



October Meeting
10/12/2022

AGENDA

1. Announcements
2. ESRI Updates
3. Using Roads & Highways in Pro and in the Cloud
 - Presentation by MassDOT
4. Branch Versioning Continued From Last Month
5. Open Discussion

ANNOUNCEMENTS

- GeoNet - Become a part of the ESRI Community
 - <https://community.esri.com/t5/roads-and-highways-user-group-rhug/gh-p/roads-and-highways-user-group-rhug>
- Branch Versioning Discussion Continued
 - Ran out of time last month
 - Major topic of concern among DOTs

Esri Updates

Nathan Easley

Experiences using R&H in Pro and the Cloud

MassDOT

David Dinocco, Kevin Lopes & Charles Major



Roads and Highway Pro migration experience and overview

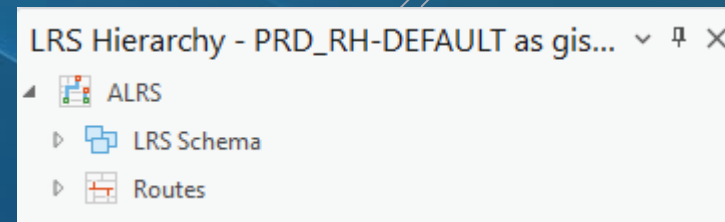


▶ ArcGIS RH Pro Preparation and Implementation

- ▶ Esri Support – ESRI Was involved and supportive throughout the migration planning and implementation process
 - ▶ Planning and progress meetings
 - ▶ ESRI performed the initial LRS Configuration and installation
- ▶ Post installation QC on Staging and Production, service stand up, and new workflow development was on MassDOT team.
- ▶ Migration was a concerted and major effort.

▶ Data Management Differences

- ▶ ALRS in a feature data set (Workflows around schema updating may need revision depending on custom applications and service connections of your platform)
- ▶ All services involving LRS objects needed to be republished through ArcGIS Pro.
- ▶ LRS Service configuration workflow has changed (Time enablement, LRS enablement and version management)
- ▶ ArcServer 10.9.1 changed some existing service URLs ...LRSServer to LRServer. This forced our developers to reconfigure app url calls where needed.
- ▶ Branch Versioning – Archiving, UTC for editor tracking, branch connections
- ▶ Move to feature Service based editing over direct connections (Routes etc)



▶ Branch Versioning

- ▶ Transition from ArcMap - Modified QC Workflows, retraining in Event Editor
- ▶ Versions are tied to Feature Services (Implications with regards to event specific event editors)
- ▶ Our experience with Cloud Based Environment performance

The screenshot displays a software interface with two main panels. The left panel, titled 'My to-do', shows a list of tasks with columns for task description, date, and status. The right panel shows a detailed view of a specific task.

My to-do

Task Description	Date	Status
Reported Issue: median cut to allow left turn from SR 9 Eb-Shrewsbury-N3600 ...	Jul 26	Ready for Review
Reported Issue: median cut for EB traffic entering SR 9-Shrewsbury-N3600 ...	Jul 28	Ready for Review
Reported Issue: WB path through median cut-Framingham-NOROUTEID	Jul 28	Ready for Review
Reported Issue: NONAME-NOTOWN-SR30 EB	Jul 28	Assigned
Reported Issue: NONAME-NOTOWN-US1 SB	Jul 28	Assigned
Reported Issue: SR 9 WB-Northampton-SR9 WB	Jul 27	Assigned
Reported Issue: slip lane from Village Inn Road to SR 2 EB on-ramp-Westm...	Jul 27	Ready for Review
Reported Issue: Village Inn Road WB-Westminster-L144104 WB	Jul 27	Ready for Review
Reported Issue: SR 12 SB-NOTOWN-NOROUTEID	Jul 27	Assigned
Reported Issue: LT lane from EB SR 2 off-ramp to Hawes Street-LEOMINSTE...	Jul 27	Ready for Review
Reported Issue: median break in Quinsigamond Avenue-Worcester-NORO...	Jul 27	Ready for Review
Reported Issue: slip lane from WB Olde Millbury Street to NB Quinsigamon...	Jul 27	Ready for Review
# Reported Issue: NONAME-WORCESTER-SR122A SB	Jul 27	Assigned

Reported Issue: slip lane from WB Olde Millbury Street to NB Quinsigamond Avenue-Worcester-L217027 WB

Road Inventory Error Reporter (RoadIE)

