MDOT SHA Standard CAD Software

December 9, 2020

Contents

Current MDOT SHA Software Platform

The current release of the **V8i CAD Standards** has been designed to run on the following Bentley Software (recommended versions shown in **bold**):

- MicroStation V8i (SELECTseries 3) V8.11.09.459 – Update 2
    - or V8.11.09.357 – Update 1
    - or V8.11.09.292 – Initial Release
- **MicroStation V8i (SELECTseries 10) V8.11.09.919**
- Power InRoads V8i (SELECTseries 2) V8.11.07.615
- Power InRoads V8i (SELECTseries 4) V8.11.09.904
- **InRoads V8i (SELECTseries 10) V8.11.09.912/918**
- **ProjectWise Explorer CONNECT Edition V10.00.03.167**

Current MDOT SHA CAD Workspace

In summer of 2019, MDOT SHA released Workspace 2.x, previously available only as a managed workspace. The previous Workspace 1.x has since been retired, and all projects should now be on **Version 2.02.04** (or newer).

Workspace 2.x contains two separate CAD standards, each applied via a project configuration (PCF) file. Use **SHA_V8_01** for projects that were begun with Workspace 1.x, and **SHA_V8_02** for the V8 workspace developed specifically for use with **InRoads V8i (SELECTseries 10)**.

This is a change from **MDOT SHA**'s previous V8 CAD Standard workspace, which used user configuration (UCF) files to allow users to select V7 or V8 workmode and standards. The new workspace folder structure and many configuration variables have been changed in an effort to discourage mixing of the original workspace and its files with the new workspace. The new workspace also no longer includes the V7 workspace. Refer to the information provided on the **MDOT SHA CAD Standards** web page for more information on **Workspace 2.x**.

All projects on **SHA's ProjectWise Datasources** should be maintained and edited within **MDOT SHA's ProjectWise** environment. These projects must be accessed by using the **ProjectWise Explorer** (Client). Consultants who do not work directly within the **ProjectWise** environment will be responsible for ensuring that all reference file attachments are properly linked within **ProjectWise** at no cost to **MDOT SHA**.

Specific Project Requirements

New Project Starts

MDOT SHA will develop all new projects using the **SHA_V8_02 Workspace Standard** and **InRoads V8i (SELECTseries 10) with OpenRoads Technology**. By the end of 2020, **MDOT SHA** will have removed MicroStation V8i (SELECTseries 3) from all internal PC's and installed **MicroStation V8i (SELECTseries 10)** for its **MicroStation** users. Likewise, InRoads

V8i (SELECTseries 4) is being replaced with **InRoads V8i (SELECTseries 10)**, specifically the **Power InRoads** platform.

Note: All references in any **SHA** documentation or correspondence that use the term **OpenRoads** are intended to refer specifically to **InRoads V8i (SELECTseries 4 or 10) with OpenRoads Technology**. **MDOT SHA** is not able to support design efforts using **Bentley's OpenRoads Designer** software, nor would we expect any of our consultants to undertake any efforts necessary to use **OpenRoads Designer** in an **MDOT SHA**-compatible workspace.

As part of the eventual migration to **OpenRoads Designer, MDOT SHA** has elected to use **Bentley's Power InRoads** software for internal design efforts. **Power InRoads** is a bundling of **MicroStation** and **InRoads Suite** into a single integrated platform. Most offices at **MDOT SHA** that do not use **InRoads** continue to use **MicroStation**. And some offices continue to use **MicroStation** with **InRoads**, but only for projects using the **SHA_V8_01** standard.

The following charts were created to illustrate the appropriate software versions according to **CAD Standard** version. The first chart is applicable at any time prior to **December 31, 2020**, when **MDOT SHA** will require all continued **CAD** efforts to begin using the **SELECTseries 10** products.

Note: **Power InRoads** has two version numbers - one for the CAD engine and one for the **InRoads** component.

CAD Standard Version	MicroStation Only	Power InRoads	
		CAD Engine	InRoads
SHA_V8_01	(V8i Ss3) V8.11.09.459	(V8i Ss2) V8.11.09.397	(V8i Ss2) V8.11.07.615
SHA_V8_02	(V8i Ss3) V8.11.09.459	(V8i Ss4) V8.11.09.832	(V8i Ss4) V8.11.09.904

After **January 1, 2021**, Only the **V8i (SELECTseries 10)** platforms should be used on **MDOT SHA** projects.

CAD Standard Version	MicroStation Only	Power InRoads	
		CAD Engine	InRoads
SHA_V8_01	(V8i Ss10) V8.11.09.919	(V8i Ss10) V8.11.09.912	(V8i Ss10) V8.11.09.918
SHA_V8_02	(V8i Ss10) V8.11.09.919	(V8i Ss10) V8.11.09. 912	(V8i Ss10) V8.11.09.918

When a new project is approved, the project will be created to use the **SHA_V8_02 Workspace Standard** in a **Managed Workspace**. While this workspace is fully functional,

refinements are being made and are easier managed as a **Project Wise Managed Workspace**.

