2011 Los Alamos Computer Codes (LA-CC)

LA-CC #	C#	Software Title	Software Description	Date
11-001	C11036	Radiographic Processing Lab (RadLab), Version 1.0.0	Image display, analysis and processing code that includes standard image processing functions as well as custom functions designed for analysis of Proton Radiography images. The code also includes a radiographic forward modeling and Monte Carlo capability.	1/3/2011
11-002	C11037	Xilinx FPGA MGT Test Suite, Version 1.0	The test suite consists of 'C' code and Filed Programmable Gate Array (FPGA) code for testing reliability of serial multi-gigabit transceivers (MGTs) in Xilinx commercial FPGA integrated circuits (ICs). The FPGA code consists of two major parts. Part one of the FPGA code is intended for the printed circuit board (PCB) with the FPGA that is designated as the design under test (DUT). Part two of the FPGA code is intended for the PCB with the FPGA that controls the test (a.k.a. the functional monitor or "funcmon"). The 'C' code also consists of two parts. Part one is the code intended for an embedded microprocessor on the "funcmon" PCB. Part two is the code used on a laptop personal computer (PC) to send commands to and collect data from the "funcmon" PCB. The executable of the C code for the laptop PC is a simple text-based user interface (UI). No user manual exists for any of the code.	1/3/2011
11-003	C11038	Viscoplastic Fast Fourier Transform-based (VPFFT) code, Version 1.0	VPFFT is a Fortran code written by Ricardo A. Lebensohn (MST8), based on the solution of governing equations (equilibrium and compatibility) in terms of the Green function method and the FFT algorithm, for the calculation of the micromechanical fields that develop in 3-D polycrystals deforming in the viscoplastic regime. VPFFT can use input from numerically-generated or measured orientation images of the polycrystalline microstructure. The theory behind the code can be found in: R.A. Lebensohn et al, Acta Mater, 56, 3914 (2008).	1/10/2011
11-004	C11039	Grok on the Spot, Version 1.0	A distribution/firmware for inline packet capture with commodity hardware such as NAS devices. Booting from built-in flash, external storage device (such as a USB flash drive), or hard drive, a machine comes up configured to do pass-through or endpoint packet capture. By sending a "magic packet" to the monitored machine, an administrator is able to bring the device up with an IP address, log in, and examine or download captures, unmount volumes, or other administrative tasks.	1/10/2011
11-005	C11040	Dirtbags Tiny Linux, Version 1.0	A Linux "rescue" distribution, with minimal functionality, intended to provide emergency recovery commands, wipe hard drives, repair damaged file systems, back up disks, etc. It also provides a mechanism to include packaged software, useful for running embedded environments with a standard base OS.	1/10/2011
11-006	C11041	LANL Capture the Flag, Version 1.0	Computer security competition framework and puzzles, suitable for running trainings or exercises. The puzzles consist of traditional exercises and live interactive challenges. The framework contains a scoreboard, puzzle scoring server, web and chat servers, and token server for integration with add-on external puzzles.	1/10/2011
11-007	C11042	Blend-Down Monitoring System (BDMS), Version 1.2.4.1	This code is used to acquire spectroscopic data from up to three Ortec DigiDarts MCAs, to save the data for the future analysis, and to analyze the collected data to provide enrichment information when monitoring UF6 gas in pipes.	1/18/2011
11-008	C11043	getMirFiles.sh, Version 0.x	Code will allow a user to download files collected from a file acquisition job and store them by host ID from a Mandiant Intelligent Response server.	1/20/2011
11-009	C11044	DumpMemory, Version 0.x	Code will allow a user of EnCase to dump the memory device object to a flat image file instead of a EWF file.	1/20/2011
11-010	C11045	HE Collection, Version 0.x	Code will allow a user of EnCase to automate the collection of commonly collected forensic evidence from an acquired image.	1/20/2011
11-011	C11046	NE Collection, Version 0.x	Code will allow a user of Encase Enterprise to automate the collection of commonly collected forensic evidence from a network connected host.	1/20/2011
11-012	C11047	RegScan, Version 0.x	Code will allow a user of EnCase to scan the registry of hosts connected to the network with an EnCase servlet installed and look for folders, keys, values and sizes.	1/20/2011
11-013	C11048	FileStacker, Version 0.x	Code will allow a user of EnCase to scan the file system of hosts connected to the network with an EnCase servlet installed and look for file metadata and if conditions are met to the specified metadata the script will store the metadata of the file to a text file.	1/20/2011

11-014	C11049	Global Security Highlights Model, Version 1.1.	The model covered by this request includes a fabricated Mixed Oxide nuclear facility with generic material processing stations in place. The model includes descriptions and models of hardware and technology developed by LANL and used by the IAEA for implementing nuclear safeguards systems across the world. The model is intended as a proof of concept for capabilities within LANL and the Threat Reduction directorate.	1/24/2011
11-015	C11050	Mock Light Water Reactor Model, Version 0.x	The model depicts generic operations at a mock light water reactor. The model was developed in support of a course being taught at Penn State University by Los Alamos National Laboratory on the subject of Nuclear Safeguards Inspections techniques. All operations and activities depicted are fabricated based on direction received from the instructor for the Penn State course.	1/25/2011
11-016	C11051	Cerenkov Core Model, Version 0.x	The model depicts generic views of a spent fuel pond as seen through a Cerenkov viewing device used by the International Atomic Energy Agency in the conduct of nuclear treaty verification inspections. The views are fabricated for training purposes. The model was developed in support of a course being taught at Penn State University by Los Alamos National Laboratory on the subject of Nuclear Safeguards Inspection techniques. All operations and activities depicted are fabricated based on direction received from the instructor for the Penn State course.	1/24/2011
11-017	C11052	Genome Majority Vote (GMV), Version 0.x	The GMV pipeline works as follows. Input is a set of genomes. The pipeline runs PRODIGAL gene predictions on all genomes, runs pan-reciprocal BLAST, and identifies ortholog sets. For a given set of orthologous genes, if the positions of the PRODIGAL selected starts coincide in a multiple sequence alignment, they are accepted. If they do not coincide, a consistent start position is sought where a majority of the highest-scoring PRODIGAL selected sites coincide. If such a position is found, it is accepted, and the predictions are changed for the outlying genes. Otherwise, no start site prediction is made for the ortholog set.	1/26/2011
