

Paradigm University Program

2017

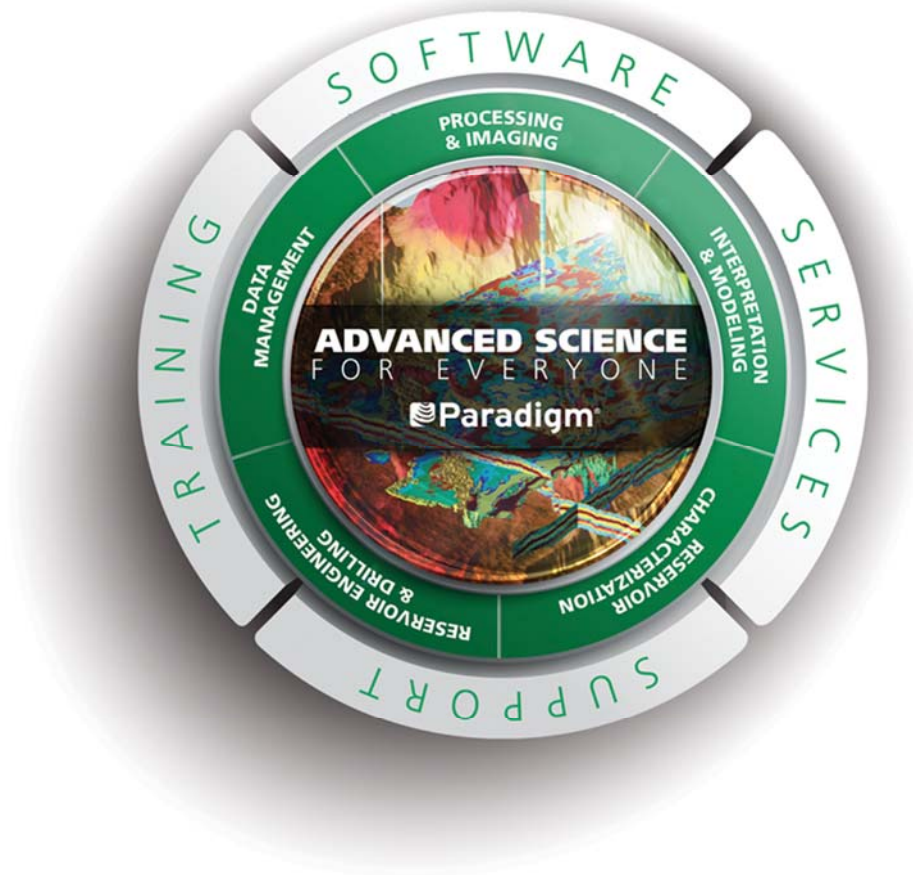


Table of Contents

INTRODUCTION.....	3
OFFERING	3
PARADIGM ONLINE UNIVERSITY OFFERING	8
PARADIGM INSTRUCTOR-LED COURSES.....	9
APPENDIX A: ADDITIONAL UNIVERSITY EDITION MODULES.	ERROR! BOOKMARK NOT DEFINED.
APPENDIX B: HOW TO JOIN THE RING-GOCAD ACADEMIC CONSORTIUM.....	14

Introduction

The Paradigm Academic Software Program provides institutions of higher learning with access to Paradigm state-of-the-art exploration and production (E&P) software. The program provides university researchers with the opportunity to advance the sciences of hydrocarbon detection and is designed to help prepare students for a future career in the energy industry. The program delivers access to innovative applications in seismic processing, imaging, interpretation, reservoir characterization, petrophysics, structural and reservoir modeling, reservoir engineering, well planning and drilling engineering.

Offering

The table below lists the products that are available to universities as part of the Paradigm Academic Software Program. Each row is a self-contained application (except where specified) which can be run independently or with other application-sharing data/events/ cursors. For current detailed system requirements please refer to the Paradigm Website. In the following table “Linux” refers to Red Hat® Enterprise Linux® and “Windows” refers to Microsoft® Windows®. Per product, five (5) one-year licenses are available for US \$2000. The listed software is available in the Paradigm 15.5 release.