As part of the efforts towards the migration to **OpenRoads**, the **SHA** level-naming convention is being aligned with the **National CAD Standards (NCS)**. This allows **SHA** to use more **ByLevel** settings and many other settings that are required by **OpenRoads**. Users who have worked on projects for **WSSC**, **USACE**, **GSA**, **WMATA** and many other agencies will find familiar ground with this change.

Many of MDOT SHA's documents related to CAD will continue to refer to **MicroStation** unless a specific topic applies only to a specific **Bentley Civil Product**. References to **MicroStation** apply to any **Bentley** CAD platform of a similar version number.

Existing and Ongoing Projects

Unless specifically directed or requested, any existing project that previously used the **MDSHA_V8_01** CAD Standard will continue to use the **SHA_V8_01 CAD Standard** delivered with Workspace 2.x. This is the updated version of the original MDOT SHA 2004 CAD Standard Workspace (MDOT SHA Workspace 1.x).

Note that as of the 2.02.04 Update, the SHA_V8_01 standard is now compatible with InRoads SELECTseries 10. Given Bentley's announced intention to disable earlier version of InRoads (see Special Circumstances below), users should begin the process of migrating InRoads SELECTseries 2 data to SELECTseries 10.

ProjectWise Use

There are two primary modes of operation for projects stored in **ProjectWise: Workspace Profile** and **Managed Workspace**. Originally, all projects stored on **SHA's ProjectWise** servers used a **Workspace Profile** (also referred to as an **Unmanaged Workspace**). These projects require the user to have a local copy of the appropriate workspace installed. It is critical that consultants maintain an up-to-date local copy of the workspace if they are assigned a project using a **Workspace Profile**.

Projects using a **Managed Workspace** do not use, need or rely on any local workspace other than the workspace delivered with the core products. Whenever a CAD file is opened from the **ProjectWise Explorer**, those in a managed workspace will download a copy of the workspace along with all files needed to view or edit the selected file. This results in an initial download that takes longer than normal, but once the workspace files are copied to a user's working folders, only files with changes must be refreshed in subsequent sessions.

On **SHAEDMS01**, there are a number of projects which are stored under the folder structure **…\SHAEDMS01\Documents\Projects (MW)**. All projects in these folders have always used a **Managed Workspace**.

Projects using a **Workspace Profile** will continue to work if the local workspace is **MDOT SHA CAD Standard Version 1.10b** with updates **01.11**, **01.12**, **01.13b**, **01.14b** and **01.15.** However, no updates to those workspace files have been issued since **June 6, 2018** and no further updates will be made. All workspace standard updates will be made to **Version 2.x** and will include updates to both standards (**SHA_V8_01** and **SHA_V8_02**) as required.

There are a number of revisions and enhancement that are part of the workspace in the **SHA_V8_01** standard, which were never released as an update to the **Version 1.x** workspace. Additionally, the **Version 1.x** workspace was never setup to run **InRoads V8i (SELECTseries 4)** or **(SELECTseries 10)**. In order to run those versions effectively, the most recent workspace (**8/03/2020** or newer) is required.

While it is strongly recommended that the local workspace be updated to the current version **2.02.04** (or newer), **MDOT SHA** is working towards making all projects in **ProjectWise** operate using a **Managed Workspace**. As this is implemented, the local workspace will no longer be used for those projects and it will no longer matter if the local workspace is not up to date. At this time, we do not have a fixed date for the completion of this migration. And while the IDS Team recommends all offices within **MDOT SHA** should use **ProjectWise** for all projects, if consultants are working on any project not being maintained in **ProjectWise**, those firms will continue needing to maintain a local copy of the **MDOT SHA Workspace** and that workspace should be an up-to-date, **Version 2.x** workspace.

Special Circumstances - Bentley Announces Retirement of SELECTserver License Server

Bentley had announced that at the end of **December 2020**, they would be retiring (turning off) their hosted **SELECTserver License Server**. Most firms no longer run their own license server but rely on the server hosted by Bentley. Recent communications from **Bentley** has indicated that this deadline has been extended, but they have given no firm commitment on the duration of this extension. Therefore, **MDOT SHA** has elected to move forward as though this extension has not occurred. These developments impact the **MDOT SHA Workspace Standards** and the **Supported Software** as explained in the next topics.

MDOT SHA will change the ProjectWise application settings beginning January 2, 2021 for all DGN files, making the **SELECTseries 10** platform the default **MicroStation** or **Power InRoads** platform.

Software Version Impacts

All **SELECTseries** products (pre-SS10) will lose their ability to use license pooling when they can no longer communicate with a **SELECTserver License Server**. After Bentley has turned off this server, the only way to continue to use those versions will be with **Node-Locked** licenses.