11-018	C11053	CGM, Version 3	CGM (Cascading Gamma-ray and Multiplicity) is a statistical Hauser-Feshbach code that calculates neutron and gamma-ray emissions from a given nuclear excited state. The code calculates the Hauser-Feshbach compound nucleus model in two different ways. The first method is a conventional deterministic method, in which all probabilities of neutron and gamma-ray emissions are integrated. Alternatively, CGM simulates the neutron and gamma-ray emission decay using Monte Carlo techniques. Both methods provide neutron and gamma-ray energy spectra, together with their multiplicities. CGM can be used for nuclear structure and reaction studies, calibrations of radiation detectors, and as an event generator for radiation transport calculations.	1/28/2011
11-020	C11056	List Mode File-Based Neutron Coincidence Counting	This Windows C++ software application analyzes "List Mode" neutron data files, created by N Division's List Mode Multiplicity hardware devices. The code performs traditional neutron multiplicity counting and related analyses following the techniques found in the N Division INCC code (LA-CC-10-092), augmented with additional published techniques, such as those of Hage and Cifarelli and Dytlewski, See D.M. Cifarelli and W. Hage, "Models for a Three-Parameter Analysis of Neutron Signal Correlation Measurements for Fissile Material Assay," Nuclear Instr. Methods, A251, pp 550-563 (1986) , and N. Dytlewski, "Dead-time corrections for multiplicity counters," Nucl. Instr. Meth. A305, pp. 492-494 (1991).	2/10/2011
11-021	C11055	mm.f	Code predicts explosion seismic spectra based on Mueller and Murphy, Bull. Seism. Soc. Am., 61, 1675-, 1971.	2/11/2011
11-022	C11060	HYDROX, Version 3.0	HYDROX is a one-dimensional Lagrangian hydrodynamics computer code allowing planar, cylindrical, or spherical symmetry. Given one or more materials and their initial conditions (e.g. equations of state, chemical reaction models, initial velocity, thermodynamic state), HYDROX calculates the evolution of the mechanical and continuum hydrodynamic state of each material using automatic time steps, zoning, and rezoning capabilities. The underlying hydrodynamic and equation of state theory, as well as reaction models (e.g. gamma-law, forest fire, etc.) are available as unlimited release in LA-08642-M.	2/23/2011
11-023	C11061	EOSlib, Version 2.0	EOSlib and package: Routines provide the following capabilities: Fetch material parameters from a database file(s) and to change units; evaluate thermodynamic quantities for various EOS fitting forms (stiffened gas, Mie-Gruneisen, etc.), calculate shock, isentrope and isotherm loci for an inert and detonation and deflagration loci for an explosive, solve Riemann problem for two materials with different EOS. Two additional components are used in conjunction with the AMRITA environment: an EOS plugin that allows AMRITA to access the EOS library and a 1-D Lagrangian patch integrator for the reactive hydro flow equations. This allows for multi-material simulations using AMRITA's adaptive mesh refinement solver engine (amrsol).	2/23/2011

11-024	C11057	Two Sample T-Test for Comparing Genetic Sequence Diversity	Given two samples of sequences, for which the user provides an input file with corresponding genetic distances (pairwise), the program performs a t-test to see whether the two mean genetic distances are significantly different.	2/24/2011
11-025	C11058	File Scrub, Version 2.0 Beta	Updated version of File Scrub document review system with new user interface. Http://filescrub.lanl.gov	2/24/2011
11-026	C11059	Hardware-Accelerated Cosmology Code (HACC)	HACC is a computational cosmology code to follow the evolution of structure in the Universe. It uses N-body techniques to simulate the formation of structure in collisionless fluids under the influence of gravity in an expanding universe. The code has been implemented on cell-accelerated hardware as well as on GPU clusters. The code is described in two papers: 1) A. Pope, S. Habib, Z. Lukic, D. Daniel, P. Fasel, N. Desai, K. Heitmann, Computing in Science and Engineering 12, 17 (2010). 2) S. Habib et al.: Journal of Physics: Conference Series, Volume 180, Issue 1, pp. 012019 (2009).	2/25/2011
11-028	C11065	DCU Receiver, Version 1.0	This Windows C++ software application acquires streaming data from nuclear detectors created by Bubble Technology Inc. (BTI). Detector measurements are controlled, collected, and formatted for transmission by BTI's Data Concentration Units (DCUs). This application communicates directly with the DCUs and saves the data collected in sets of binary files. The application runs on a PC under Windows and communicates with the DCUs over Ethernet using the TCP/IP protocol. The application runs under the manual control of an operator (Start/Stop). Once communications start the application displays progress regarding packets successfully received or errors encountered. The application may be configured to communicate with up to three DCUs simultaneously.	3/3/2011
11-029	C11064	PLUMECALC, Version 2.3.2	PLUMECALC is a post processor to random walk particle tracking simulations of subsurface solute transport. PLUMECALC takes results of a single particle tracking run without retention processes and incorporates the effects of matrix diffusion or other retention processes for a user-specific solute source. B. Robinson, Z. Dash and G. Srinivasan. A particle tracking transport method for the simulation of resident and flux-averaged concentration of solute plumes in groundwater models.	3/10/2011
11-030	C11066	eMF, Version 1.0	Code for filtering email body and header content, currently embedded within the Zimbra email interface. Also includes content rules, rule compiler, rule visualizer, content extraction, content scoring algorithms, a content annotation module, and a reviewer interface. For hardware interface, includes code for generating binary database(s) for NetLogic including top 1K word family parsing/reformatting code, words of interest parsing/reformatting code. Code for loading binary rules database, content processing files, reporting results using NLS220HAP.	3/10/2011
11-031	C11067	LANL Photon Toolkit, Version 1.0	The LANL Photon Toolkit is a collection of software tools designed to manipulate data generated by high-time-resolution photon-counting imagers. This data is unlike data from conventional imagers because it consists of lists of photon events, with each photon event characterized by its horizontal and vertical position as well as a very precise time. These routines read the raw data files produced by an imager, calibrate the data to remove instrumental artifacts and distortions, manipulate the data in various ways, and create various kinds of displays.	3/11/2011
11-032	C11074	SWORD MCNPX Wizards, Version 0.x	This code is a dynamic link library for the configuration of MCNP & MCNPX input decks from the Naval Research Labs code SWORD (Software for the Optimization of Radiation Detection) it has intelligence for the creation of sources, tallies, materials, and the proper configuration of physics settings based upon the geometry, source and materials.	3/16/2011
