



Office of Classification  
and Export Control

## Lawrence Livermore National Laboratory

**LLNL's "USE TECHNOLOGY DATABASE" --- A NEW TOOL IN THE  
REVIEW OF DOE FOREIGN NATIONAL VISITORS AND ASSIGNEES**



**ECCO WORKSHOP, June 28, 2007**

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**Deputy for Export Control Operations**



## The Purpose of This Presentation is to...

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- **Announce our Laboratory's imminent public release of the newly implemented "USE Technology Database" as a licensed software package available to aid in the review of foreign national visitor and assignee export control liabilities.**
- **Demonstrate how the LLNL "USE Technology Database" operates and is updated.**
- **Provide an initial trial copy of the database to ECCO members for their limited use (30 days) along with information on "purchasing" in the future.**





## Previously... we addressed the NDA Act of 2000's requirement for yearly reports on technology export policies.

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In March, 2004 the DOC's Office of Inspector General (OIG) issued a Final Inspection Report "**Deemed Export Controls May Not Stop the Transfer of Sensitive Technology to Foreign Nationals in the U.S.**" Among it's recommendations to BIS:

- Modify the definition of "use" in the EAR to an **or** list (i.e. "...operation, installation, maintenance, repair, overhaul **and** refurbishing...")
- Ensure the academic, industrial, and Federal communities are "better informed" on the requirements for licensing deemed exports associated with equipment use "...even if the research conducted with that equipment is fundamental."
- Change the licensing criteria to include the consideration of a foreign nationals' country-of-origin.





## DOE's Response...

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DOE issued Order O 142.3 “**Unclassified Foreign Visits and Assignments**” on 6/18/04. Section 4.F.1.b and subsequent areas related to specific use reiterated “SMEs (Subject Matter Experts) will review requests for foreign national visits and assignments when required... (to) include... Export control determination of export license requirements and technology transfer...”

This was supposed to further support the one page information sheet issued as a supplement to “**DOE Guidelines on Export Control and Nonproliferation**” issued 07/99 which states “...Proper identification of sensitive subjects is essential to determine whether an export license is required... to transfer export-controlled technology to a foreign national within the U.S. as a “deemed export.”





## Reviews at LLNL under the Visitor Tracking System (VTS)

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Current Export Control and Sensitive Subjects reviews are largely based on a single **narrative description** provided by a foreign national's assigned Host in the space provided by the open field "Purpose and Justification of Visit/Assignment."

Considered in light of other supporting factual data (i.e. visa status, citizenships, country of origin, project area, duration of visit or assignment, etc.) an initial determination is made whether to request further detail from the Host to support a more accurate licensing assessment .

We have found that the information most often lacking relates to describing **the actual equipment/machine access and use** resulting in much additional time-consuming dialogue between the Host and our offices' reviewers.





## On Further Review...

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...And after intense work by William Fritchie, we have developed a new tool to assist the process; a pull-down menu which step-by-step guides the Host in accurately describing the technology areas involving the operation, installation, maintenance and/or repair of equipment expected to be used by, or readily accessible to, the foreign national during their work assignment.

The end product is a list of ECCN Commerce Control List designators **specific to the country involved** which is then appended to the usual narrative work description section.

While obviously not all-inclusive when considered over a long assignment, this represents an important step toward identifying the major “use” areas which may be of concern, and provides our Subject Matter Experts with a firm starting point for additional inquiry if necessary.





Privacy & Legal Notice



Lawrence Livermore National Laboratory  
**Export Control**



Safeguards & Security Organization



**Office of Classification and Export Control**  
**(925) 422-4401**

- Policy
- Key Topics & Definitions
- Exports in the Workplace
- Roles & Responsibilities
- Guidance
- Resources
- Sensitive Subjects
- Sensitive Subject Contacts
- USE Technology Database
- Bulletins
- Search

Export controls are designed to protect items and information important to maintaining the technical lead of industries in the United States. They are based on government rules and regulations that govern the transfer of commodities, technologies, and software/codes to non-U.S. entities or individuals.

