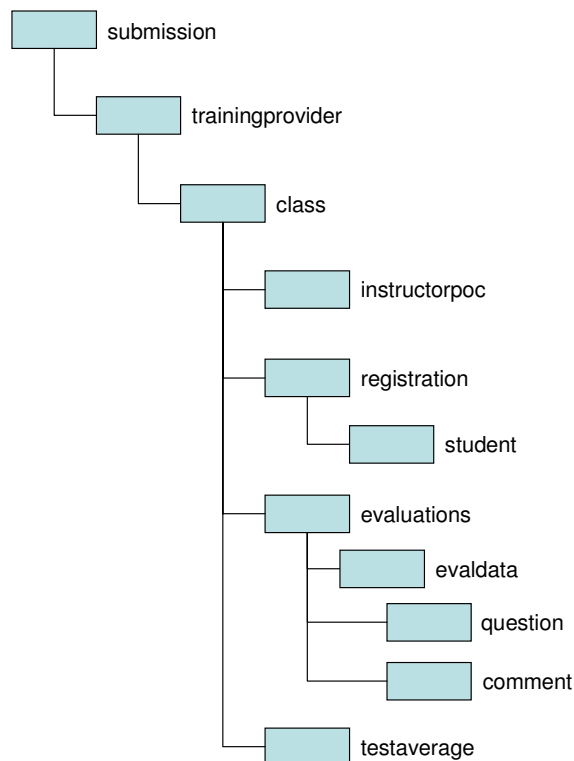
The XML must follow a specific format and structure. The following sections describe how the XML should be created, including the required elements and attributes along with the format of allowable values.

2.1 Document Type Definition (DTD) Layout

A Document Type Definition (DTD) defines the building blocks of an XML document. Please refer to the approved DTD structure in **Error! Reference source not found..** It defines the document structure with a list of elements and attributes. It describes the names that are used for the different types of elements, where they may occur, and how they all fit together. A DTD can be declared inside an XML document, or as an external reference.

The layout of the RES DTD is described in Figure 1 below. The blue boxes represent the elements and child elements. Each element can consist of multiple attributes and child elements. *The value for each attribute should be contained within double quotations (“”).*

Figure 1: RES DTD Layout



2.2 Required Attributes and Elements

As described in Figure 1, each blue box represents an element that consists of multiple attributes and multiple childelements. *Please OMIT if a value does not exist for any non-required attributes or elements.*

The **submission** element does not contain any attributes.

The **trainingprovider** element provides the general information of a training provider (TP) and requires the following attributes:

Table 1: Attributes of trainingprovider Element

Attribute	Field Size	Allowable Values	Required
tpid	VARCHAR2 (25)	APPENDIX B: TRAINING PROVIDER ABBREVIATIONS	Y
tpphone	NUMBER (10)	CDATA	Y
tpemail	VARCHAR2 (100)	CDATA	Y

The **class** element provides summary details of a class delivery. The *classtype* attribute is used to identify whether or not the delivery is an Instructor-led, Web-Based Domestic, or Web-Based International class. Depending on the *classtype* attribute, the following attributes are required:

Table 2: Attributes of class Element

Attribute	Field Size	Allowable Values	Required		
			Instructor-Led	Web-Based Domestic	Web-Based International
catalognum	VARCHAR2 (10)	ERROR! REFERENCE SOURCE NOT FOUND.	Y	Y	Y
classtype	VARCHAR2 (2)	- I - WD - WI	Y	Y	Y
classcity	VARCHAR2 (30)	CDATA	Y	Y	Y
classtate	VARCHAR2 (5)	APPENDIX C: U.S. STATE AND TERRITORY ABBREVIATIONS	Y	Y	OMIT

classzipcode	NUMBER (5)	CDATA	Y	Y	OMIT
classcountry	VARCHAR2 (5)	APPENDIX D: INTERNATION AL COUNTRIES	OMIT	OMIT	Y
startdate	DATE (MMDDYY YY)	CDATA	Y	Y	Y
enddate	DATE (MMDDYY YY)	CDATA	Y	Y	Y
starttime *must be military time	NUMBER (HHMM)	CDATA	Y	N	N
endtime *must be military time	NUMBER (HHMM)	CDATA	Y	N	N
numstudent	INTEGER	CDATA	Y	Y	Y
trainingmethod	VARCHAR2 (1)	- R - M - I - W	Y	Y	Y
contacthours	NUMBER (5)	CDATA	Y	N	N
preparerlastname	VARCHAR2 (50)	CDATA	Y	N	N
preparerfirstname	VARCHAR2 (50)	CDATA	Y	N	N
batchpreparerphone	NUMBER (10)	CDATA	Y	N	N
batchprepareremail	VARCHAR2 (50)	CDATA	N	N	N

The **class** element also consists of four child elements: **instructorpoc**, **registration**, **evaluations**, **testaverage**.