11-033	C11063	Walkabout, Version 1.0 beta	Walkabout simulates the movement of flow tracers or passive solutes in the subsurface. The random walk particle-tracking algorithm is used. A unique aspect of the code is the ability to accommodate fully unstructured control volume grids. Two classes of applications are envisioned: assessment of risks associated with migrating contaminants in the subsurface and establishing flow streamlines for use in petroleum reservoir simulation.	3/16/2011
11-034	C11075	Generic Granite GDSE Model, Version 1.0	The Generic Granite GDSE (Generic Disposal System Environment) Model is a system-level computational model for performance assessment of generic repository in granite environment. It comprises a series of commands that are executed by the commercial software GoldSim modeling package. It is a LANL developed set of commands that runs within GoldSim to solve a certain set of unique functions. The Generic Granite GDSE Model also calls LANL-developed software FEHM as a dynamic linked library (DLL).	3/21/2011

11-035	C11068	MADS, Version 1.1	The code performs various types of model analyses and provides support for model-based decision making. The code can be executed under different computational modes which include (1) sensitivity analysis, (2) Monte Carlo analysis, (3) model calibration, (4) parameter estimation, (5) uncertainty quantification, and (6) model selection. The code provides (1) efficient parallelization (MPI and POSIX), (2) advanced Latin-Hypercube sampling techniques, (3) various gradient-based Levenberg-Marquardt optimization methods, and (4) advanced single- and multi-objective global optimization methods (including particles swarm optimization, PSO).	3/22/2011
11-036	C11073	TREES, Version 2.x	Preprocessor for FIRETEC (LA-CC-00-45) that generates fuels data.	3/24/2011
11-037	C11072	WINDBLADE, Version 2.x	Windblade is a physics-based modeling software application designed to simulate the interactions between rotating turbine blades and the complex atmospheric conditions to which they are exposed including heterogeneous wind shears, density currents, streamwise vortices, transitions in atmospheric stability, and turbine wakes. The results from these simulations, including transient blade loadings and turbulence generation, are critical for designing wind turbines, predicting wind turbine performance, finding wind farm locations, planning wind turbine arrays, and assessing the environmental effects of wind turbine arrays.	3/24/2011
11-038	C11069	FIRETEC, Version 2.x	FIRETEC is the physics-based, three-dimensional (3D) computer code designed to simulate the constantly changing, interactive relationship between fire and its environment. It does so by representing the coupled interaction among fire, fuels, atmosphere, a	3/24/2011
11-039	C11071	FIRETEC Monte Carlo Radiation, Version 2.x	This is a separable piece of code that uses a Monte Carlo scheme to calculate radiative heat transfer. This code works with FIRETEC.	3/24/2011
11-040	C11070	Higrad, Version 2.x	HIGRAD is a fluid dynamics model designed for application to complex atmospheric problems in which it is important to preserve high gradients. Various numerical schemes are options within HIGRAD, including a numerical scheme ideally suited for simulation of coupled fire/atmosphere and turbine/wind interactions.	3/24/2011
11-041	C11076	Rapid Assessment Program To Outline Risk (RAPTOR), Version 1	RAPTOR is a database driven application that helps the information security professionals manage Information Security Risks and to conduct effective and timely risk assessments. RAPTOR incorporates applicable NAP and NIST risk assessment requirements. The application consists of eight interfaces that enforces a standard assessment workflow with a back-end database that collects and manages information on threats, vulnerabilities, controls and their impact, assets and their consequence of loss and strength/effectiveness of countermeasures.	4/5/2011
11-042	C11077	SimCCS, Version 6.0	SimCCS is a Visual basic 6.0 code for optimizing C02 capture and storage (CCS) infrastructure. SimCCS includes code to (a) build weighted-cost surfaces for pipeline costs and routes, (b) calculate C02 injection/storage costs, and (c) parameterize a mix integer-linear program (MIP) problem for optimally deploying CCS infrastructure. The code combines GIS and operations research capabilities.	4/4/2011
11-043	C11078	iDREAM Space Weather App, Version 1.1	The iDREAM Space Weather App is a mobile application that functions as a viewer for images displayed at http://dream.lanl.gov. With this application a user can view, magnify, and save DREAM images on their iPad or Android device. The software will be released and made publicly available in binary form.	4/11/2011
11-044	C11080	Ref-MD, Version 0.x	Ref-MD is a Molecular Dynamics code that simulates atomistic interactions governed by electro-static forces. The code uses Velocity-Verlet time integration with a Leonard-Jones potential. The code is distributed-memory parallel using the message passing interface (MPI). The code also supports several accelerated implementations capable of running on modern accelerated and many core architectures. This code will serve as a reference for vendor and academic collaborations.	4/20/2011
11-045	C11081	Bottle Liquid Scanner Analysis Code (BLSAC), Version 1.x	This software, written entirely in MATLAB, performs analysis of nuclear magnetic resonance data taken by a BottleViz or CoilViz Bottle Liquid Scanner developed at Los Alamos. The primary purpose of the software is to determine the threat level of liquids scanned in the hardware.	4/22/2011
11-046	C11082	Bottle Liquid Scanner Control Code (BLSCC), Version 1.x	This software, written entirely in LabView, provides the command, control, and data acquisition capability for the BottleViz or CoilViz Bottle Liquid Scanners developed at Los Alamos. Data analysis is performed by a separate piece of software.	4/22/2011
11-047	C11083	eMF-HAI, Version 1.x	Code utilizes the NetLogic Software Development Kit (Database API and DataPlane API) to interface and process files using the NetLogic NLS220HAP hardware acceleration platform. The code generates input files compatible with the NetLogic compiler which in turn generates binary database files for use in the NLS220HAP. The code initializes and loads the binary database file into the hardware, processes input files using the hardware, collects results from the hardware, processes returned results and generates output result files for future processing. Code is written in C/C++.	4/22/2011

11-048	C11084	Generalized Neutron Coincidence Counting, Version 0.x	This software application performs Neutron Coincidence Counting device control and data analysis from both new and legacy sources. It combines features for traditional shift registers with new features for "List Mode" neutron data acquired from N Division's List Mode Multiplicity hardware devices. The code controls traditional neutron multiplicity counting hardware using the approach of the INCC code (LA-CC-10-092), and also supports updated List Mode devices and data analysis. New features include database use, support for multiple concurrent instruments with parallel data streams, cross-platform support, file-based tools for managing disparate pulse stream data formats, and support for nearly unlimited data sizes. (Internal "Alpha" release only at present).	4/27/2011
