

Latest Advances in the Antelope Environmental Monitoring System

- *Antelope 5.14*

Dr. Kent Lindquist

CTO, Boulder Real Time Technologies, Inc.

June, 2024

Trieste, Italy AUG



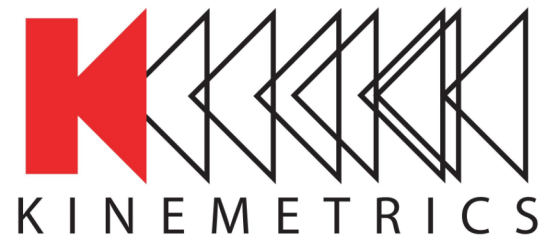
Boulder Real Time Technologies, Inc.

- Founded 1996
- Based in Boulder, Colorado, USA
- Makers of the ***Antelope*** Environmental Monitoring System



Thanks to Kinometrics

Thanks to our long-time strategic partners, Kinometrics, Inc.



Antelope Users' Group Meetings

- *Thanks to Giovanni Costa and SeisRaM / U. of Trieste!!*



**UNIVERSITÀ
DEGLI STUDI
DI TRIESTE**

- *European AUG Meetings definitely back on track*



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Antelope Users' Group Meetings



- *Looking forward to as rewarding a meeting as Vienna '23*



Boulder, CO Local Snapshot (20 May 2023)



Boulder, CO Local Snapshot (28 May 2023)



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Outline

- Antelope 5.14
 - Platform Support
 - Interpreters
 - Antelope Contributed Code
 - ObsPy Support
 - MsPASS Panda DataFrames and Datascope
 - Status / discussion
 - Zendesk integration in BRTT Web Site
 - Node Package Manager in Thirdparty Code
 - Docker [5.13] now with VNC Support / GUIs [5.14]
 - Small Changes
 - Condor Structural Health Monitoring
 - New Developments: webdlmon, web tech stack, rtsystems on AWS
 - -> Leslie Pajuelo, Rohan Ambli



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Antelope 5.14 Platform Support

- Linux
 - CentOS / RHEL 7 (compiled on CentOS 7.9)
 - RHEL 8 (compiled on RHEL 8.6)
 - RHEL 9 (compiled on RHEL 9.3)
 - Ubuntu 22 (compiled on Ubuntu 22.04)
- macOS
 - Intel-architecture Monterey (compiled on Intel macOS 12.6.3)
 - ARM64-architecture Monterey (compiled on M1 macOS 12.2.1)

Antelope 5.14 Platform Support Changes

- RHEL 9 Added
- This is the last year for CentOS / RHEL 7
 - CentOS 7 End Of Life June 30, 2024
- macOS
 - Intel Support finite
 - Apple transition to ARM64 Silicon “complete” June, 2023
 - Apple Intel hardware “Vintage” 2028; “Obsolete” 2030
 - BRTT planning to support Intel macOS hopefully several more years
 - customer dependent
 - code-compilation dependent

Antelope 5.14 Interpreters



- *Qt 5.15.8, Qt 6.3.2*

(Two versions, older for CentOS 7)



- *Perl 5.38.2*

(Aiming to change each release, collision avoidance)



- *Tcl/Tk 8.4.19 and 8.6.0*

(Same as previous Antelope versions. Dead language.)



- *MATLAB R2024a*

(Finally, with native MATLAB for ARM64 macOS!)



- *Python 3.12.2*

(Aiming to change each release, collision avoidance)

- *ObsPy support preserved through **install_obspy(1)** command*

Contrib: ObsPy support



- *ObsPy*: Python Framework for Seismology
 - <https://obspy.org>
 - Gaining significant traction
- ***install_obspy(1)*** command supported in Antelope
- Lots of effort this year to make sure Antelope Python is *ObsPy*-compatible
 - *ObsPy* is not our code – can't ship pre-built
 - Installation packages require compilers thus sysadmin dependent
 - Works with Antelope toolchains – workarounds for common problems documented in ***install_obspy(1)***
- Bring any problems to support@brtt.com – we want this to work for you

