AIR Web Services: Obtaining Consistent Losses



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- <u>SoftwareDocumentationFeedback@air-worldwide.com</u> for suggestions or questions regarding the documentation

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Obtain Consistent Losses: Touchstone and AIR Web Services

While Touchstone and AIR Web Services share a loss engine, the options and default settings in each product are different. Consequently, when you run analyses on the same exposure data in Touchstone and AIR Web Services you may obtain different results.

To reconcile disparate losses in Touchstone and AIR Web Services, you must establish parity between the analyses you run.

Specifically, you can take the steps described in the following sections.

If you continue to obtain disparate losses after taking the steps outlined above, contact your AIR representative for further investigation.

Geocoding

A geocode is a latitude and longitude pair that describes a location.

Forward geocoding is the process by which Touchstone and AIR Web Services obtain the geocode that corresponds to a given set of address data.

When a user imports exposure data into Touchstone, the application uses the TIGER geocoder to forward geocode the address data for each location. In contrast, when a user submits a request to AIR Web Services, the services use the TomTom geocoder to perform the same function. TIGER data is freely available from the United States (U.S.) Census and U.S. Postal Service. TomTom data must be licensed and is more frequently updated than TIGER data. As a result, TomTom data is more accurate.

Since the products use different geocoders, a forward geocoding operation in Touchstone may result in a different geocode than the same operation in AIR Web Services. It follows that analyses on different geocodes may produce different results.

Important

To obtain consistent results in Touchstone and AIR Web Services, use geocodes instead of address data for exposures.

Disaggregation

Disaggregation is the process of breaking up low-resolution exposure data into finer resolution exposure data using the information in AIR's Industry Exposure Database. Touchstone supports disaggregation, while AIR Web Services does not.

By default, disaggregation is enabled in Touchstone.

If you use geocodes for exposures, Touchstone does not disaggregate the exposures in most cases. However, when a geocoded exposure is near a postal code centroid, Touchstone does disaggregate the exposure. An analysis on a given set of coarse exposure data may generate

different results from a similar analysis on the disaggregated version of the same exposure data.

To obtain consistent results in Touchstone and AIR Web Services, disable disaggregation for loss analyses you run in Touchstone.

Storm surge

Storm surge is an abnormal rise in sea level accompanying a hurricane or other storm. In Touchstone and the Loss Analysis Service, you can include storm surge losses during loss analyses:

- In Touchstone, you enable the Storm Surge option when you configure the loss analysis. For more information, refer to Online Help available in the Touchstone application or from the <u>AIR Client Portal</u>.
- In Loss Analysis Service, you set the **stormSurge** attribute of the **Options** element to true, for example:

```
<ISORequests>
 <RequestHeader>
 </RequestHeader>
 <ISORequest>
   <Products>LossAnalysis</Products>
   <LossAnalvsis>
      <ReturnLocationResults>true</ReturnLocationResults>
     <ReturnLayerResults>true</ReturnLayerResults>
     <Options stormSurge="true" demandSurge="true" SSValue="10" PFValue="100"/>
     <Data type="Locations">
        <Locations>
         <Location>
          </Location>
        </Locations>
      </Data>
     <ResultSet type="preset" name="Your configuration package name"/>
   </LossAnalysis>
  </ISORequest>
</ISORequests>
```

Note

If you do not set the stormSurge attribute, the service uses the default value for the attribute, which you can view in the Loss Analyzer Worker configuration file.

Storm surge losses apply only for the tropical cyclone only (PWH) and hurricane storm surge or coastal flood (PSH) peril codes.

The following table describes the expected behavior of Touchstone and Loss Analysis Service given various peril and storm surge option combinations.

Scenario	Location Peril	Touchstone Storm Surge Option	AIR Web Services Storm Surge Option	Storm Surge Percent	Expected Behavior
1	PWH+PSH	Deselected	False	5%	Wind losses only
2	PWH+PSH	Selected	True	5%	Wind losses and 100% storm surge losses
3	PWH	Deselected	False	5%	Wind losses only
4	PWH	Selected	True	5%	Wind losses and 5% storm surge losses
5	PSH	Deselected	False	5%	No losses
6	PSH	Selected	True	5%	100% storm surge losses only

 Table 1. Touchstone and Loss Analysis Service Expected Storm Surge Behavior



To obtain consistent results in Touchstone and AIR Web Services, specify storm surge consistently.

Demand surge

Demand surge is the increased cost of labor and materials following a major catastrophe. In Touchstone and the Loss Analysis Service, you can include demand surge losses during loss analyses:

- In Touchstone, enable the Demand Surge option when loss analysis is configured. For more information, refer to Touchstone Online Help available in the Touchstone application or from the <u>AIR Client Portal</u>.
- In the AIR Web Services, you set the demandSurge attribute of the Options element to true, for example:

```
<ISORequests>
 <RequestHeader>
  </RequestHeader>
  <ISORequest>
    <Products>LossAnalysis</Products>
    <LossAnalysis>
      <ReturnLocationResults>true</ReturnLocationResults>
      <ReturnLayerResults>true</ReturnLayerResults>
      <Options stormSurge="true" demandSurge="true" SSValue="10" PFValue="100"/>
      <Data type="Locations">
        <Locations>
          <Location>
            .
          </Location>
        </Locations>
      </Data>
      <ResultSet type="preset" name="Your configuration package name"/>
    </LossAnalysis>
  </ISORequest>
</ISORequests>
```



If you do not set the demandSurge attribute, the service uses the default value for the attribute, which you can view in the Loss Analyzer Worker configuration file. Demand surge is enabled in Touchstone by default.

```
Important
```

To obtain consistent results in Touchstone and AIR Web Services, specify demand surge consistently.