11-049	C11085	PROSIG, Version 1.x	This code designs nucleic acid-based assays that detect specific target sequences and do not detect specific non-target sequences. Supported assay formats include polymerase chain reaction (PCR), Padlock probes/MOLPCR and hybridization probes. The code runs in parallel to enable the enumeration of a large number of potential assay designs based on large numbers of target and non-target sequences.	4/27/2011
11-050	C11079	ParaView-SEGY	ParaView-SEGY reads data from seismic exploration projects that are in the (petroleum exploration) industry standard SEG-Y format and converts it into ParaView data objects for further manipulation and visualization. ParaView is an open source visualization package developed by Kitware, Inc., for generic visualization and although it is bundled with readers for many file formats, SEG-Y format was not among them. Without such a reader, data geophysical exploration cannot be viewed with ParaView, forcing users to acquire expensive and proprietary packages designed primarily for major international oil companies.	4/29/2011
11-051	C11086	RadDecay_Pu_R1	The original decay corrections program for C-AAC was developed in 2002 to allow analysts to decay-correct their data. This new version of the program was created to streamline the input and output for the basic user while preserving all of the original elements of the program was created to streamline the input and output for the basic user while preserving all of the original elements of the program for more advanced users. In addition, several internal checks were built into the calculation to ensure the accuracy of the output data.	5/3/2011
11-052	C11087	Python Radiography Analysis Tool (PyRAT)	The radiography analysis tool named PyRAT (Python Radiography Analysis Tool) has been developed for reconstructing unknown cylindrically or spherically symmetric objects from two dimensional radiographs taken in a field environment. PyRAT uses a nonlinear forward model of the radiograph and poses the problem as a mixed variable optimization (MVO) problem to find the best thickness of layers and set of materials to match the image data. MVO is implemented in PyRAT with the NOMAD code.	5/4/2011
11-053	C11088	Advanced Enrichment Monitor (AEM), Version 1.x	This code invokes the EMGUI (Enriched Monitor Graphical User Interface) code and serves as the "container" in which it runs, providing a graphical menu for EMGUI's functions and the screen space on which EMGUI paints its various displays.	5/4/2011
11-054	C11089	Enrichment Monitor Data Acquisition and Control (EMDAC), Version 1.3	This code runs as a service under Windows. It controls up to three digiDART multichannel analyzers and a high-voltage source that are used to acquire data that can be processed to determine the level of uranium enrichment in a gas centrifuge enrichment plant. It also communicates with EMGUI (Enrichment Monitor Graphical User Interface) to allow an EMGUI user to directly control and configure the details of the data acquisition.	5/4/2011
11-055	C11090	Enrichment Monitor Graphical User Interface (EMGUI), Version 1.2	This code provides a user the ability to control the EMDAC (Enrichment Monitor Data Acquisition and Control) service used to monitor uranium enrichment in a gas centrifuge enrichment plant and to analyze acquired data and display and print reports.	5/4/2011
11-057	C11092	SEQSTRAP, Version 1.x	This code iteratively extrapolates partial length nucleic acid sequences based on comparisons with similar, overlapping sequences. The resulting set of extrapolated sequences can now be analyzed by algorithms that require full length sequences. The code runs in parallel to enable the extrapolation of a large number of sequences.	5/5/2011
11-058	C11093	Los Alamos Neutron List Mode Module Data Acquisition Software (LANLMM DAQS)	The Los Alamos Neutron List Mode Module Data Acquisition Software (LANLMM DAQS) was written to allow for collection of list mode data for the NPOD IIIp, ARIES List Mode Module and the Next Generation Neutron Pod. It also has the capability to post process files, system diagnostics, and data analysis.	5/18/2011
11-059	C11096	Bayes Inference Engine (BIE), Version 7.46	The Bayes Interface Engine (BIE) has been developed at LANL, by WX-5 starting in 1993. Since 1996, the development and maintenance of the BIE has been collaboration with the AWE. This collaborations was setup to advance the BIE to deal with ill-posed (limited data) radiographic problems in 2D and 3D density reconstructions using the Bayesian approach. In the Bayesian framework, all available information (data and prior information) can be combined in a logically consistent manner enabling scientists to carry out scientific inference or plausible reasoning in their analysis. The reconstructed density information is used for validating hydrocode models.	5/23/2011

11-060	C11095	Gene Cutter	Gene Cutter is a bioinformatics tool that analyzes viral DNA sequences from HIV-1, HIV-2, and SIV. It aligns sequences and extracts protein coding regions. It is available as a web tool: http://www.hiv.lanl.gov/content/sequence/GENE_CUTTER/cutter.html http://www.hiv.lanl.gov/content/sequence/GENE_CUTTER/cutter-help.html	5/23/2011
11-061	C11098	Krakatoa, Version 1.0	Krakatoa will succeed the codes GRIZZLY and OpenSesame (LA-CC-03-087). It can do three things: 1. Plot data from equation-of-state libraries like the SESAME library produced by LANL 2. Manage equation-of-state library data (e.g. merge/split libraries, change units, add/delete data, change library data formats) 3. Create new equations of state by evaluating various physics models.	5/24/2011
11-062	C11097	Krakatoa (Open Version), Version 0.1	Krakatoa will succeed the codes SES2D and Display Sesame (LA-CC-03-086). It can do two things: 1. Plot data from equation-of-state libraries like the SESAME library produced by LANL 2. Manage equation-of-state library data (e.g. merge/split libraries, change units, add/delete data, change library data formats).	5/24/2011
11-063	C11099	3DPLBMPPM, Version 1.0	The code, three dimensional parallel lattice Boltzmann code for multi-phase flow in porous media (3DPLBMPPM) solves flow in 3D porous media with immiscible/miscible fluids based on a published multi-phase LB model.	5/24/2011
11-064	C11100	REDfISH, Version 1.x	Redfish is a suite of software to be used with computer clusters to aid in resource management, booting and resilience. Including such services as a DHCP-like service and peer-to peer file transfer for HPC clusters and systems.	5/26/2011
11-065	C11103	FLAG, Version 3.2.Alpha.5	The basic component of the FLAG radiation-hydrodynamics code is a 1D/2D/3D Lagrange-ALE hydro package with interface reconstruction, multi-body contact/slip, and a variety of material models including EOS, strength, damage, and failure. FLAG operates on an unstructured, polyhedral mesh to provide the basic model of material state. Radiation diffusion provides transport for thermal x-rays.	6/10/2011