Ready for Review

CM Charles M. BK Bill K. CH Carl H. +2 + #930419313 by Kevin L. on Jul 27

Jul 13-27 (11d) Approvals 0:00 Add subitem Attach files Add dependency 9

Route ID
L217027 WB

Street Name
slip lane from WB Olde Millbury Street to NB Quinsigamond Avenue

Town
Worcester

Status
Submitted

Type
ROAD

Comments
route segment missing street name and other attributes

▶ Advice for Other Agencies

- ▶ ArcGIS Pro via ArcMap vs Direct to ArcGIS Pro – If not on RH yet, it might be best to go straight to pro if data quality is high
- ▶ Plan the migration ahead and make sure data is in the best state possible prior to migration
- ▶ Plan out editing workflow changes as early in the process as possible
- ▶ Work with cloud environment provider as early as possible on resources of the environment
- ▶ Develop a plan for standing services up using the new workflow efficiently

▶ Issues

- ▶ LRS Maintenance and updates – Schema locks are LRS wide
- ▶ Learning Curve
 - ▶ Recommend Esri's ArcGIS Pro Workflows Course
- ▶ Overall Performance
 - ▶ Ongoing configuration within cloud environment is helping with this (Your experience may be different)
 - ▶ Utilize database connections when not doing LRS editing.

- ▶ Positive Aspects

- ▶ GUI

- ▶ Ribbon

- ▶ Domain Visibility

- ▶ Location of Tools

- ▶ Multiple Maps and Layouts

- ▶ Workload Transition

- ▶ Speed of Tools

- ▶ Support of single loop alpha routes

- ▶ New Time Slider is useful

▶ Contacts

- ▶ Kevin Lopes, Director of Geospatial Technology

kevin.lopes@dot.state.ma.us

- ▶ Charles Major, GIS Data and Analysis, Team Lead

charles.major@dot.state.ma.us

- ▶ David DiNocco, HPMS Coordinator

david.dinocco@dot.state.ma.us

Experiences using R&H in Pro and the Cloud

Q&A: Predetermined Questions

- How was the transition to branch versioning from traditional versioning and how was it handled?
- Did you have to reload the database from scratch?
- Were there heavy users with R&H (e.g. daily editors) before and if so, how did they handle that heavy workload transition?
- Was the ESRI R&H team there for support?
- What was the level of effort involved with migration to Pro - how much commitment did the team have in the implementation?
- Was it perceived as doing this in the cloud would be different than from a local server? If so, what, if any, were some specific differences?
- Overall experience going to Pro in RnH

Branch Versioning Cont.

Continuing Our Conversation

Nathan was talking about this topic (below) but then got cut off and everything went silent. The meeting time was up and we ended due to respecting everyone's time.

We left off talking about how some RHUG members may have implemented certain business processes that depend on the concept of traditional versioning in the ArcGIS Desktop based R&H environment (it's up to the members to report). The switch from traditional versioning to branch versioning and the change in database schema may require such RHUG members to revisit, update, and reimplement the processes.

One example is how to utilize a script to read the default version data from the R&H transactional database. Compared to the ArcGIS Desktop based R&H environment, in the ArcGIS Pro environment there does not have Add/Delete tables anymore; all changes occur in the base table; all user edits are in one table with the BRANCH_ID defining which branch version is being edited. The example illustrates the script should be updated before it can function properly again.

Branch Versioning Cont.

Continuing Our Conversation

Here are the comments in chat last month that we were not able to attend to:

- “NYSDOT is working towards publishing the ALRS , Pavement and Traffic data to a separate 'Roadway Data Mart' database. This is where our services for applications will be published from. That said, our LRS integration with AgileAssets still runs from the Default version in the transactional database. It is a good practice to separate your transactional (editing) work and publishing into separate database instances but there is some additional overhead there as others have already pointed out.” - Kevin Hunt
- “We use version views to do batch updates of traffic data using PL/SQL. We will need to rewrite to do this through a service. Not impossible, just a change.” - Mike Clement
- “Is the speed of edits/views at all affected with the reliance on APIs?” - Alison Mynsberge
- “@Alison, we (Oklahoma) just did a Workshop of RH in Pro w/Clive and a handful of us used Feature Services hosted by ESRI in Pro on our local machines. The editing was really smooth and we didn't notice any issues.” - Sam Coldiron

Branch Versioning

Other Questions From the Community

- Database maintenance on a branched versioned egdb - Our traditional enterprise databases are regularly compressed and reindexed - is this process the same, are there other steps for general performance improvement, etc.
 - Answer: “The compress operation does not apply to branch versioning, you still want to properly maintain indexes and statistics (analyze) as needed per the apps and workflows using and managing the data.” - Amit Hazra
- "If we have archive features (the history tables) in ArcMap R&H. Are they migrated, in what form or tables the new contents are stored post migration?"
- "Will the branch archives be in the *_H tables in the database?"
- Any more questions in Chat or if anyone would like to ask?