Paradigm Software

Domain	Solution	Paradigm Software Products (University Edition)	Part Number	Platform
Seismic Processing & Imaging	Seismic Processing	Echos® NexGen: 2D/3D seismic processing	UE-1	Linux
	Seismic Imaging	GeoDepth® Migrations and Velocity Modeling: 2D/3D velocity modeling and prestack time and depth migration on a 1 User/16 CPU configuration (includes 3D K. PSDM NexGen, 3D K. PSTM NexGen & 3D Tomo NexGen.)	UE-2	Linux
	Velocity Modeling & Time-to-Depth Conversion	Explorer™ MV: Velocity modeling and ray-based time-depth conversion of maps and seismic volumes.	UE-3	Windows or Linux
		GOCAD® Velocity Modeling and Time-Depth Conversion (see GOCAD Interpretation Modeling).	UE-4a	Windows or Linux

Domain	Solution	Paradigm Software Products (University Edition)	Part Number	Platform
		SKUA® Velocity Modeling and Time-Depth Conversion (see SKUA Interpretation Modeling).	UE-4b	Windows or Linux
Interpretation & Modeling	Seismic Interpretation and Subsurface Modeling	SeisEarth® XV: Multi-survey, (2D/3D) interpretation), time-depth calibration.	UE-5	Windows or Linux
		Sysdrill® Designer: Embedded well planning in SeisEarth.	UE-6	Windows or Linux
		VoxelGeo® XV: Voxel-volume and multi-survey (2D/3D) volume interpretation with automatic horizon propagation and fault tracking.	UE-7	Windows or Linux
		GOCAD Interpretation Modeling: Structural and reservoir grid construction, geostatistical modeling, seismic interpretation, synthetics, well correlation, velocity modeling and time-depth conversion, seismic attribute computation. Multi-core support for: Foundation modeling, seismic attribute analysis and velocity modeling time-to-depth.	UE-4a	Windows or Linux
		SKUA Interpretation Modeling: Structural modeling, seismic interpretation, well correlation, synthetics, velocity modeling and time-depth conversion, seismic attribute computation, Multi – core support for: SKUA structure, foundation modeling, seismic attribute analysis and velocity modeling time-to-depth.	UE-4b	Windows or Linux
	Geologic Interpretation & Analysis	StratEarth®: Well correlation module (requires SeisEarth UE-5).	UE-8	Windows or Linux

Domain	Solution	Paradigm Software Products (University Edition)	Part Number	Platform
		GeoSec® : 2D structural restoration and balancing - forward modeling	UE-9	Linux
Reservoir Characterization	Reservoir Modeling	GOCAD Reservoir Modeling (see GOCAD Engineering Modeling).	UE-10a	Windows or Linux
		SKUA Reservoir Modeling (see SKUA Engineering Modeling).	UE-10b	Windows or Linux
	Seismic Reservoir Characterization	Probe® : AVO inversion and analysis.	UE-11	Linux
		Vanguard® : Elastic inversion, background impedance model construction.	UE-12	Windows or Linux
		Stratimagic® : Multi-attribute seismic facies classification (neural network, Self-Organizing Maps). Includes SeisFacies®.	UE-13	Windows or Linux
Formation Evaluation	GeologGold : Petrophysical analysis and formation evaluation (includes GeologFE, Multimin and Synseis).	UE-14	Windows or Linux	
Reservoir Engineering	Dynamic Reservoir Modeling	GOCAD Engineering Modeling : Structural and reservoir grid construction, geostatistical modeling, fine-scale reservoir grid upscaling. Direct connection to Eclipse of 3DSL, facies modeling and multi-core support for foundation modeling.	UE-10a	Windows or Linux

Domain	Solution	Paradigm Software Products (University Edition)	Part Number	Platform
		SKUA Engineering Modeling: Structural, geologic and flow simulation grids construction, geostatistical modeling, fine-scale reservoir grid upscaling. Direct connection to Eclipse of 3DSL, facies modeling, multi-core support for: Foundation modeling, SKUA flow simulation grids, SKUA structure and SKUA stratigraphy and fault analysis.	UE-10b	Windows or Linux
	Pressure Transient Analysis	Interpret®: Transient well testing	UE-15	Windows
Well Planning & Drilling Engineering	Well Planning	Sysdrill DirectorGeo®: 3D directional well planning and survey management (VoxelGeo required).	UE-16	Windows
	Well Planning & Drilling Engineering	Sysdrill Well Planning & Drilling Engineering: Includes Sysdrill Director (Office), Sysdrill Anti-Collision, Sysdrill Torque & Drag Sysdrill Hydraulics, Sysdrill Fluid Temperature Modeling, Sysdrill Well Control, Sysdrill Casing Design, Sysdrill Casing Wear Analysis, Sysdrill Cementing.	UE-17	Windows
Drilling Engineering	Sysdrill Jar Placement	Jar Placement Analysis	UE-18	Windows