11-066	C11101	Cylindrical HMD Simulation Suite (CyMSS), Version 0.x	This suite of MATLAB codes uses a 1D MHD solver to compute the stability of cylindrical reversed field pinch plasmas. It is designed as a research (not production) code, with routines for computing equilibrium stability, diagnosing unstable modes, and simulating feedback control. Two papers utilizing this code are: 1) A.S. Richardson and J.M. Finn. Quasi-separatix layers and three-dimensional reconnection diagnostics for line-tied tearing modes. Communications in Nonlinear Science and Numerical Simulation, In Press, Corrected Proof, 2011. 2) A.S. Richardson, J.M. Finn, and G.L. Delzanno. Control of ideal and resistive magnetohydrodynamic modes in reversed field pinches with a resistive wall. Physics of Plasmas, 17(11):112511, 2010.	6/14/2011
11-067	C11102	iFIX operator screens, Concept PLC projects & Visual Basic programs	Proficy HMI SCADA - iFix operator screens (HMI, VBA scripts) used to operate the DARHT accelerator Axis I and Axis II control system. iFix SCADAs (supervisory control and data acquisition) used to communicate to PLCs via a process databases and poll records. Schneider Electric IEC Programming Software for Modicon Quantum and Momentum- Concept PLC projects used to operate the DARHT accelerator Axis I and Axis II control system. Projects include: Axis I - Injector, Pulse Power, Magnet, Vacuum, Target.	6/14/2011
11-068	C11104	Los Alamos Neutron List Mode Module Data Acquisition Software (LANLMM DAQS)	The Los Alamos Neutron List Mode Module Data Acquisition Software (LANLMM DAQS) was written to allow for collection of the list mode data for the NPOD IIIp, ARIES List Mode Module and the Next Generation Neutron Pod. It also has the capability to post process files, system diagnostics, and data analysis.	6/15/2011
11-069	C11112	FOM Plotter, Version 1.0	FOM Plotter is a Java code that reads MCNPX input and output files for the bare critical mass, neutron and photon doses, and material compositions to calculate the Figure of Merit (FOM) for material attractiveness.	6/16/2011
11-070	C11106	OsoLoco, Version 1.1	OsoLoco is a constructive solid geometry (CSG) editor created by LANL for creating 3D geometry models. OsoLoco combines the original OSO rendering engine with a Qt Graphical User Interface. It also includes Etch, a multi-contour tabular surface editor. The code is a combination of C, C++ and Python. https://setup.lanl.gov/codes/etch.shtml and https://setup.lanl.gov/docs/oso/index.shtml.	6/22/2011
11-071	C11107	WFpy, Version 1.0.1	The code to be released is fully documented in LA-UR 11-02477. It is a Python code consisting of three classes: WilsonFowler, Box, Ray which implements the algorithm described by Fowler and Wilson (Oak Ridge National Laboratory Report Y-1400 (Rev. 1), 1966). The algorithm creates a spline based on the coordinates of an ordered set of points in two dimensional space. The Ray and Box classes are to facilitate ray-spline intersections.	6/22/2011

11-072	C11109	FRAM, Version 5.1, Version 5.1 Ortec, Version 5.1 Canberra	The Fixed-Energy Response-Function Analysis with Multiple Efficiency (FRAM) code is used to measure by gamma-ray spectrometry the isotopic composition of plutonium, uranium, and other actinides. It uses the peaks obtained with germanium detectors in the energy range from 30 keV to greater than 1 MeV	6/22/2011
11-073	C11108	MK, Version 1.0	This is a grid generation code to obtain a static, adaptive computational grid which can be later used in other computations. The code solves the Monge-Ampere (MA) equation in three-dimensions, with two monitor functions specified by the user as input. The computational domain is the unit cube. The MA equation is solved with a standard unpreconditioned Newton-Krylov method which uses GMRES for the inner linear iterations. The formulation of the method and some details on its implementation can be found in G.L. Delzanno, L. Chacon, J.M. Finn et, al., J. Comput. Phys. 227, 9841 (2008).	6/22/2011
11-074	C11114	EPICS, Version R3.15	EPICS is a set of software tools and applications which provide a software infrastructure for use in building distributed control systems to operate physics devices such as Particle Accelerators, Astronomical Telescopes, and Large Experiments.	6/24/2011
11-075	C11135	Improvements to Corrsac, Corrscan, clone, subspace, subspacestill,subspaceii, subspaced	These are all waveform scanning (and cutting) programs modified slightly from previous codes developed at universities and tweaked to run more efficiently. They are written in C and are considered research code. They are designed to recognize repeating seismic signals within discrete or continuous seismic waveform data, the intended use is for finding repeating earthquakes buried in volcanic tremor or other areas where seismic swarms occur (Socorro magma body in New Mexico, for instance). I am adjunct faculty at two New Mexico universities and have collaborative projects with volcano and earthquake researchers who would like to test my methods on their data. The algorithms for the codes were not developed at LANL, only some improvements in performance.	7/18/2011
11-076	C11110	Neutron Transport Evaluation and Test Suite (HILO), Version 1.0	The HILO test and evaluation suite codes are used to iterate an optimization approach to code development. Tests of various parts of the overall algorithm are written and run on various hardware platforms. Results are fed back to numerical algorithm developers who then modify their algorithms to run more efficiently on chosen hardware platforms. The software produces a steady-state solution to a one-dimensional neutral particle, fixed source, transport problem with vacuum boundary conditions. The physics problem is modeled by a one-dimensional Boltzmann transport equation. The software uses uniform, constant, material properties (absorption and scattering) and isotropic scattering. It can employ either a deterministic or stochastic solution algorithm.	7/18/2011
11-077	C11113	HIV Software Suite	Bioinformatic tools for the manipulation, presentation, and analysis of DNA and protein sequences of Human Immunodeficiency Virus (HIV) and Simian Immunodeficiency Virus (SIV). Web-based versions of these tools are listed on this page: http://www.hiv.lanl.gov/content/sequence/HIV/HIVTools.html	7/21/2011
11-078	C11115	Digital Video Review, Version 2.1.0.0	Digital Video Review 2.1.0.0 (DVR) indexes, catalogs and displays images from certain industrial camera systems. DVR works with related tools in the UNARM BV2R1 software package (LA-CC-10-095) supporting query and review of safeguards events, matching images with radiation and other device-generated event signatures.	7/27/2011
11-079	C11105	Multi-Dimensional Hashed Indexed Metadata (MDHIM) System	Multi-Dimensional Hashed Indexed Metadata (MDHIM) System is a research prototype infrastructure capable of managing massive amounts of index information representing even larger amounts of scientific data to enable data exploration at enormous scale. In other words, MDHIM is a scalable, parallel multi-dimensional key/value store that, currently, depends on MPI for communication and PBL ISAM for the key value storage at the storage nodes. The communication and storage layers will be modular and, thus, will be able to plug in a variety of communication and storage packages.	7/27/2011