Branch Versioning

Additional sources and information

- <https://pro.arcgis.com/en/pro-app/2.8/help/data/geodatabases/overview/versioning-types.htm>
- <https://community.esri.com/t5/roads-and-highways-user-group-rhug-questions/branch-versioning-doc/mp/867755#M405>
 - <https://pro.arcgis.com/en/pro-app/latest/help/data/geodatabases/overview/overview-of-versioning-in-arcgis-pro.htm>
 - <https://www.esri.com/arcgis-blog/products/arcgis-roads-and-highways-user-group>

Branch Versioning

Conclusion

- With the migration to Pro in Roads & Highways, Some RHUG members are on the hook to create their own implementations and processes, re-configure workflows and scripts, rethink QC processes and backup plans, and invest significant time and money into these required tasks. For other RHUG members, it may not be as large of an undertaking.
- We as RHUG members need to be more aware of future software upgrades and implementations. When we notice a change coming or being suggested by software developers, do your due diligence and research so that we can plan ahead or suggest other methods before those changes are implemented.
- We ask that ESRI and other software developers create better awareness and educate on future changes that might be coming up in software development - especially if it would be foreseen that time and money would be needed to invest from RHUG members in these changes.
- We would ask ESRI to either:
 - a. Make traditional versioning an option in ArcGIS Pro based R&H, even though it may take the R&H product team some time to write the code.
 - b. Provide high priority branch versioning related services back to DOTs for those who are making the transition to ArcGIS Pro with R&H. This would provide RHUG members with a smoother transition and lessen the burden of DOTs needing to invest time and money just to upgrade their ESRI software.

Open Discussion

Upcoming Meetings / Contacts

Wednesday November 9th, 12:30-2pm

Contact Info:

Erin Lesh ealesh@ncdot.gov

Patrick Whiteford pwhiteford@azdot.gov

Ryan Koschatzky rjkoschatzky@ncdot.gov

Shaun Perfect sperfect@azdot.gov



**Product Team Update
RHUG meeting 10/12/22**

Nathan Easley

Capabilities currently under development

- **Query Attribute Set in Pro**
- **Retire Overlaps option in Add Events tools in Pro**
- **Merge Coincident option in Add Events tools in Pro**
- **Intersection offset method in Add Events tools in Pro**
- **LRS support in the sync service**

Support Incidents/Defects

- **BUG-000150136** – The Overlay Events tool in ArcGIS Pro returns a much larger output than the equivalent Overlay Route Events tool in ArcMap (as designed)
- **BUG-000151304** – The Export Network tool creates incorrect LRMtranslation records when lollipop routes are involved (fixed in Pro, will be patched in ArcMap)
- **BUG-000151303** – The Export Network tool creates incorrect LRMtranslation records when concurrent routes are involved (fixed in Pro, will be patched in ArcMap)
- **BUG-000151833** – ERROR 160319 consistently occurs when the script tool calls the Append Routes tool (fixed in Pro)
- **BUG-000152525** – The Overlay Events tool's output dataset contains null values for certain events (currently investigating)
- **BUG-000151792** – The Generate Routes tool creates incorrect results (fixed in Pro)



esri

THE
SCIENCE
OF
WHERE

from Ryan Koschatzky to everyone: 12:33 PM

<https://community.esri.com/t5/roads-and-highways-user-group-rhug/gh-p/roads-and-highways-user-group-rhug>

from Erin Westfall to everyone: 1:01 PM

What was the learning curve for your editors? Did you have training for them from ESRI or did you do it inhouse?

from Kevin Hunt to everyone: 1:03 PM

Any estimate (or guess) on the total time MassDOT groups, including IT, spend on the migration to Pro? Do you have an idea if it would it have been more or less if the implementation on-prem as opposed to cloud? (assuming the Desktop RH onprem?)

from Patrick Kemble to everyone: 1:09 PM

What is your definition of single loop alpha routes?

from Kevin Hunt to everyone: 1:11 PM

No worries... had to ask. Thanks

from Patrick Kemble to everyone: 1:11 PM

So only one loop per polyline/route ID? Does Pro not support a route ID have multiple alphas?