Domain	Solution	Paradigm Software Products (University Edition)	Part Number	Platform
Epos Data Management & Interoperability	Epos Data Loading and QC	Epos Data Loading and QC bundle for G&G Analysts. Includes: <ul style="list-style-type: none"> • Data import/export (ASCII files, ULA, SEG-Y loaders) and data QC tools. • 3D/2D Canvas, BaseMap, Section and Well Log windows for data QC, enabling display of prestack and poststack seismic, wells, interpretation and culture data. • QC tools, including spectrum analysis, merge seismic volumes, AVO plot, velocity volume creation, log conditioning, and interactive attribute extractions along surfaces. 	UE-19	Windows or Linux
Quantitative Seismic Interpretation	QSI - RFP for Reservoir Geophysics	Rock Fluid Properties Analysis for Reservoir Geophysics Includes: Basic gather preconditioning, FastVel®, AVO inversion, basic + advanced synthetics, amplitude inversions - post-stack, colored inversion, PMLI inversion, geostatistical volume creation, log curve prediction (neural network), rock physics, geostatistics and complex attributes, directional and illumination attributes (azimuth, dip, Lightscape) and user-defined attributes.	UE-20	

Please note:

1. Membership in the RING-GOCAD Consortium is required to access Paradigm GOCAD and Paradigm SKUA products.
For more details about the RING-GOCAD Consortium, see [Appendix B](#).

2. In order to best utilize SKUA software, we ask that you take the free-of-charge SKUA course available in Paradigm Online University.
3. A GOCAD Developer Kit license can be added at no additional charge.
4. A SKUA Developer Kit license can be added at no additional charge.
5. LGR and Upscaler Developer Package can be added at no additional charge.
6. An OpenGeo Development Kit can be added at no additional charge.
7. A Geolog-Petrel Link can be added at no additional charge.
8. A SKUA-GOCAD RESQML-Petrel Link can be added at no additional charge.
9. A VoxelGeo RESQML-Petrel Link can be added at no additional charge.
10. An Epos RESQML-Petrel Link can be added at no additional charge.
11. A Stratimagic RESQML-Petrel Link can be added at no additional charge.
12. Additional product configurations are available and priced at \$2000 (see [Appendix A](#)).

A university grant program is available for classroom use or for qualified research projects in qualified universities requiring more than five licenses. The grants are leased on an annual basis. Applications are available upon request. The RING-GOCAD Consortium fee for these universities is waived.

Paradigm Online University

[Paradigm Online University](#) is a Web-based eLearning tool, designed to enable users to create a personalized training portfolio of Paradigm courses. Our multimedia courses are ideal for those who prefer short, interactive training sessions, while videos in our Video Learning Library provide quick overviews of new functionality and workflows. With the Paradigm Online University and Video Learning Library, you can create a “learner-centric” training portfolio of online courses and videos that can be accessed multiple times. You can learn at your own pace—anytime, anywhere.

Our eLearning courses are now offered to all Universities and non-profit organizations that lease our licenses, free of charge. Once an institution joins the program, its users will have access to all the on-line courses in the library, which use a variety of instructional techniques adapted to the different ways in which adults learn. These include:

- Videos for those who learn by listening and watching
- Text for those who learn by reading
- Hands-on, workflow-driven exercises for those who learn by doing
- Quizzes that measure comprehension and retention

Paradigm Online University makes it possible for users to learn what they need, when they need it.

Students may also take courses in subjects related to products not leased (licensed) by the institution, in order to become familiar with our wide range of products. In addition to learning about different technologies, students will leave University with a good knowledge base of Paradigm software, giving them a head start as they begin their professional careers.

Paradigm Instructor-Led Courses

Paradigm instructors are highly competent, Paradigm-certified professionals. They have undergone extensive training on our applications and are proven and effective trainers.

Attend any regularly scheduled training course at one of our Paradigm Learning Centers, or schedule training for your team at your own facility. Be sure to browse our [Instructor-led course catalog](#) for a complete description of all our courses as well as class dates, locations, and registration information. Paradigm offer a 50% discount to academic and non-profit Institutions for public courses when a full fee paying student has booked a course.