The purpose of this Web site is to provide you with the information that you will need to comply with export controls. What they are. Why they are important. And, how they apply to you as LLNL employees, and the Laboratory as a whole. It's important to remember that any export control analysis must be performed **after** the document has been determined to be unclassified by an authorized derivative classifier (ADC) who has completed the classification review.

As LLNL employees, you are **not** expected to become experts on export controls. But you are expected to be aware of their existence, to know when a work situation poses export control considerations, and—most importantly—when and where to get guidance and assistance on export control matters.

This Web site is intended to raise awareness about export controls and contains reference material primarily for the use of LLNL employees and Laboratory programs. It is designed to answer questions and provide information and resources at Lawrence Livermore National Laboratory.

This Web site is **not** intended to serve as guidance for outside organizations. For information regarding

- **Classification issues**, see the [Office of Classification and Export Control](#) (Internal Laboratory use only)
- **Unclassified controlled information**, see [Unclassified Controlled Information, LLNL/LANL](#) (Internal Laboratory use only)
- **Sensitive countries**, see the [DOE List of Sensitive Countries, SAFE](#) (Internal Laboratory use only).

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DNT Webmaster



For further information, contact:  
Office of Classification & Export Control  
(925) 422-4401





## Export Control



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### USE Technology Database

The Department of Commerce / Bureau of Industry and Security's Export Administration Regulations (EAR) defines "technology" as "specific information necessary for the development, production, or use of a product." It also defines "fundamental research" as "basic and applied research in science and engineering where the resulting information is ordinarily published and shared broadly within the scientific community."

The EAR further defines "use technology" as specific information necessary for the "**operation, installation (including on-site installation), maintenance (checking), repair, overhaul and refurbishing**" of controlled hardware or software.

These definitions lead to one of the more confusing and controversial questions regarding export control. How does technology, specifically "use technology", relate to fundamental research?

Fundamental research is exempt from export control, but this fundamental research exception applies only to information that arises during or results from the research. **There is no blanket exemption for all information that is transferred in the context of such research.**

Here at LLNL, technology for the "development" or "production" of LLNL equipment is tightly controlled and usually not required or shared during the course of fundamental research. Technology for the "use" of LLNL equipment, however, may be made available to a foreign national as a means to achieve the results of their research.

For example, a foreign national conducting laser-target physics experiments may require the "use technology" for the laser or specially designed targets during the course of the experiments. The effort is considered fundamental research, but the "use technology" is export controlled.

The USE Technology Database was constructed for LLNL Hosts of Foreign National employees (without Lawful Permanent Resident status) to assist the Office of Classification and Export Control in determining whether a deemed export license requirement is triggered when transferring "use technology", especially in the pursuit of fundamental research.

Bear in mind that the EAR does not regulate the operation of controlled hardware or software by a foreign national. Rather, it does regulate the release of "use technology" to a foreign national, which includes **ALL** of the attributes of "use" (i.e., operation, installation, maintenance, repair, refurbishing and overhaul).

**If the foreign national has access only to the technology that is necessary to operate the controlled hardware and software, a release of "use technology" has not occurred and no deemed export license requirement is triggered.**





## For Hosts/Users: an explanation of the “Categories” purpose...

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### Technology Categories Relating To The Use of Equipment

“The information you provide will be screened by Export Control specialists to determine if there is a need for further review regarding use of the technology listed and regulatory restrictions. In almost all cases, no further action will be required. If further action is required, the office of Classification and Export Control will provide the means for obtaining any necessary license or exemption documentation required for allowing the Visit/Assignment to continue as planned.

It is equally important to remember that foreign nationals holding the visa status of Lawful Permanent Resident (LPR) are considered US Persons and - like US Citizens - exempt from export control restrictions. This is why it is unnecessary to complete this section of the form for those individuals.”