1. The **instructorpoc** element is required for instructor-led courses with the following attributes. Do not include this element for web-based courses.

Table 3: Attributes of instructorpoc Element

Attribute	Field Size	Allowable Values	Required
instlastname	VARCHAR2 (50)	CDATA	Y
instfirstname	VARCHAR2 (50)	CDATA	Y

Attribute	Field Size	Allowable Values	Required
instphone	NUMBER (10)	CDATA	Y
instemail	VARCHAR2 (225)	CDATA	N

2. The **registration** element contains the child element **student** and its associated attributes. The **registration** element is required for ALL class types.

2a. The **student** element provides general information of a student. The *international* attribute is used to identify whether or not the student type is Domestic or International. Depending on the value of the *international* attribute, the following attributes are required:

Table 4: Attributes of student Element

Attribute	Field Size	Allowable Values	Required	
			Domestic	International
international	VARCHAR2 (1)	- Y - N	Y	Y
studentlastname	VARCHAR2 (50)	CDATA	Y	Y
studentfirstname	VARCHAR2 (50)	CDATA	Y	Y
studentmi	VARCHAR2 (1)	CDATA	N	N
agency	VARCHAR2 (225)	CDATA	N	N
title	VARCHAR2 (100)	CDATA	N	N
address1	VARCHAR2 (100)	CDATA	N	N
address2	VARCHAR2 (100)	CDATA	N	N
address3	VARCHAR2 (100)	CDATA	N	N
studentcity	VARCHAR2 (50)	CDATA	Y	Y
studentzipcode	NUMBER (5)	CDATA	Y	OMIT
studentstate	VARCHAR2 (5)	APPENDIX C: U.S. STATE AND TERRITORY ABBREVIATIONS	Y	OMIT
studentcountry	VARCHAR2 (5)	APPENDIX D: INTERNATIONAL COUNTRIES	OMIT	Y
studentphone	NUMBER (25)	CDATA	Y	Y
studentemail	VARCHAR2	CDATA	N	N

	(100)			
discipline	VARCHAR2 (5)	CDATA	Y	Y
govnlevel	VARCHAR2 (2)	- L - S - DF - NF - NA	Y	Y

3. The **evaluations** element contains the child element **evaldata**. The element **evaldata** consists of two child elements: **question** and **comment**.

3a. The **question** element contains the following attributes:

Table 5: Attributes of question Element

Attribute	Field Size	Allowable Values	Required
id	INTEGER	1-23	Y
answer	INTEGER	0-5	Y

3b. The **comment** element contains the following attributes:

Table 6: Attributes of comment Element

Attribute	Field Size	Allowable Values	Required
id	INTEGER	24-27	Y
answer	VARCHAR2 (4000)	CDATA	Y

4. The **testaverage** element contains the following attributes:

Table 7: Attributes of testaverage Element

Attribute	Field Size	Allowable Values	Required
pretest	NUMBER (5)	CDATA	N
posttest	NUMBER (5)	CDATA	N

Please OMIT pretest and posttest attribute if data does not exist for it.

2.3. Special Characters

Some characters are reserved for internal use in the XML and Oracle database, thus the following characters must be replaced to prevent the XML from failing the validation process:

Table 8: Special Characters

Character	Replaced with
>	GREATER THAN
<	LESS THAN
&	AND
“ ”	‘ ’

%	PERCENT
---	---------

2.4. Output

There shall be one XML file per course. The XML shall be named in the following manner:

- TP_CourseNumber_Date_SequenceNumber.XML

Where TP is the training provider acronym, CourseNumber is the catalog number of the course held, and Date (mmddyyyy) is the current date of submission. For XML files that have the same file name, the TP shall add a sequence number to indicate that there are XML files with the same name but different data within it.

3. XML Submission to DHS NTED

3.1 Submission Via the RES

After successfully logging into the RES, the TP can submit the XML file to DHS through the Submission Module.

3.1.1 Submission Error Handling

The system will provide an immediate notification for the TP to determine if the XML file was successfully or unsuccessfully transmitted to the queue for processing.

