Risk MAP CDS

Hazus Release 3.1

User Release Notes

Version 1.0

April 4, 2016

Document Management History

Revision History

Version Number	Date	Summary of Changes	Team/Author
1.0	04/04/2016	Initial version	Risk MAP CDS

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1. Introduction

Hazus Release 3.1 is a full versioned software release, implementing six enhancements and addressing 21 defects detailed below. The ArcGIS version compatibility with 10.2.2 is identical to that of Hazus 3.0. Hazus 3.1 is supported for 64-bit Windows 7 and Windows 8.1 operating systems only. Support for the 32-bit Windows 7 operating system has been discontinued. For details on using Windows 10, see the Shell section below.

Hazus 3.1 will be released via the MSC Hazus download webpage for free public download. The scheduled release date is April 4, 2016.

The purpose of this document is to describe the functional changes and known issues found in the Hazus 3.1 release and associated data, installation, and compatibility updates.

Please note, the instructions for uninstalling your old version of Hazus and installing Hazus 3.1 have changed. See the Installation section below, and the Getting Started Guide in the HAZUS_APP folder from the MSC download for additional details.

2. Contents of the Release

Installation:

Installation was improved by separating installation of the SQL instance from the application. This prevents SQL errors that users have encountered while installing previous Hazus versions.

- When upgrading Hazus 3.0 to 3.1, users should follow these steps:
    - Uninstall Hazus 3.0 through Windows Control Panel → Uninstall Programs
    - Open ArcGIS Administrator and confirm your license information is visible. If a blank screen is shown in ArcGIS Administrator, go to Windows Control Panel → Uninstall Programs and click on Uninstall/Change for ArcGIS. Select the "Repair" radio button and proceed. Once the Repair function is complete, confirm your license information is visible in ArcGIS Administrator
    - Open the HAZUS_APP folder for 3.1, downloaded from MSC. Select the InstallHazus.exe file, right click, and choose Run as Administrator. The setup.exe file with dark blue icon should no longer be used.
    - For further assistance, see the Getting Started PDF included in the Hazus MSC Download package or contact the Hazus Help Desk at hazus-support@riskmapcds.com

- Users should use a location other than the root C:\ drive for extracting the HAZUS_APP zip. When extracting the zip file, extract the files to an existing folder, or a new folder such as C:\HazusApp.

Flood Model:

- Average Annualized Loss (AAL) analysis is now available for the full suite of return periods for User Defined Facilities (UDF). After running the UDF analysis, go to Analysis → Average Annualized Loss and select the option for UDF. A report is generated under Results → Summary Reports → Buildings tab. UDF AAL includes capital stock losses only and not income losses (relocation loss, capital related losses, wage losses, and rental income loss). Capital stock losses and income losses are included in the GBS AAL results however.
- Metadata and associated counties are now displaying correctly in the agriculture data viewer
- UDF analysis for uncapped at maximum depths of 24ft was fixed, so that system crashing no longer occurs
- Incorrect split-level designations for RES3 occupancy were removed for UDF analysis. Split-level is only a valid designation for RES1
- Casualties under the Results menu are now displaying correctly
- Bridge losses are now available under the Results menu
- Occupancy Loss table is now populated with correct results for combined wind/surge analysis, and is viewable in either Flood or Hurricane
- Riverine analysis for Carson City, NV was updated to avoid high numbers of problem reaches

Earthquake Model:

- Backend VB6 code converted to .NET and C#
- The default scenario Soil Type (D) is now correctly set, and is no longer overridden by PGA/PGV Soil Type (C). Users previously using the workaround to manually set the default Soil Type to D no longer need to do so
- Economic parameters were updated to match those of the Flood model based on the Census 2010 data updates released in 2015
- Incorrect application of California seismic design level assignments in Hazus 2.1 were corrected
- UDFs added outside the study region boundary no longer produce results

Hurricane Model:

- SLOSH basins with updated vertical datum were obtained from NOAA and incorporated with Hazus Surge to reduce analysis failures
- SLOSH basins no longer fail for counties where FIPS code begins with “0”
- Results for loss-of-use days for school buildings in Maine no longer produce

abnormally high estimations

- All hurricane analysis (except for probabilistic) for Hawaii are functional
- Errors occurring during the manual addition of UDFs were fixed