11-080	C11144	Pisces, Version 0.x	General seismic data measurement and processing software, written in Python. These codes build upon free and open signal processing and seismic tools provided in Numpy (numpy.scipy.org), SciPy (www.scipy.org), and ObsPy (www.obspy.org). Specifically, 1) relative travel-time measurement from cross-correlation (Vandecar and Crosson, 1990, BSSA, v.80, n.1), 2) reading and writing of database tables in the NNSA kbcore schema (prod.sandia.gov/techlib/access-control.cgi/2002/023055/pdf), and measurement of surface wave dispersion (following eqsies.geosec.psu.edu/~cammon/Tools/CGA_SWFMA.tar.gz).	8/3/2011
11-081	C11143	Portable Data Parallel Visualization and Analysis, Version 0.x	The software is a library for scientific visualization and data analysis applications. The initial release version of the library contains an implementation of the Marching Cube algorithm for generating iso-surfaces from a scalar data set along with sample programs demonstrating its usage. The library uses the open source Thrust library to be easily portable across various modern computer architectures, including multi-core CPUs and GPUs. Later revisions will provide more visualization and analysis functionality and support for additional computer architectures.	8/4/2011

11-082	C11118	The DeCayculator, Version 1.0	The DeCayculator is a radioactive decay calculator that accepts user input for a top-level, pure, radionuclide, and calculates and plots the decay of that nuclide and the production and decay of its progeny for a user-selected amount of time. The distribution will contain an executable, and the already publicly available ICRP-38 nuclide library in a form readable by the code.	8/4/2011
11-083	C11138	SUNSTORE.EXE	Design-specific code that calculates solar energy underground storage tank heat exchangers and heat losses to the earth. Includes document titled: "Description of Analysis Software for Mirasol Solar Energy Systems Underground Solar Energy Storage Tank and Associated Piping" dated August 5, 2011.	8/9/2011
11-084	C11142	noiseQC.pl	Code plots noise measurements versus time and allows user to identify unusual intervals with a mouse. Includes libpar.pm, originated at Caltech and modified at LANL.	8/10/2011
11-085	C11120	Super-Resolution (SuperRes), vBeta	SuperRes takes a set of greyscale low resolution (LR) multi-look imagery and creates a single, high resolution (HR) "super resolution" image. It does this by selecting one LR image as a mater image, registers all other LR imagery to the master, performs iterative restoration of the greyscale values and then outputs these restored greyscale values to a finer output grid.	8/10/2011
11-086	C11121	Test of Random Transmission (ToRT), Version 0.9 beta	This code calculates probabilities of random viral variant transmission as described in manuscript entitled "Role of Donor Genital Tract HIV-1 Diversity in Transmission Bottleneck" (LA-UR-11-11256). For a set of aligned sequences from transmission pairs where the founder donor sequence is known, it uses R to compute the proportion of sequences that do not belong to clusters of sequences related by a given nucleotide distance, then invokes Mathematica to solve the polynomial expression of the probability generating function. Another R program parses the Mathematica results to summarize probabilities in tabular and graphical formats.	8/15/2011
11-087	C11111	NuT, Version 0.x	NuT is a Monte Carlo neutrino transport code for astrophysics simulations. It simulates the transport of neutrinos, including relative effects. It is designed to work with both tabular and analytic opacities. It is intended to run in parallel. It has been developed as part of the LDRD project "Multi-Messenger Signals from Low-Mass Supernovae", 20110032DR. The code is designed to work with both 1D and 3D meshes in Cartesian and spherical geometry. It is implemented in C++, and includes a substantial test suite.	8/15/2011
11-088	C11127	Three Layer Diffusion, Version 1	ThreeLayerDiffusion is a set of Mathematica scripts that calculate the diffusion-controlled retention of dissolved groundwater contaminants by rock matrix surrounding a rock fracture. The scripts implement the recursive methodology of Cvetkovi (WATER RESOURCES RESEARCH, VOL. 46, W03504, doi:10.1029/2009WR007755,2010) for a three-layer matrix of finite extent.	8/16/2011
11-089	C11126	Improvements to MARFA Code (released as MARFA version 3.2.3)	MARFA versions 3.2.2 and 3.3, intellectual property of the Swedish Nuclear Fuel and Waste Management Company (SKB), simulate transport of groundwater contaminants with various retention mechanisms and first-order decay. This release form addresses LANL-developed improvements to MARFA. The improvements include a general user-specified retention time distribution within the stochastic framework of Painter et al. (2008 WATER RESOURCES RESEARCH, VOL. 44, W01406, doi:10.1029/2007WR005944), some standard routines for linear interpolations in 1 and 2 dimensions, and capability to split particles after a decay event. The improvements will be incorporated in new MARFA version 3.2.3 and 3.3.1.	8/17/2011
11-090	C11125	Infrastructure on Demand, Version 2.0	LANL's Infrastructure on Demand (IoD) gives you the ability to request and receive virtual Windows, Linux or Solaris servers. The virtual environment functions identically to a physical environment with greater reliability for users and flexibility for the system owner. Providing basic information on our request form will launch the process to dynamically provision a virtual server on demand, reducing average server provisioning cycle time from 30 days to 30 minutes.	8/22/2011
11-091	C11124	Energy Truncation and Huber Filter (ETHF), Version 1.x	This is a research/example x86-64 C code which performs statistical filtering on frequency spectra similar to that produced by the Allen Telescope Array. Energy truncation is applied first to a given 128 element spectrum followed immediately by a Huber filter. Four examples of the filtering code are provided: a basic non-optimized version, a Pthread/SSE optimized version, an MPI version using the non-optimized filter code and MPI version using the Pthread/SSE optimized filter code. The MPI versions use a prototype double buffered, streaming data pipeline consisting of three nodes.	8/22/2011
11-092	C11137	BI02BID	This software converts *.BI0 files, created by the Dragonball MiniGRAND, to *BID files that can be imported into Radiation Review to be examined.	8/24/2011

11-093	C11128	Visual Crosswalk Analysis Tool (VCAT), Version 2.x (NREL Delivery)	VCAT is a knowledge modeling and analysis tool. It was synthesized from ideas in functional analysis, business process modeling, and complex network science. VCAT discovers synergies by analyzing natural language descriptions. Specifically, it creates visual analytic perspectives that capture intended organization structures, then overlays the serendipitous relationships that point to potential synergies within an organization or across multiple organizations.	8/26/2011