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Microsoft and Windows are either registered trademarks or trademarks of Microsoft Corporation in the United States and/or other countries. Red Hat is a registered trademark of Red Hat, Inc. Linux is a registered trademark of Linus Torvalds.

Appendix A: Additional University Edition Modules

Any combination of the modules listed below can be added to the relevant University Edition product configurations for an additional US \$2,000. (Exception: The GOCAD Kine3D® products are each priced at \$2,000.)

For clarification, please see the examples at the end of the table.

Anchor Product	Part Number	Name of Add-On	Description
GeoDepth (UE-2)	RCP-1865	FastVel	Automatic high-resolution residual move-out analysis
	VI-15888	AFE (Automatic Fault Extraction)	Automated tool for identifying and extracting geologic discontinuities from seismic volumes
SeisEarth (UE-5)	VI-1705	Comprehensive Attribute Bundle	Includes complex trace attributes and seismic trace analysis attributes, directional and illumination attributes
	VI-1849	Coherence Cube® Attribute	Discontinuity enhancement
	VI-1153	Advanced Synthetics	Advanced synthetic seismogram generation, including multi-well synthetics, fluid substitution modeling, wavelet extraction, rock physics, etc.
	VI-11833	Prestack Data Interpretation	Prestack Seismic Data Visualization, Conditioning and Analysis in 3D Canvas and 2D Canvas
	VI-11962	SeisEarth XV - Single User	Multi-survey (2D/3D) basin-to-prospect scale interpretation. Includes all SeisEarth EL functionality plus 2D Propagator, FaultTrak, mis-tie analysis, basic synthetics, volume rendering (opacity), multi-horizon volume flattening, horizon and proportional slicing.
VoxelGeo (UE-7)	VI-1137	Curvature Attribute	Volumetric curvature attribute for structural feature determination
	VI-1530	VXplot	Multi-disciplinary crossplotting
GOCAD/SKUA	ED-1022 Must have: UE-4 or UE-10	GOCAD Structural Uncertainty (Alea®)	Rock volume uncertainties from interpretation uncertainties, structural scenarios and OWC uncertainties (in cooperation with Total)
	ED-1020 Must have: UE-10	Reservoir Uncertainty (Jacta®)	Reservoir volume uncertainty from geological uncertainty. Sensitivity analysis

Anchor Product	Part Number	Name of Add-On	Description
			on modeling parameters (in cooperation with Total).
	ED-1038	Finite Element Mesh Constructor	Construct tetrahedral meshes in structurally complex environments.
	ED-1009 Must have: UE-4 or UE-10	Basic Well Planning	Create and edit targets, construct optimum well paths from picked targets, optimize platform position, estimate cost.
	ED-1981 Must have Basic Well Planning	Side Track & Collision Risk	Construct and optimize side-tracks, compute well path uncertainty and anti-collision.
	ED-1999 Must have: UE-10	Fracture Modeling (FracMV™)	Create discrete fracture network (DFN), upscale to create fracture permeability, fracture porosity, sigma properties (in cooperation with Midland Valley)
	ED-1984	3D Magellan Mouse	Replace many 2D mouse movements by an intuitive, ergonomic 3D mouse control.
	ED-1004* Must have: UE-4 or UE-10	Advanced Structural Analysis – GOCAD Kine3D-1	Quantitative exploration of structures, isopach surface construction, enhanced dip constraint for horizon construction, DEM manipulation (in cooperation with IFP).
	ED-1005* Must have: ED-1004	GOCAD Kine3D-2 2D Restoration	Cross-section restoration, balanced cross-section, map unfolding, multi-map restoration. Flexural slip, simple shear, flow, rigid rotation of blocks, compaction/decompaction (in cooperation with IFP).
	ED-1006* Must have: ED-1004	GOCAD Kine3D-3 3D Restoration	Volumetric restoration, elastic relaxation, slip of faults and horizons, stress ellipsoid prediction, strain stress/strain direction/values, strain minimization (in cooperation with IFP).
Stratimagic (UE-13)	RCP-1240	NexModel	Seismic facies well log calibration
	RCP-11834	Stratimagic 2D	2D seismic classification
	RCP-1411	Seismic-Driven Log Property Propagation	Neural network-based log property volume creation
Probe (UE-11)	DPI-1682	Probe Velocity Navigator	Task-oriented residual moveout analysis [includes time and time-migrated operations performed on CRP (time migrated) or CMP (offset or angle) gathers].