Once the XML file is in queue, it will undergo a validation process to ensure that the XML meets all of the required elements and attributes.

If the RES determines that the XML does not meet the required elements and attributes, an email will be sent to the TP with a log summarizing the errors in the XML.

3.1.2 Resubmitting Via the RES

Once the TP has addressed the errors in the XML, the TP can re-submit the XML. The filename of the XML must be different from the previously submitted file. Either the date or the sequence number must be changed. The XML will once again undergo the validation process.

This cycle is repeated until the RES has determined that the XML has successfully passed the validation process and can be loaded into the RES database.

Appendix A: Acronym List

The table below lists the acronyms used in this document.

<i>Term/ Abbreviation</i>	<i>Description</i>
CDATA	Character Data
DHS	Department of Homeland Security
DTD	Document Type Definition
FEMA	Federal Emergency Management Agency
RES	Registration and Evaluation System
SOP	Standard Operating Procedures
NTED	National Training and Education Division
TP	Training Provider
XML	eXtensible Markup Language

Appendix B: Training Provider Abbreviations

<i>NTED Training Providers</i>	
<i>Official Abbrev.</i>	<i>Institution</i>
ACEP	American College of Emergency Physicians
AMA	American Medical Association
APRI	American Prosecutors Research Institute
ARC	American Red Cross
ASU	Arizona State University
BSC	Bulk Scanning Contractor
BSU	Ball State University
CDP	Center for Domestic Preparedness
CJI	Criminal Justice Institute - University of Arkansas System
CNA	The CNA Corporation
COSA	Council of State Historical Records Coordinators
CRD	Center for Rural Development
DART	Dartmouth College
DPG	Dugway Proving Ground
EKU	Eastern Kentucky University
EMU	Eastern Michigan University
FLETC	Federal Law Enforcement Training Center
FSU	Florida State University
GMU	George Mason University
GWU-NEMSPI	George Washington University - NEMSPI Program
GWU-NNEPI	George Washington University - NNEPI Program
GWU-READI	George Washington University - READI Program
HSI	Homeland Security Institute
IAAM	International Association of Assembly Managers Foundation
IACLEA	International Association of Campus Law Enforcement Administrators
IAFC	International Association of Fire Chiefs
IAFF	International Association of Firefighters
IRI	Inclusion Research Institute
KCC	Kirkwood Community College
LAMTA	Los Angeles County Metropolitan Transportation
LIU	Long Island University
LSU	Louisiana State University - National Center for Biomedical Research and Training
MEMPHIS	University of Memphis
MIPT	Memorial Institute for the Prevention of Terrorism
MOWAA	Meals on Wheels Association of America
MSU-CERT	Michigan State University - CERT Program
MSU-CIP	Michigan State University - CIP Program
MSU-INTEL	Michigan State University - Intelligence Program
MSU-WMD	Michigan State University - WMD Program
NCPSTA	

NDPCI	National Domestic Preparedness Coalition Incorporated
NLCI	National League of Cities Institute
NMT	New Mexico Tech - Energetic Materials Research and Testing Center
NPETE	National Partnership for Environmental Technology Education
NPS	Naval Post Graduate School
NSA	National Sheriffs Association
NSU	Northwestern State University
NTPI	National Terrorism Preparedness Institute
NTS	Nevada Test Site - Counter Terrorism Operations Support
NUARI	Norwich University
NW3C	National White Collar Crime Center
NWACC	NorthWest Arkansas Community College
SSD	Sacramento County Sheriff's Department
TDI	Telecommunications for the Deaf, Incorporated
TEEX	Texas Engineering Extension Service - National Emergency Response and Rescue Training Center
TEI	Training and Exercise Integration
TTCI	Transportation Technology Center, Inc.
UCDAVIS	University of California - Davis
UCONN	University of Connecticut
UDC	University of the District of Columbia
UH-NDPTC	University of Hawaii - National Disaster Preparedness Training Center
UIL	University of Illinois
UMB	University of Maryland Baltimore
UNLV	University of Nevada-Las Vegas
URI	University of Rhode Island/National Institute for Public Safety Research and Training
USM	University of Southern Mississippi
UT-CVM	University of Tennessee - College of Veterinary Medicine
UT-LEIC	University of Tennessee - Law Enforcement Innovation Center
UTSA	University of Texas at San Antonio
WCTC	Waukesha County Technical College
WEF	Water Environment Federation
WOU	Western Oregon University
WVU	West Virginia University
YALE	Yale