## For Hosts/Users... (cont.)

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“Besides the more commonly known transfer of a physical commodity, an export may be deemed to have taken place when an item’s technical information or technology is released to a foreign national in the United States during use. Identifying such “Deemed Exports” of technology is an important part of the Laboratory’s adherence to US export control requirements.

The term “technology” used by export control agencies is usually defined as “...specific information necessary for the design, production or use of a product...” Based on this, we are obligated to look closely at the specific criteria surrounding the “use” of certain technical equipment we know to be export controlled to certain countries (and, by extension, their citizens).

It is important to remember that the actual use of equipment by a foreign national is **not** controlled, rather, it is the **transfer of technology related to the use** of that equipment which may be controlled.





## Export Control



Safeguards &  
Security Organization



### Welcome to the USE Technology Database

The USE Technology Database was constructed for LLNL Hosts of Foreign National employees (with other than a Lawful Permanent Resident status) to assist the Office of Classification and Export Control in determining whether a deemed export license requirement is triggered when transferring "use technology", especially in the pursuit of fundamental research.

Bear in mind that the EAR does not regulate the operation of controlled hardware or software by a foreign national. Rather, it does regulate the release of "use technology" to a foreign national, which includes **ALL** of the attributes of "use" (i.e., operation, installation, maintenance, repair, refurbishing and overhaul).

**If the foreign national has access only to the technology that is necessary to operate the controlled hardware and software, a release of "use technology" has not occurred and no deemed export license requirement is triggered.**

[Click Here](#) to continue on to Step 1, Country Selection

[Click Here](#) to return to the Export Control home page





## USE Technology Database

[Click Here](#) to return to the  
Export Control home page

Step 1. Select the Foreign National (FN) Visitor's country:

[Click Here](#) to continue on to Step 2.

 Discard Country Selection &  
Return to the 'Welcome' Page





## USE Technology Database

[Click Here](#) to return to the  
Export Control home page

Selected Country: **Venezuela**

Step 2. Select ALL potential Use Technology Areas based upon the Foreign National's Statement of Work

-- Review ALL Tabs --

When all selections have been made, [Click Here](#) to continue on to Step 3.

Discard Category Selections &  
Return to Country Selection Page

Category 0	Cat. 1A,B	Cat. 1C,D	Cat. 2A,B	Cat. 2D	Cat. 3	Cat. 4	Cat. 5	Cat. 6A	Cat. 6B,D,E	Cat. 7	Cat. 8	Cat. 9
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**Category 0 - Technology for the USE of Nuclear Materials, Facilities, and Equipment (and miscellaneous items)**, specifically

**Part 0A – Systems, Equipment and Components**, to include:

- Subpart 0A00X** – Reactors and power generating equipment.
- Subpart 0A01X** – Miscellaneous military construction equipment, ammunition parts and components, and black powder firearms.
- Subpart 0A9XX** – Bayonets.

**Part 0B – Test, Inspection and Production Equipment**, to include:

- Subpart 0B00X** – Plant / production equipment for isotope generation, uranium conversion, heavy water, deuterium, fuel elements and reprocessing.

**Part 0C – Materials**, to include:

- Subpart 0C00X** – Natural or depleted uranium, thorium, special fissile materials, deuterium, heavy water, graphite and nickel.
- Subpart 0C201** – Specially prepared compounds or powders, other than nickel, resistant to corrosion by UF<sub>6</sub>

**Part 0D – Software**, to include:

- Subpart 0D00X** – Software specially designed or modified for the development, production or use of equipment controlled by **0A00X**, **0B00X**, **0C00X**, and **0C201**





## USE Technology Database

[Click Here](#) to return to the  
Export Control home page

**Selected Country: Venezuela**

Step 2. Select ALL potential Use Technology Areas based upon the Foreign National's Statement of Work  
**-- Review ALL Tabs --**

When all selections have been made, [Click Here](#) to continue on to Step 3.