Anchor Product	Part Number	Name of Add-On	Description
	RCP-1851	FastVel (Probe)	Automatic high-resolution residual velocity analysis
Vanguard (UE-12)	RCP-1869	IFP Inversion	Simultaneous inversion
	RCP-1596	Rock Physics	Rock physics modeling and fluid substitution
Geolog (UE-14)	RCP-0138	Geolog Core Analysis & Saturation Height Modeling	Advanced core analysis
	RCP-1241	Geolog NMR	NMR processing, inversion, interpretation
	RCP-1392	Geolog Image Log Processing & Interpretation	Borehole image log processing, including dip meter calculations
	RCP-1391	Geolog Facimage	Electrofacies analysis and core data modeling
	RCP-1700	Geolog Full Waveform Sonic	Full waveform sonic calculation
	RCP-1511	Geolog Correlator	Multi-well correlation
	RCP-15504	Geolog Pore Pressure Prediction	Geolog pore pressure prediction
	RCP-15696	Geolog Well Integrity	Cement evaluation and pipe inspection tools to visualize and quantify condition of completed wells
	RCP-15984	Geolog Production Logging	Geolog Production Logging
General add on (all Anchor Products)	EP-0191	Epos-GeoFrame link	GeoFrame 4.5 interoperability (wells). (Included with all Epos products except Geolog and Stratimagic.)
	EP-1618	Epos-OpenWorks Link	OpenWorks 2003.12 and OpenWorks R5000 interoperability (wells). (Included with all Epos products except Geolog and Stratimagic.)

Example 1: If you need access to GOCAD Reservoir Uncertainty, you will need to obtain the Reservoir Modeling Solution (UE-10a) for \$2,000. This gives you one-year access to 5 licenses. Then add both Reservoir Uncertainty and Fracture Modeling, one-year access for 5 users, for only \$2,000 from Appendix A. The total price will be \$4,000 (plus an annual RING-GOCAD Consortium fee of €1,500).

Example 2: Along with the Seismic Reservoir Characterization Solutions (UE-11, UE-12 and UE-13) for a total of \$6,000, you can add a special package of 5 one-year-licenses of Stratimagic NexModel (RCP-1240), FastVel (RCP-1851), and Vanguard Rock Physics (RCP 1596) for \$2,000, for a grand total of \$8,000.

Example 3: If you want access to one (1) Interpret, two (2) Explorer and six (6) Geolog Facimage, you would gain access to 5 Interpret (UE-15), 5 Explorer MV (UE-3) and 5 Geolog Gold (UE-14) one-year licenses for \$2,000 per bundle. For an additional \$2,000, you will receive 5 one-year-licenses of Geolog Facimage (RCP-1391) (from Appendix A). This will bring the total for this transaction to \$8,000.

Appendix B: How to join the RING-GOCAD Academic Consortium

The Association Scientifique pour la Géologie et ses Applications (ASGA) manages the RING-GOCAD Academic Consortium. Please contact ASGA at the following address:

ASGA / Computer Science Department - Batiment E
2 rue du Doyen Marcel Roubault
TSA 70605
54518 Vandoeuvre-lès-Nancy Cedex - France
<http://ring.georessources.univ-lorraine.fr/>
Contact : Mrs Elisabeth Mouillié
Tel/ +33-(0)3 83 59 63 48 or +33-(0)3 83 55 35 23
Fax/ +33-(0)3 83 51 05 99
Email/ elisabeth.mouillie@univ-lorraine.fr

- Sign the Academic Membership Agreement with ASGA
- Pay ASGA a €1,500 annual membership fee.

What are the benefits for Universities joining the RING-GOCAD Consortium?

Membership in the RING-GOCAD Consortium provides early access to new technology in numerical reservoir and subsurface modeling. This technology is made available to RING-GOCAD Consortium Members through:

- Original research papers, presentations and training courses, presented yearly at the September RING meeting held in Nancy.
- Computer codes (sources + binaries), mostly consisting of plugins to the GOCAD geomodeling software.
- Binary codes may be applied to proprietary or public data by all Consortium members with a valid GOCAD License.
- Possible internships and collaborations with RING Researchers on selected topics.

For further details please follow the link: <http://www.ring-team.org/consortium/whyjoin>.