Shell and Utility Items:

- **Note:** Testing and validation has not been conducted on Windows 10, and Help Desk support is not available for users running Hazus on Windows 10 operating system.
- Backend VB6 code replaced with .NET and C#
- Upgraded SQL Server database from 2008 to 2014
- Replaced MS Access Jet Engine with Access Database Engine (ACE)
- Removed Registry keys usage and replaced it with XML configuration file at C:\ProgramFiles(x86)\Hazus-MH. Edits can be made to the XML document at the user's risk. If edits do not follow correct XML formatting, the Hazus application may not work properly
- Multi-state aggregation is repaired at the county and census tract level
- Null geometries in UDFs will no longer occur when importing HPRs created in Hazus 2.2. Please note, HPRs created in Hazus 2.2 cannot be directly imported to 3.1. The user must import to 3.0, export, then import to 3.1
- UDF results in MDB format can now be saved to SQL Server
- Help Menu has been updated with the new Hazus Help Desk MSC address

Data Changes:

- Essential facilities has been added to the Hawaii state data MDF
- Census boundary data for Colorado has been updated to allow aggregation of earthquake study regions
- Dasymetric field properties of certain census block for Pennsylvania have been updated to match their corresponding blocks in the homogeneous data

3. Known Issues

This section outlines issues that are known to occur in Hazus 3.1, but were present prior to 3.1 development. Workarounds are provided where applicable.

- A latent defect exists in the Hazus flood model which prevents Hazus from appropriately determining whether a riverine or coastal damage function should be used for a user-defined facility (UDF) in a combined riverine-coastal or coastal-only scenario. In some

instances when working with UDFs, an incorrect default function may be applied to an individual facility. Two workarounds are available:

- Determine the correct damage function ID (3-digit unique identifier) from the damage function library according to the UDF characteristics, and whether a riverine or coastal hazard is being applied. Specify the damage function ID in the provided column within the UDF data entry window. Confirm the specific occupancy, number of stories, and whether a basement is present of the damage function matches that of the UDF.
- In the damage function library, search for the desired depth damage function. Select this function (selected function will display in green in the preview window above the list of functions). Selected functions will also appear highlighted in yellow on the Structure/Contents/Inventory summary tabs. Hazus will apply the selected functions to the UDF list. Confirm the specific occupancy, number of stories, and whether a basement is present of the function matches those of the UDFs

- CDMS users at the FEMA's Emergency Management Institute (EMI) and users with similar workstation security settings may be unable to export to Excel. Please contact the Hazus Help Desk for a workaround: **hazus-support@riskmapcds.com**

- The table below lists the high priority latent defects which were identified during development or testing of 3.1. The term "latent" refers specifically to a defect that pre-existed and is reproducible in previous versions of the Hazus software (Hazus 3.0 or earlier). This is not a complete list of open defects in Hazus; however, users should be aware of these high-priority issues. Each item will be reviewed and prioritized to be addressed in later releases.

ID		
18969	Pipeline data does not export correctly from CDMS; no spatial data is created in the export	CDMS
18997	When running a riverine analysis for Hawaii, all reaches are problem reaches	Flood
19008	UDF analysis for coastal-only flood study regions will use riverine damage functions. To avoid this, use the workaround provided earlier in this section	Flood
19010	Dollar values for the UDF inventory in the flood model are in $1,000s, however the UDF Facility report provides units in actual dollars	Flood
19004, 19045	Content values and resulting losses for UDFs are based on structural values and not user-supplied input for contents	Flood

18868	In a probabilistic hurricane analysis, wind speeds and building results decrease for the 1000-year return period compared to other return periods. The 1000-year event should have the highest wind speeds and worst damage	Hurricane
18893	Probabilistic hurricane analysis for Hawaii does not work.	Hurricane
18999	Losses to medium and large hospitals are disproportionately larger than losses for small hospitals	Hurricane
19041	New mapping schemes for essential facilities in hurricane are not saved, or applied to the individual facilities	Hurricane
19050	Damage to manufactured housing following a hurricane is less than that of more sturdy structures	Hurricane
19055	The Deep Water Surge option for surge analysis fails for user-defined or Hurrevac storms	Hurricane