Node-locked licenses have the potential of adding significant costs to **MDOT SHA** and their consultants, while reducing the flexibility afforded by license-pooled CAD seats. Therefore, MDOT SHA will be implementing a methodology and policy to allow its staff and consultants to complete any and all existing projects using the **SELECTseries 10** platform. **Bentley** released a suite of [SELECTseries 10](#) products that use the **CONNECTION Client** as their licensing module, as an alternative to using node-locked licenses of earlier products. Any products not on the list found at that link, must begin using one of the **CONNECT Edition** products.

MDOT SHA Workspace Impacts

While **MDOT SHA** does have an **OpenRoads Designer CONNECT Edition Workspace** under development, there is no scheduled release date for this workspace. Additionally, no effort has been expended on making this workspace compatible with **MicroStation CONNECT Edition**, as will eventually be required in order to release this workspace. Therefore, at this time **MDOT SHA** will be officially migrating to the following software products on or about Dec. 31, 2020:

- **MicroStation V8i (SELECTseries 10) V8.11.09.919**
- **Power InRoads V8i (SELECTseries 10) V8.11.09.912/918**.

Within **ProjectWise**, the **MDOT SHA** will control which Workspace Standard is used when a CAD file is opened. To prepare for this, the **SHA_V8_01 Workspace Standard** has been enhanced to allow the use of **Power InRoads V8i (SELECTseries 10)**. This is necessary as certain **InRoads SELECTseries 2** tools and workflows are no longer available in **InRoads SELECTseries 10** and are replaced by the **OpenRoads** tools in that product. Projects in the **SHA_V8_02 Workspace Standard** should see no significant impacts as that workspace was developed explicitly for **InRoads SELECTseries 4**, and **InRoads SELECTseries 10** is effectively the same version in all respects, except for the licensing mode (and a few minor bug fixes).

MDOT SHA Project Impacts

Any InRoads projects using the **SHA_V8_01** workspace may be impacted by the change to **InRoads SELECTseries 10**. The most impacted workflow is the **Roadway Designer** and its **IRD** (*.ird) files. The other impacted workflow is for a project requiring cross sections. Any project that does not use the **Roadway Designer** (has no **IRD** files) and/or does not have any cross sections should be unaffected. Also unaffected would be any project that only required **MicroStation** tools.

Projects that do not meet these exceptions, will have varying amounts of impacts. A major portion of the enhancements found in the **8/03/2020** workspace update (**2.02.04**) were made in preparation for this deadline and subsequent software migration. Included in the workspace Help File documentation are five PDF manuals explaining the processes required to convert a **Roadway Designer Corridor**, stored in an **IRD** file into an

OpenRoads Corridor stored directly in a **DGN** file. Refer to those manuals for the steps and recommendations on this workflow.

The reason that **Cross Sections** are impacted by this migration, is that **InRoads** traditionally cut cross sections using information found in its **DTM** files. Once parts of the workflow were migrated to the **OpenRoads** tools, the **DTM** file type is deprecated and is replaced by **Terrain Model** elements stored directly in **DGN** files. Additionally, the corridor elements that were formerly also stored in a **DTM** file are now represented by 3D elements in **DGN** files. These changes required the cross section tools to be revised to read the 3D graphics in **DGN** files. The new tools now cut cross sections directly from the 3D **DGN** files.

Supported Alternative Platform Notes

The **MDOT SHA** workspaces have been developed and tested on the software in use at **SHA**. For the **SHA_V8_01** standard, that means **MicroStation** with **InRoads**. For the **SHA_V8_02** standard, that means **InRoads/OpenRoads (SELECTseries 4 and 10)**. We can neither test nor certify these workspaces on platform combinations that we do not have.

Many of our consultants have been able to use the **MDOT SHA** workspace with **Power Civil for North America**, **Power Survey** and **Power Draft**. Each of these programs use the **Power Draft** CAD engine and therefore have the same restrictions as **Power Draft**. Of those, the one restriction that is most impactful is the prohibition on applications that require DLL files to function.

This restriction impacts the following tools: **MCPC**, **ACADPAN**, **CIVTOOLS**, **CellTool, InfoSnap** and **SignCAD** as all of these utilize DLL files. These tools can only be used with **Power InRoads** or **MicroStation** with **InRoads**.

Anyone attempting to use earlier versions (pre-V8i) of these alternate platforms may experience errors when trying to run certain custom tools, as some tools required updated code to function under the V8i platform.

It should also be noted that there is a **GEOPAK (SELECTseries 4)** version of **OpenRoads**, which can create files which are compatible with the same **InRoads** version. However, workspace configurations must be specifically tailored to either **InRoads** or **GEOPAK** and cannot accommodate both. **MDOT SHA** does not have the resources to implement **GEOPAK**-compatible workspaces. For this reason, **MDOT SHA** is no longer supporting **GEOPAK** as a civil platform.