Category 0	Cat. 1A,B	Cat. 1C,D	Cat. 2A,B	Cat. 2D	Cat. 3	Cat. 4	Cat. 5	Cat. 6A	Cat. 6B,D,E	Cat. 7	Cat. 8	Cat. 9
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### Category 3 - Technology for the USE of Electronics, specifically

**Part 3A – Systems, Equipment and Components**, to include:

- Subpart 3A001** – General purpose integrated circuits, high-energy storage capacitors, superconductive electromagnets and solenoids
- Subpart 3A101** – A-D converters for missiles, bremsstrahlung radiation-producing accelerators for missiles
- Subpart 3A201** – Pulse discharge capacitors, superconducting solenoidal electromagnets, flash X-ray generators and certain pulsed electron accelerators
- Subpart 3A22X** – Frequency changers, high-power and high-voltage direct current power supplies, switching devices and firing sets
- Subpart 3A23X** – High-current and high-speed pulse generators, neutron generators, detonators, multi-point initiation systems and mass spectrometers
- Subpart 3A29X** – Oscilloscopes and transient recorders
- Subpart 3A98X** – Voice print identification equipment and polygraphs

**Part 3D – Software**, to include:

- Subpart 3D101** – Software specially designed or modified for the use of equipment controlled by 3A101





## USE Technology Database

[Click Here](#) to return to the Export Control home page

Found **7** matching Technology Controls for **Venezuela**

Step 3. Select the specific technologies to which the Foreign National Visitor will have access from Tabs **1 - 2**, below:

When all selections have been made, [Click Here](#) to continue on to Step 4.

Discard Technology Selections & Return to Category Selection Page

1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39 40 Tabs 41 +																																								
You have selected 2 of 7 matching Technology Controls																																	Hardware/Software ECCN	Use Technology ECCN	Control					
Description																																								
<input checked="" type="checkbox"/>	Electronic components, other than those controlled by <b>3A001.e.2</b> [ <i>High energy storage capacitors, as follows: (a) capacitors with a repetition rate &lt;10Hz (single shot capacitors) having ALL of the following: (a.1) a voltage rating ≥5KV, (a.2) an energy density ≥250J/kg, AND (a.3) a total energy ≥25KJ, (b) capacitors with a repetition rate of ≥10Hz (repetition rated capacitors) having ALL of the following: (b.1) a voltage rating ≥5KV, (b.2) An energy density ≥50J/kg, (b.3) a total energy ≥100J, AND (b.4) a</i>																																	3A201AXXXX-01	3E201	NP1				
<input type="checkbox"/>	Electronic components, other than those controlled by <b>3A001.e.3</b> [ <i>Superconductive electromagnets and solenoids specially designed to be fully charged or discharged &lt;1s, having ALL of the following: (a) energy delivered during the discharge &gt;10KJ in the first second, (b) inner diameter of the current carrying windings &gt;250mm, AND (c) rated for a magnetic induction &gt;8T or overall current density in the winding &gt;300A/mm<sup>2</sup>], as follows: superconducting solenoidal electromagnets having ALL of the</i>																																	3A201BXXXX-01	3E201	NP1				
<input checked="" type="checkbox"/>	Electronic components, as follows: flash X-ray generators or pulsed electron accelerators having EITHER of the following sets of characteristics: (1) an accelerator peak electron energy 500KeV≤E<25MeV, with a figure of merit, K≥0.25 [K=1.7x10 <sup>3</sup> V <sup>2.65</sup> Q], OR (2) an accelerator peak electron energy of ≥25MeV, and a peak power >50MW.																																	3A201CXXXX-01	3E201	NP1				
<input type="checkbox"/>	High-speed pulse generators having BOTH of the following characteristics: (a) output voltage >6V into a resistive load of <55Ω, AND (b) pulse transition time <500ps.																																	3A230XXXXX-01	3E201	NP1				
<input type="checkbox"/>	Neutron generator systems, including tubes, having BOTH of the following characteristics: (a) designed for operation without an external vacuum system, AND (b) utilizing electrostatic acceleration to induce a tritium-deuterium nuclear reaction.																																	3A231XXXXX-01	3E201	NP1				