Appendix C: U.S. State and Territory Abbreviations

<i>State/Commonwealth Name</i>	<i>Abbreviation</i>
Alabama	AL
Alaska	AK
Arizona	AZ
Arkansas	AR
California	CA
Colorado	CO
Connecticut	CT
Delaware	DE
District of Columbia	DC
Florida	FL
Georgia	GA
Hawaii	HI
Idaho	ID
Illinois	IL
Indiana	IN
Iowa	IA
Kansas	KS
Kentucky	KY
Louisiana	LA
Maine	ME
Maryland	MD
Massachusetts	MA
Michigan	MI
Minnesota	MN
Mississippi	MS
Missouri	MO
Montana	MT
Nebraska	NE
Nevada	NV
New Hampshire	NH
New Jersey	NJ
New Mexico	NM
New York	NY
North Carolina	NC
North Dakota	ND
Ohio	OH
Oklahoma	OK
Oregon	OR

<i>State/Commonwealth Name</i>	<i>Abbreviation</i>
Pennsylvania	PA
Rhode Island	RI
South Carolina	SC
South Dakota	SD
Tennessee	TN
Texas	TX
Utah	UT
Vermont	VT
Virginia	VA
Washington	WA
West Virginia	WV
Wisconsin	WI
Wyoming	WY
<i>Territory</i>	<i>Abbreviation</i>
American Samoa	AS
Federal States of Micronesia	FM
Guam	GU
Marshall Islands	MH
Northern Mariana Islands	MP
Palau	PW
Puerto Rico	PR
U.S. Virgin Islands	VI
<i>Military</i>	<i>Abbreviation</i>
APO/FPO (AA)	AA
APO/FPO (AE)	AE
APO/FPO (AP)	AP

Appendix D: International Countries

<i>Abbreviation</i>	<i>Independent Country Name</i>
AF	Afghanistan
AL	Albania
AG	Algeria
AN	Andorra
AO	Angola
AC	Antigua and Barbuda
AR	Argentina
AM	Armenia
AS	Australia
AU	Austria
AJ	Azerbaijan
BF	Bahamas
BA	Bahrain
BG	Bangladesh
BB	Barbados
BO	Belarus
BE	Belgium
BH	Belize
BN	Benin
BT	Bhutan
BL	Bolivia
BK	Bosnia and Herzegovina
BC	Botswana
BR	Brazil
BX	Brunei
BU	Bulgaria
UV	Burkina Faso
BM	Burma
BY	Burundi
CB	Cambodia
CM	Cameroon
CA	Canada
CV	Cape Verde
CT	Central African Republic
CD	Chad
CI	Chile
CH	China
CO	Colombia
CN	Comoros
CF	Brazzaville, Congo
CG	Kinshasa, Congo
CS	Costa Rica
IV	Cote D'Ivoire

<i>Abbreviation</i>	<i>Independent Country Name</i>
HR	Croatia
CU	Cuba
CY	Cyprus
EZ	Czech Republic
DA	Denmark
DJ	Djibouti
DO	Dominica
DR	Dominican Republic
EC	Ecuador
EG	Egypt
ES	El Salvador
EK	Equatorial Guinea
ER	Eritrea
EN	Estonia
ET	Ethiopia
FJ	Fiji
FI	Finland
FR	France
GB	Gabon
GA	Gambia
GG	Georgia
GM	Germany
GH	Ghana
GR	Greece
GJ	Grenada
GT	Guatemala
GV	Guinea
PU	Guinea-Bissau
GY	Guyana
HA	Haiti
VT	Holy See
HO	Honduras
HU	Hungary
IC	Iceland
IN	India
ID	Indonesia
IR	Iran
IZ	Iraq
EI	Ireland
IS	Israel
IT	Italy
JM	Jamaica
JA	Japan
JO	Jordan
KZ	Kazakhstan
KE	Kenya
KR	Kiribati