11-094	C11145	CLAMR, Version 1.x	CLAMR (OpenCL Adaptive Mesh Refinement) models the shallow water wave equations using a Total Variation Diminishing (TVD) scheme. It is being developed as part of the 2011 X Division Summer Workshop for the express purpose to be used as a collaborative code for development of ideas in the implementation of Adaptive Mesh Refinement (AMR) codes for Exascale platforms. Since it is to be used for publications and Exascale system benchmarking, it needs to be freely distributed.	8/29/2011
11-095	C11123	LAPS-MFD, Version 1.0	This is a C code that solves the multifluid equations for a system consisting of a plasma (electrons and ions) and dust. The spatial discretization is handled with standard finite differences while the time discretization is explicit. The code is designed to use the open-source PETSc library (current version 3.1, http:www.mcs.anl.gov/petsc/petsc-as/index.html) for efficient parallelization.	8/31/2011
11-096	C11139	Trans-Ex, Version 1.X	This code is designed to solve expansion planning problems for infrastructure systems. The code considers scenarios of future requirements for an infrastructure system and calculates optimized plans for how to upgrade that system to meet those requirements. Examples include plans that consider additions of power lines, transformers, batteries, generation and phasor measurement units to electric power infrastructure systems to meet renewable energy goals.	9/1/2011
11-097	C11140	HYDRA, Version 2.0 MPP	HYDRA is an extensible multiphysics code that includes finite-element based solvers for 2D/3D time-dependent heat conduction, 2D time-dependent advection-diffusion, 2D time-dependent incompressible flow, 2D Lagrangian Hydrodynamics. In addition, 2D/3D unstructured-grid finite-volume solvers are being available for solving time-dependent advection-diffusion, Burgers' equation, the compressible Euler equations, and incompressible Navier-Stokes equations. HYDRA uses a toolkit model for development and provides lightweight, high-performance and reusable code modules for agile development.	9/7/2011
11-098	C11146	Wells, Version 2.x	WELLS is a C code simulating drawdowns caused by multiple pumping wells using analytical solutions. The code can represent pumping in confined, unconfined, and leaky aquifers. The code applies the principle of superposition to account for transients in the pumping regime and multiple sources (pumping wells). An exponential or linear temporal trend of water-level change can be included to account for non-pumping influences (e.g. recharge trend). Early time Theis parameter behavior can be accounted for using exponential functions. http://www.ees.lanl.gov/staff/monty/index.html?mads	9/19/2011
11-099	C11147	Ingen, Version 2.x	Ingen is a problem generation (problem setup) software system. It includes a geometric modeling module (GWiz), a mesh generation module (Altair), a materials definition module, an input deck generation module, and a simulation suite management module. The entire system is accessed via a Python package interface. The Altair mesh module has a graphical viewer. There are no physics code specific functions or data in the system.	9/26/2011
11-100	C11148	ReliefSim, Version 1.x	This code is designed to solve resource allocation problems related to equitable delivery of relief supplies in post-disaster scenarios. The code computes optimized delivery schedule for distributing resources in these scenarios.	9/28/2011
11-101	C11149	PHEVExchangeOpt, Version 1.x	This code is designed to solve expansion planning problems for siting exchange and charging stations for personal electric vehicles. The code considers future demand for electric vehicle charging and battery exchanges and calculates optimized plans for where to build stations to meet these needs.	9/28/2011
11-102	C11136	RTI3D	The RTI3D computer program simulates the development of Rayleigh-Taylor Instabilities and Kelvin-Helmholtz instabilities. It is a 3-D program for incompressible flows, using Van-Leer advection and a pressure correction technique. The code has been optimized to run on single processors, and has at its heart a multi-grid solver for the pressure correction field. The uses of this code center around fundamental studies of buoyancy and shear driven mixing.	9/28/2011
11-103	C11150	SnCAVEAT	A version of CFDLIB (LA-CC-02-062) with discrete ordinance radiation transport for atmospheric fluid dynamics calculations and for calculations of optical power time curves. This 2D package is similar to 1D HYCHEM (LA-CC-09-109).	9/29/2011

11-104	C12001	LANLGeoMag, Version 1.5.13	LANLGeoMag is a C-based library of magnetic-field models and tools for computing quantities relevant to geophysical and geospace research that rely on these models. More generally, the library provides functionality to perform high precision transforms between time standards and coordinate systems. The primary uses of this library are coordinate conversions, magnetic field evaluation, magnetic field line tracing, drift shell tracing, calculation of diffusion coefficients and bounce-averaging of quantities in arbitrary magnetic fields. The library also has a unit-testing framework primarily implemented in Python, and a set of Python wrappers to facilitate use from a high-level, interpreted language.	10/14/2011
11-105	C11122	KIVA-4.exec	KIVA-4.exec is an executable version of KIVA-4. KIVA-4.exec solves chemically reacting, turbulent, multi-phase viscous flows using a distributed computational domain (grid). KIVA-4.exec internal engine combustion modeling capabilities are the same as that of KIVA-4, but with a 45k cell limitation. As a result, use of KIVA-4.exec. is nearly the same as that of KIVA-4, because KIVA-4 must be compiled prior to execution. KIVA-4.exec is perfect for beginners who do not need or intend to modify the source code.	10/6/2011
11-106	C12003	mph_to_tecplot.m, Version 1.0	Code employs the MATLAB LiveLink with COMSOL to read COMSOL mph files, extract the 3-D data structures within the mph file and export that information in a form that can be read by TECPLOT.	10/18/2011
11-107	C12006	Dual-Slab Verification Detector (DSVD), Operations Software, Version 1.x	This code allows a user to easily perform the required operations to first acquire and later verify the fingerprint of a spent-fuel cask from the BN-350 reactor. The operations include plateau, background, calibration, and fingerprint measurements, and the data is stored in an Excel spreadsheet where all the calculations are performed.	10/21/2011
11-108	C12005	3D Gaming GUI Manager	Unity is a popular 3D gaming engine with an asset Editor. 3D Gaming GUI Manager is a C++ library which gives Unity programmers a rich, concisely z-ordered system for coding GUI elements. This software facilitates GUI's where layout is separated from event logic, greatly improving coding techniques and code re-use. It also seamlessly manages external loading of Texture2D's, Font, and unity3d web assets for both local and web delivered assets, thus increasing code re-use by removing the need to set links and properties to these assets in the Unit Editor user interface.	10/27/2011