from Patrick Kemble to everyone: 1:13 PM

You mentioned a work around for multiple self intersections.

from Amit Hazra to everyone: 1:13 PM

@Patrick - see: <https://pro.arcgis.com/en/pro-app/latest/help/production/roads-highways/create-a-new-route.htm>

from Amit Hazra to everyone: 1:14 PM

"Complex Route Creation Scenarios"

from Ryan Koschatzky to everyone: 1:14 PM

Interesting you mentioned calibration point work as esri and what I have not seen that needed in testing, can you explain more about why this is needed?

from Amit Hazra to everyone: 1:15 PM

@Ryan At ArcGIS Pro, complex routes require calibration points within any loop. If you use the LRS tools we create the calibration and 1/3 and 2/3 of the loop

from Amit Hazra to everyone: 1:15 PM

If you load your own then you'll need to bring your own or run our LRS migration Update Calibration Points GP

from Amit Hazra to everyone: 1:16 PM

Available on git hub

from Ryan Koschatzky to everyone: 1:16 PM

Thanks.

from Kevin Hunt to everyone: 1:16 PM

That was great guys. Thank you so much!

from Clive Reece to everyone: 1:16 PM

Here is the GitHub link: <https://github.com/Esri/lrs-migration-toolset>

from Patrick Kemble to everyone: 1:17 PM

Thanks for the Pro input MassDOT

from Clive Reece to everyone: 1:17 PM

(also referenced in Nathan's "Migrating Roads and Highways to ArcGIS Pro" white paper)

from Lesh, Erin A to everyone: 1:17 PM

If anyone would like to speak, please let me know and I can unmute you.

from Nathan Easley to everyone: 1:18 PM

To clarify on product support for double loops and other complex shapes, Roads and Highways can calibrate any route. The challenge for some users is that it might not calibrate it the way you desire since those routes could have multiple starting points and multiple paths to calibrate them in a monotonic manner.

from Kevin Hunt to everyone: 1:24 PM

Did you mention the pace of network and event editing compared to Desktop?

from Lesh, Erin A to everyone: 1:27 PM

Thank you Charles and Dave!

from Amit Hazra to everyone: 1:28 PM

Although it is possible to scrape information from the base tables through MVs and reporting queries/stored procs, we highly recommend you go through the API to develop reporting objects from versions.

from Amit Hazra to everyone: 1:29 PM

Sorry - I'm onsite and can only write.

from Kevin Hunt to everyone: 1:33 PM

yes

from INDOT - Asset Management to everyone: 1:35 PM

Kevin H - Is there a reason you didn't recreate the ALRS in the datamart DB?

from Kevin Hunt to everyone: 1:35 PM

Just avoiding the complexity of a second ALRS

from INDOT - Asset Management to everyone: 1:36 PM

Thanks.

from Lesh, Erin A to everyone: 1:36 PM

@Mike Clement - want to be unmuted?

from Nicole Hanson to everyone: 1:41 PM

hard to hear her

from INDOT - Asset Management to everyone: 1:42 PM

Tweak to 200K?

from Alison Mynsberge to everyone: 1:44 PM

Does a 200K tweak work well for INDOT?

from Dave DiNocco to everyone: 1:45 PM

I need to jump off. Thank you for the opportunity to present.

from Shaun Perfect to everyone: 1:45 PM

Thanks Dave

from INDOT - Asset Management to everyone: 1:45 PM

We have never hit a ceiling but have bumped it over 100K. on occasion.

from Ryan Koschatzky to everyone: 1:47 PM

<https://pro.arcgis.com/en/pro-app/2.8/help/data/geodatabases/overview/versioning-types.htm>

<https://community.esri.com/t5/roads-and-highways-user-group-rhug-questions/branch-versioning-doc/m-p/867755#M405>

<https://pro.arcgis.com/en/pro-app/latest/help/data/geodatabases/overview/overview-of-versioning-in-arcgis-pro.htm>

<https://www.esri.com/arcgis-blog/products/arcgis-enterprise/data-management/to-branch-or-not-to-branch/>

from Charles Major to everyone: 2:00 PM

Thanks so much for the opportunity to share with you all. Gotta drop. Thanks!

from Aaron Ferrari to everyone: 2:00 PM

Thanks everyone!

from Samuel Coldiron to everyone: 2:00 PM

Thank you!

from Yueming Wu to everyone: 2:00 PM

Thanks!