<i>Abbreviation</i>	<i>Independent Country Name</i>
KN	North Korea
KS	South Korea
KU	Kuwait
KG	Kyrgyzstan
LA	Laos
LG	Latvia
LE	Lebanon
LT	Lesotho
LI	Liberia
LY	Libya
LS	Liechtenstein
LH	Lithuania
LU	Luxembourg
MK	Macedonia
MA	Madagascar
MI	Malawi
MY	Malaysia
MV	Maldives
ML	Mali
MT	Malta
MR	Mauritania
MP	Mauritius
MX	Mexico
MD	Moldova
MN	Monaco
MG	Mongolia
MJ	Montenegro
MO	Morocco
MZ	Mozambique
WA	Namibia
NR	Nauru
NP	Nepal
NL	Netherlands
NZ	New Zealand
NU	Nicaragua
NG	Niger
NI	Nigeria
NO	Norway
MU	Oman
PK	Pakistan
PM	Panama
PP	Papua New Guinea
PA	Paraguay
PE	Peru
RP	Philippines
PL	Poland
PO	Portugal

<i>Abbreviation</i>	<i>Independent Country Name</i>
QA	Qatar
RO	Romania
RS	Russia
RW	Rwanda
SC	Saint Kitts and Nevis
ST	Saint Lucia
VC	Saint Vincent and the Grenadines
WS	Samoa
SM	San Marino
TP	Sao Tome and Principe
SA	Saudi Arabia
SG	Senegal
RB	Serbia
SE	Seychelles
SL	Sierra Leone
SN	Singapore
LO	Slovakia
SI	Slovenia
BP	Solomon Islands
SO	Somalia
SF	South Africa
SP	Spain
CE	Sri Lanka
SU	Sudan
NS	Suriname
WZ	Swaziland
SW	Sweden
SZ	Switzerland
SY	Syria
TI	Tajikistan
TZ	Tanzania
TH	Thailand
TT	Timor-Leste
TO	Togo
TN	Tonga
TD	Trinidad and Tobago
TS	Tunisia
TU	Turkey
TX	Turkmenistan
TV	Tuvalu
UG	Uganda
UP	Ukraine
AE	United Arab Emirates
UK	United Kingdom
UY	Uruguay
UZ	Uzbekistan
NH	Vanuatu

Abbreviation	Independent Country Name
VE	Venezuela
VM	Vietnam
YM	Yemen
ZA	Zambia
ZI	Zimbabwe
TW	Taiwan

Abbreviation	Dependencies and Special Sovereignties
AX	Akrotiri
AV	Anguilla
AY	Antarctica
AA	Aruba
AT	Ashmore and Cartier Islands
FQ	Baker Island
BD	Bermuda
BV	Bouvet Island
IO	British Indian Ocean Territory
CJ	Cayman Islands
KT	Christmas Island
IP	Clipperton Island
CK	Cocos (Keeling) Islands
CW	Cook Islands
CR	Coral Sea Islands
DX	Dhekelia
FK	Falkland Islands
FO	Faroe Islands
FP	French Polynesia
FS	French Southern and Antarctic Lands
GI	Gibraltar
GL	Greenland
GK	Guernsey
HM	Heard Island and McDonald Islands
HK	Hong Kong
HQ	Howland Island
IM	Isle of Man
JN	Jan Mayen
DQ	Jarvis Island
JE	Jersey
JQ	Johnston Atoll
KQ	Kingman Reef
MC	Macau
MF	Mayotte
MQ	Midway Islands
MH	Montserrat
BQ	Navassa Island
NT	Netherlands Antilles
NC	New Caledonia

Abbreviation	Dependencies and Special Sovereignties
NE	Niue
NF	Norfolk Island
LQ	Palmyra Atoll
PF	Paracel Islands
PC	Pitcairn Islands
TB	Saint Barthelemy
SH	Saint Helena
RN	Saint Martin
SB	Saint Pierre and Miquelon
SX	South Georgia and the South Sandwich Islands
PG	Spratly Islands
SV	Svalbard
TL	Tokelau
TK	Turks and Caicos Islands
VI	British Virgin Islands
WQ	Wake Island
WF	Wallis and Futuna
WI	Western Sahara

Appendix E: Discipline Abbreviations

<i>Abbreviation</i>	<i>Discipline</i>
AGS	Agricultural Safety (Pre and Post Harvest)
AES	Animal Emergency Services
CV	Citizen/Community Volunteer
EM	Emergency Management
EMS	Emergency Medical Services
FS	Fire Service
GA	Governmental Administrative
HM	Hazardous Materials
HC	Healthcare
IT	Information Technology
LE	Law Enforcement
PSP	Private Sector / Corporate Security and Safety Professionals
PH	Public Health
PSC	Public Safety Communications
PW	Public Works
SR	Search & Rescue
TS	Transportation Security (Air, Water, Ground, Port)
OTH	Other