## USE Technology Database

[Click Here to return to the Export Control home page](#)

### Found 7 matching Technology Controls for Venezuela

Step 3. Select the specific technologies to which the Foreign National Visitor will have access from Tabs 1 - 2, below:

When all selections have been made, [Click Here](#) to continue on to Step 4.

Discard Technology Selections & Return to Category Selection Page

1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39 40 Tabs 41 +																																								
You have selected 2 of 7 matching Technology Controls																																	Hardware/Software ECCN	--- Use Technolog --- ECCN Control						
Description																																								
<input type="checkbox"/> Detonators and multipoint initiation systems, as follows: (a) electrically driven explosive detonators, as follows: (1) exploding bridge, (2) exploding bridge wire, (3) slapper, (4) exploding foil initiators, (b) arrangements using single or multiple detonators designed to nearly simultaneously initiate an explosive surface over an area >5000mm <sup>2</sup> from a single firing signal with an initiation timing spread over the surface <2.5µs.																																	3A232XXXXX-01	3E201	NP1					
<input type="checkbox"/> Mass spectrometers, other than those described in <b>0B002.g</b> [ <i>UF<sub>6</sub> mass specs/ion sources specially designed or prepared for taking on-line samples of feed, product or tails from UF<sub>6</sub> gas streams and having ALL of the following characteristics: (1) unit resolution for mass &gt;320amu, (2) ion sources constructed of or lined with nichrome, monel, or nickel plated, (3) electron bombardment ionization sources, AND (4) collector system suitable for isotopic analysis</i> ], capable of measuring ions of ≥230amu																																	3A233XXXXX-01	3E201	NP1					





## USE Technology Database

[Click Here](#) to return to the  
Export Control home page

You have selected **2 of 7** matching Technology Controls for Venezuela

Step 4. Select ALL of the text in the box below, then 'Copy' the text to your computer's clipboard and go to Step 5.

Text may be selected by clicking in the field and choosing 'Select All' from the browser's 'Edit' menu, or by clicking and dragging the cursor to the bottom of the field, which will automatically scroll if necessary.

3A201AXXXX-01, 3E201, NP1  
3A201CXXXX-01, 3E201, NP1

 [Return to Previous Page](#)  
to View or Change Selections

Step 5. Go to the VTS form for your Foreign National and paste the text into the Visit/Assignment Purpose Statement (Block 14 (LLNL-6333) or Block 45 (IA-473)).

Step 6. You're Done! If you have more Foreign National visit requests to review, [Click Here](#) to return to the Country Selection Page. Otherwise, please

[Click Here](#) to return to the Export Control home page

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## Limitations

- **The USE Technology Database is current as of the date of distribution.** The user must ensure updates are entered into the database via the supplied database Maintenance pages. A special administrator account is provided in the database for this purpose that is not accessible to other users. The data can be obtained from the Department of Commerce / Bureau of Industry and Security's Export Administration Regulations web site:  
[http://www.access.gpo.gov/bis/ear/ear\\_data.html](http://www.access.gpo.gov/bis/ear/ear_data.html)
- The USE Technology Database *does not* address controls applicable to Foreign Nationals from Embargoed and/or Terrorist Supporting Countries, to wit: **Cuba, Iran, North Korea, Sudan and Syria**. In these cases, a full export control review by the user's Legal / Export Control department is recommended.





## Limitations

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- **THIS IS A LIMITED-PERIOD DEMONSTRATION VERSION.**

Full database operation and maintenance are permitted during the demonstration period of 30 days or 300 log ins. After the demonstration period has ended, you will no longer be able to use the database. A licensed version is expected to be available in September, 2007. See section in ReadMe “How to Contact Us” for information on licensing.
- Separate pricing for non-government purchasers (universities, commercial operations) is currently under review for September’s release.