11-109	C12049	PIDAS, Version 1.x	Interactive app for training NRC physical protection inspectors. PIDAS presents a 3D virtual model of a commercial power plant site, with cooling towers, reactor buildings, roads, rails, transformers, water sources, etc. Users place physical protection structures into the model, using customary mouse techniques. Placement is unconstrained. Structures include 15 barrier-types and gates, lights, cameras, guard towers. Fly-through and first-person views provided, as well as an orthographic projection. Live first-person inset window shows selected camera, guard-post or FP location view. Configurable parameters include camera view angle, light intensity and height, time-of-day, and more. Design cost is shown. Designs may be saved and restored across sessions. Sorry, Windows only.	10/27/2011
11-110	C12016	ARMD Embedded, Version 1.0	The ARMD Embedded software controls the data flow and commanding inside the handheld ARMD radiation detector. The software executes on a microprocessor inside the radiation detector and sends data to a separate handheld or desktop computer.	11/7/2011
11-111	C12009	CPFEM Abaqus Umat, Version 10.1	Model for coupled thermo-mechanical response of single crystals and polycrystalline metallic to stress. Model implemented as a module which is used in conjunction with the commercial finite element software Abaqus.	11/10/2011
11-112	C12050	MPI-3 Fortran Binding Wrapper Implementation, Version 1.0	MPI (Message Passing Interface) is a standard for writing parallel programs. The MPI Forum is publishing new MPI bindings for Fortran in the MPI-3 standard. These bindings allow Fortran MPI programmers -- for the first time -- to write MPI code that follows the Fortran standard and is guaranteed to run as specified by the programmer, especially regarding calls to non-blocking MPI procedures. These bindings also allow type checking by the compiler, thus reducing a class of programmer error. This software library provides wrapper functions for the MPI-3 bindings that call earlier MPI-2 implementations. It is expected that this library will be used by MPI implementers, like Open MPI, to provide for early implementations following the MPI-3 standard.	11/10/2011
11-113	C12017	ARMD Tester, Version 1.0	The ARMD Tester is a Windows desktop application that configures and injects commands into the ARMD radiation monitor, and displays data from the monitor. It will be used by our project partners to test the recently developed hardware.	11/15/2011

11-114	N/A	EALink, Version 1.0	Customizations of the PTC Arbortext XML authoring tool and the PTC Windchill product for the purpose of creating and managing NSE (formerly NWC) Engineering Authorizations (EAs). The customization consists mainly of Arbortex Command Language (ACL) programs, but also includes some Java programs and Windchill configuration. The system code was initially written by Scott Campbell and other PTC employees, but LANL has taken over the development of the system with Richard Kandarian having done nearly all the code development since. It is desired to provide EALink to any member of the NSE which can use it and to make it available to PTC employees only for the purpose of supporting those NSE members.	11/17/2011
11-115	C12008	Serial Data logger, Version 1.0	This code reads data from a device that is connected to the computer through a serial port. It polls for data at one interval and saves the average, standard deviation, and number of points at another (usually different) interval, and can be configured for the intervals, com port, save file name and location, polling command, data format, etc.	11/30/2011
11-116	C12029	PathScan, Version 1.0	PathScan is a method for identifying local anomalies in a graph. To each edge in the graph, data can be associated. PathScan then enumerates all shapes of a predefined type, and uses statistical methods for calculating the probability that the data in each shape is coming from a historical model, or from an alternative model indicating anomalousness. The method is described in LA-UR-11-03817.	11/30/2011
11-117	N/A	Compressed Sensing Python Libraries	Compressed sensing Python Libraries is a collection of libraries written in Python to perform compressed sensing analysis, research, and development. The Library is primarily used to generate incoherent measurement matrices, generate dictionaries of basis vectors, perform smashed filtering analysis, and to setup convex optimization problems. The convex solver currently used is CVXMOD which is freely available from Stanford University. This code has been used to perform the data analysis for the paper: Mascarenas, D., Theiler, J., Farrar, C., "The Application of Compressed Sensing to Detecting Damage in Structures," In proceeding of the International Workshops on Structural Health Monitoring, September 13-15, 2011. LA-UR 11-02790	12/1/2011
11-118	C12018	ARMD Data Analysis Software 1.0	The ARMD Data Analysis Software, written for MATLAB, reads ARMD project data files and provides spectra and determines energy resolution. The software will be sent to project partners outside of LANL.	12/1/2011
11-119	C12007	Cruft 1.000	Cruft is a suite of Molecular Dynamics proxy applications intended for exploring co-design opportunities with hardware vendors and scientists. The code allows one to conduct different aspects of a molecular dynamics application and explore ramifications of changing hardware and software on the relative performance. It is intended to help guide design decisions for codes written in support of the Exascale Co-design Center for Materials in Extreme Conditions.	12/1/2011
11-120	C11141	Hydra-TH	Hydra-TH is a parallel hybrid finite-element/finite-volume incompressible/law-Mach flow solver that makes use of hybrid meshes for thermal-hydraulics applications. Hydra-TH provides a rich set of turbulence modes, derived output data, with a variety of solution options, both implicit and explicit to span a broad range of time-dependent and steady-state flow problems. In order to address fluid-structure problems, Hydra-TH uses an arbitrary Lagrangian-Eulerian (ALE) formulation and provides a mesh-deformation interface that can support multiple different mesh smoothing algorithms. Hydra-TH also provides support for thermal transport and coupling to external codes for fluid-structure and conjugate heat transfer problems.	12/7/2011
11-121	C12010	CartaBlanca V 3.0	CartaBlanca is a flexible software environment for prototyping physical models and simulation of a wide range of physical systems. It employs modern discretization schemes and solution methods for nonlinear physics problems on unstructured grids. The latest version of CartaBlanca is implemented with improved material point method that enhances numerical accuracy and stability. This new version has also more advance material models and more flexible graphic user interface.	12/21/2011
11-122	C12012	PFTOOL 2.0	PFTOOL is a parallel file operation tool for HPC clusters as well as personal computers that can walk across the file system using threads or MPI. Once a list of files is built, it can do operations such as copy, compare, or stat. This allows for parallel data movement and querying.	12/22/2011