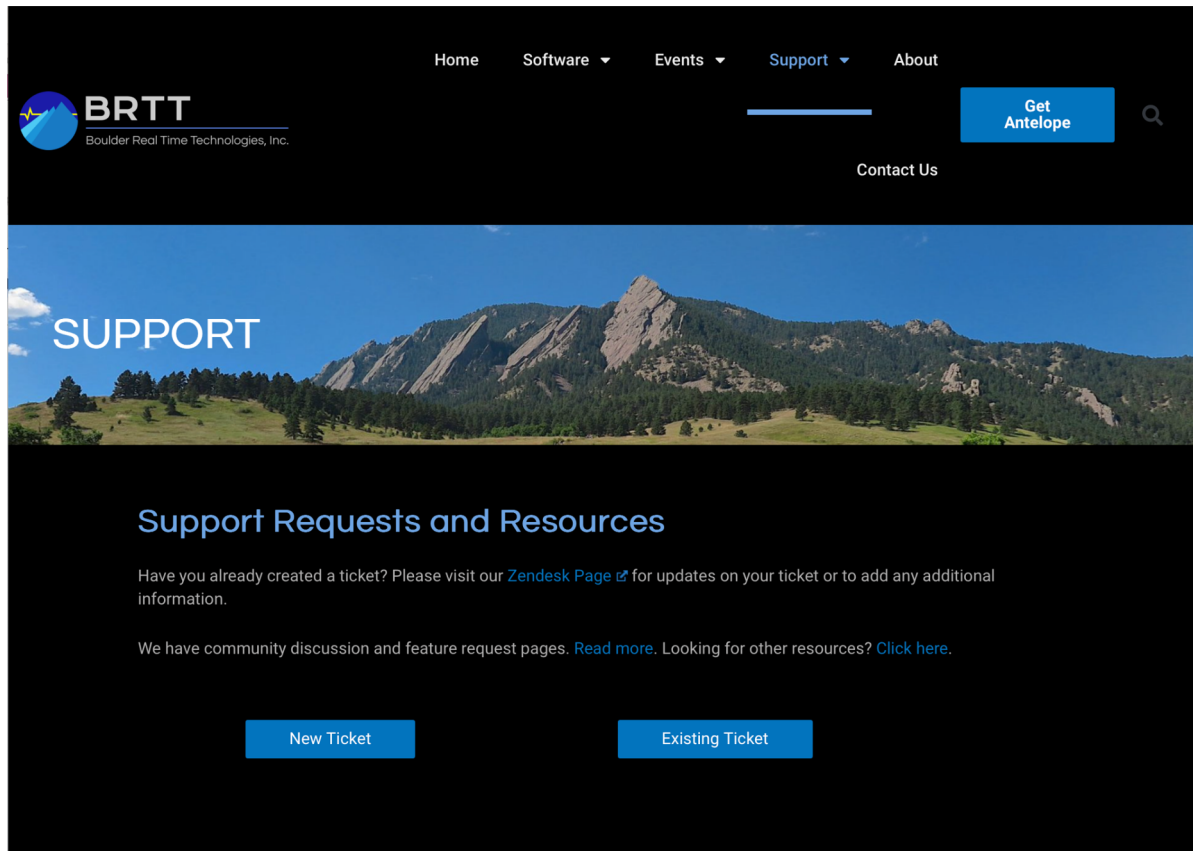
Contrib: MsPASS Panda DataFrames - Datascope

- MsPASS:
 - Massive Parallel Analysis System for Seismologists
 - Open-source seismic data processing framework
 - <https://mypass.org>
- Gary Pavlis (U. Indiana) and Ian Wang (TACC)
- New “DatascopeDatabase” class:
 - Pandas DataFrame as intermediary between MsPASS, Datascope
 - DataFrame: Canonical way to handle tabular data in Python
- Converter docs at https://www.mypass.org/python_api/mypasspy.preprocessing.html

Contrib: Status ? Community discussion

- Antelope Contributed Code stable in GitHub
 - https://github.com/antelopeusersgroup/antelope_contrib
- BRTT building tarballs of compiled contributed code for each release
- Open questions:
 - Who handles pull requests
 - Who handles merge of *master* into *brttnext* for inclusion in release
 - Future of the AUG web site – very stale: take down, or reinvigorate?

BRTT Web site – Zendesk integration



<https://brtt.com/support>

- Email to support@brtt.com remains the same
- New option to submit via <https://brtt.com>
- Includes link to existing tickets
- Fields for standard questions streamlines responses
- Feedback welcome



BRTT Web site – Zendesk integration

<https://brtt.com/support>

Submit a New Support Request

If this is a new support request, please select your product or customer type. *

-- Select Support Type --

Name (required) Email (required)

Company or Institution (required) Other emails to CC, separated by commas

Subject of Support Request (required)

-- Select Antelope Version (required) -- Operating System

Describe in complete sentences what problem you are seeing and why you consider it a problem. *


List the command lines invoked so we can replicate the issue

Screenshots

Click or drag files to this area to upload.
You can upload up to 10 files.

Describe what you expected and how it differed from the outcome, expanding on which differences are problematic

Provide a short reproducible test case if appropriate



Include the tarball from the appropriate snapshot command

To generate the requested snapshot(s), please use the most appropriate snapshot command for your situation:

- *rtsnapshot(1)* (real-time system problems)
- *dbsnapshot(1)* (database problems)
- *dbloc_snapshot(1)* (*dbloc* problems)
- *sysnsnapshot(1)* (system problems)
- *licsnapshot(1)* (license problems)

Please include the resulting tarball from one or more of these commands along with your support request.