## Computer Requirements

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- **Macintosh**

- Macintosh computer with a PowerPC G3, G4, G5 processor or Intel processor / 256MB of RAM / CD or DVD drive and hard disk drive / Macintosh OS X (10.3.9 or greater) for PowerPC processors / Macintosh OS X (10.4.5 or greater) for Intel processors

- **Windows**

- Pentium III 500 MHz or higher / 256MB of RAM / CD or DVD drive and hard disk drive / SVGA (800x600) or higher resolution video adapter and display / Windows 2000 (Service Pack 4) or Windows XP Professional Edition (Service Pack 2)





## System Requirements

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**The USE Technology Database is a FileMaker Pro 8.0/8.5 database application that may be used in several possible configurations:**

**Single-user application** Installed directly on Windows or Mac OS X desktop, laptop, or tablet computers. FileMaker Pro 8.0 or greater is required (8.5 recommended). See below for computer requirements.

**Multi-user FileMaker client application** Requires a networked host computer running FileMaker Pro 8.0 or greater (supports up to 5 users) or FileMaker Server 8 [version 8.0v4 or later] (supports up to 250 users). All database users will need FileMaker Pro 8.0/8.5 installed on their computers.





## System Requirements

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**Multi-user web browser client application** Requires a networked host computer running FileMaker Pro 8.5 (supports up to 5 concurrent web users) or FileMaker Server 8 Advanced [version 8.0v4 or later] (supports up to 100 concurrent web users). Web users do not need to have FileMaker Pro installed to access the database. See below for web browser compatibility requirements.

A free, 30-day trial version of FileMaker Pro 8.5 may be downloaded from FileMaker Inc. at the following web site:

<http://www.filemakertrial.com/>





## Browser Requirements

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- **Macintosh OS X**

- Safari 1.3 or later (Mac OS X 10.3.x)
- Safari 2.0 (Mac OS X 10.4.x)
- Firefox 1.x

**Note:** Mozilla 1.7.x and Netscape 6/7 are **not compatible** (i.e. checked boxes do not display)

- **Windows XP or Windows 2000**

- Internet Explorer 6 and later
- Firefox 1.x





## Maintaining the Database

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For database administrator privilege users, the database opens to the database maintenance menu. From this menu, the administrator privilege user can view and update the two internal data tables that hold the information on countries, license controls, and technology controls. The menu choices and their functions are described below:

- **Menu Button: Country & License Controls Matrix – Maintenance View**
- **Menu Button: Technology Controls List – Maintenance View**
- **Menu Button: Use the Database – Go to the ‘Welcome’ Page**
- **Menu Button: ‘Return to’ URL upon Web User exit from the database**





## Free 30-Day Demonstration Access

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LLNL's "USE Technology Database" will be available at no cost to qualifying U.S. Government Agencies exclusively through the LLNL "Industrial Partnerships and Commercialization" (IPAC) web site:

<http://www.llnl.gov/IPandC/technology/software/index.php>

### To access:

1. Click in Menu on "Software Available for Licensing"
2. Click on "Other Applications"
3. Optional: Click on "Free 30-day trial of Filemaker Pro 8.5"
4. Click on "USE Technology Database Download"





## Questions? Problems? Points of Contact...

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### **For questions, comments, or further information on Licensing:**

Industrial Partnerships and Commercialization, End User Licensing

Lawrence Livermore National Laboratory

E-Mail: [softwarelicensing@lists.llnl.gov](mailto:softwarelicensing@lists.llnl.gov)

Main Phone: (925) 422-6416    FAX: (925) 423-8988

**Software/Installation support :** James Branum (925) 422-6766

**ECCN Content:** William Fritchie (925) 422-4406