Effective problem reports are often time consuming and difficult, but your efforts help us to resolve the issue more quickly. Please consult the man pages *bugs(5)* and *reporting(5)* for some guidelines.

Snapshot Upload

Click or drag files to this area to upload.
You can upload up to 4 files.

[Create New Ticket](#)



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Docker Containers: Added VNC Capability

- Antelope 5.13 Docker container was command-line / headless only
- Antelope 5.14 adds VNC capability to the docker image
 - Can port-forward full display then run Antelope GUI applications
- This is Not the way containerized applications are architected to work!
- Deliberate step 'backwards' in architecture to support the move to cloud for traditional Antelope operations
- Stepping stone with intent to engineer back towards headless nodes
- Multi-year evolution is towards lightweight microservices
- Further discussion in Rohan Ambli's Kubernetes / Antelope talk

Node Package Manager in Thirdparty code

- Repository for third-party code shipped with Antelope:
 - /opt/antelope/thirdparty/
- Initially contained
 - Openssl
 - Nginx
- Now includes
 - Node Package Manager (***node*** and ***npm***, for React Javascript code)
 - In support of ***webdlmon*** and related webapps

Small Changes

- CSS3.0 Null Values
- *dbe* column widths

CSS3.0 Null Values

- Many missing null values added, per Gary Pavlis:

- bestdc
- mexpon
- cdperr
- claerr
- cloerr
- coterr
- durat
- dused
- nrlpb
- nrmw
- nslpb
- nsmw
- tmnlpb
- tmnmw
- dip
- mfferr
- mrferr
- mrrerr
- mrterr
- mtferr
- mtterr
- val1
- val2

dbe column widths

db: /opt/antelope/data/db/demo/demo

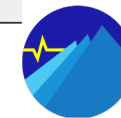
File Edit View Options Graphics Help

Tables New Window

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39 Rows

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dbe row-editor field names

dbe Row Viewer

Row index in table 'origin' (39 total rows)

Scratch Row Null Row Copy to Scratch Row

Allow Edits Readable Times Local Timezone

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lon:	<input type="text"/>	depdp:	<input type="text"/>
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etype:	<input type="text"/>	lddate:	<input type="text"/>

Dismiss Add



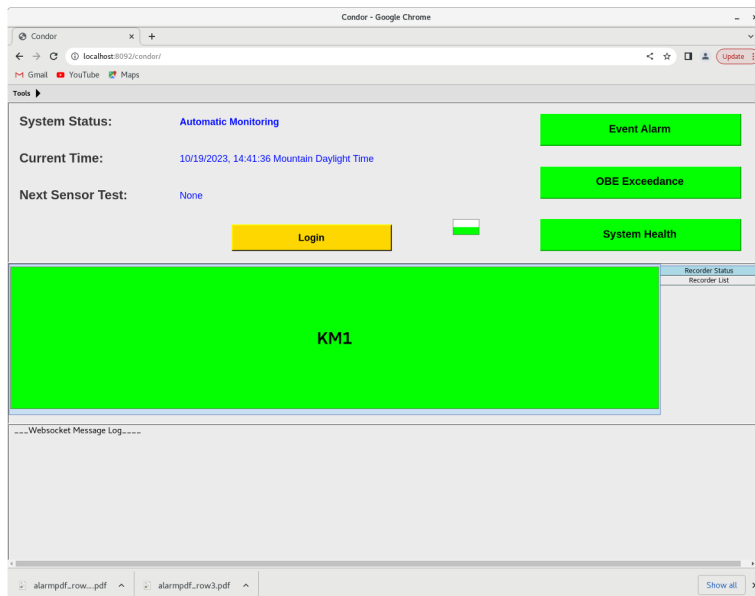
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Condor



https://kinometrics.com/post_products/condor2/



- Condor2: Earthquake Monitoring Solution for the Power Generation Industry
- Re-implemented underpinnings with Antelope Docker and Bighorn real-time system
- Currently same User Interface design for continuity
- Numerous options for future enhancements

Big new developments

- **webdlmon** and Antelope web tech stack: *Leslie Pajuelo*

- AWS Cloud real-time systems: *Rohan Ambli*

Coming Development Year

- Composable Web Object development
 - webdlmon sophistication
 - dbevents
- Smoothing cloud-compute workflows and rtsystem deployment
- List of small improvements
- Requests? Suggestions?

Antelope is the product it is today because of our users, your needs and feedback.

We look forward to continuing to support you.

Bring us your ideas!



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Obtaining Antelope

- Evaluation copies, subscriptions or upgrades to Antelope 5.14:
 - Contact Kinematics, Inc.:
 - sales@kmi.com
- Technical questions about Antelope:
 - Contact BRTT:
 - support@brtt.com



Thank You

support@brtt.com