Inception and expiration dates

Inception and expiration dates determine when contracts are in force.

Touchstone and AIR Web Services have different default values for the inception and expiration dates associated with exposures:

Table 2. Default Inception and Expiration Dates in Touchstone and AIR Web Services

Product	Default Inception Date	Default Expiration Date
Touchstone	January 1 st of the current year	December 31 st of the current year
AIR Web Services	Current day of the current month of the current year	Current day minus one day of the current month of the current year plus one year. For example, if today is October 11, 2019, then the default is October 10, 2020.

The defaults apply when you do not explicitly set the dates.

Since inception and expiration dates affect the impact of various secondary modifiers, inconsistent dates across the two applications can lead to disparate losses.

Important

To obtain consistent results in Touchstone and AIR Web Services, explicitly set inception and expiration dates.

Building height

A Touchstone exposure uses the field 'NumberOfStories' for a numerical entry of the number of stories in a building. The equivalent XML element in an AIR Web Services Request is the Height node. Assume that an XML request and a Touchstone CSV exposure both contain the exposure attribute 'Height=1' and that neither the XML request nor the CSV exposure have an entry for 'Stories'.

- In the AIR Web Services engine, this is converted to Stories=1.
- In Touchstone, this exposure attribute is not used by the engine. Since 'Stories' was not entered in the exposure, Touchstone sets Stories=0 in the exposure database.

At this point, the AIR Web Services Engine receives input of Stories=1, whereas the Touchstone Engine receives input of Stories=0. This causes a difference in loss numbers. Therefore, to ensure loss numbers are the same between AIR Web Services and Touchstone, the user should set the number of stories in a location as 'NumberOfStories' in the Touchstone exposure and as 'Height' in the AIR Web Services request.

Marine craft

Construction codes 265-267 apply to Marine Craft construction. The Touchstone default for Loss Analysis is 'Move Marine Craft Geocodes to Coast", whereas AIR Web Services is hardcoded to keep these geocodes at their indicated location.

Therefore, to ensure there are no loss number differences between AIR Web Services and Touchstone, the user should uncheck "Move Marine Craft Geocodes to Coast" for any Touchstone analysis with Construction codes in 265-267.

	ophe Peril Analysis	
Region:	Select	•
Event Set:	10K US AP (2019) - Standard	-
Perils:	 Earthquake Earthquake Shake Fire Following Sprinkler Leakage Landslide Tsunami Liquefaction Tropical 4 Tropical 5 Tropical 6 Tropical 6 Tropical 7 Wind Wind Storm 	Cyclone ♥ Severe Storm ♥ Severe Thunders N Surge(AIR) ♥ ♥ Winter Storm ♥ Winter Storm
Event Set Filter	r: Filters not applied	▼
Demand Surge	: O With Without	
Financial Settin	ngs: Correlation:	Off -
	Disaggregation:	Off 👻
	Average Properties:	Off -
	For Invalid Con/Occ Pairs:	lgnore 👻
	Apply location terms for resid	dential contracts: AIR default behavior
Flexibility:	Loss Modification Factor:	None 🔹 🌶
	Baseline Analysis:	None 👻
Move Marin	e Craft Geocodes to Coast	

Location terms for residential contracts

AIR Web Services is hardcoded to always use the AIR default for application of location terms for residential contracts. This means limits are always applied before deductibles for residential contracts. The user cannot change this setting in AIR Web Services, unlike in Touchstone where there is an option available:

Financial Settings:	Correlation:	Off 🝷	
	Disaggregation:	Off 🝷	
	Average Properties:	Off •	
	For Invalid Con/Occ Pairs:	Ignore	- /
	Apply location terms for re	sidential contracts:	AIR default behavior
Flexibility:	Loss Modification Factor:	None	AIR default behavior
	Baseline Analysis:	None	Deductibles before limits
Marina Craf	Concoder to Const		

Therefore, to ensure loss numbers are the same between AIR Web Services and Touchstone, the user should set the "Apply location terms for residential contracts" to "AIR default behavior" in their Touchstone analysis.

Term types

AIR Web Services uses the old UPX codes for financial term types. These can differ from what is currently available in Touchstone.

The financial terms AIR Web Services uses can be found here.

Current Touchstone financial terms can be found here.

To ensure loss numbers are the same between AWS and Touchstone, the user should reference both UNICEDE documents above and use the correct financial terms for the respective product.

Min/max deductible

Touchstone 8.0 includes an option for the user to choose between the former and revised min/max methodology. In AIR Web Services 8.0, this option is hardcoded to always use the revised min/max methodology; the user cannot change this setting.

	ophe Peril Analysis
Region:	Select 👻
Event Set:	10K US AP (2020) - Standard 🔹 🧳
Perils: [Earthquake Earthquake Shake Fire Following Storm Surge(AIR) Sprinkler Leakage Precipitation Flood Landslide Tsunami Liquefaction
Event Set Filter	: Filters not applied 💎
Demand Surge: Min-Max Deduct Policy Logic	 ○ With ● Without ible ○ Former ● Revised
Financial Settin	gs: Correlation: Off •
	Disaggregation: Off -
	Automa Descartica Off

To ensure loss numbers are the same between AIR Web Services and Touchstone, the user should select 'Revised' for the min/max deductible policy logic for Touchstone analysis.

Floodplain losses

Touchstone 8.0 includes an option to choose on-floodplain and off-floodplain losses for AIR Inland Flood Model for the United States. In Touchstone, both on-floodplain and off-floodplain are selected by default. In AIR Web Services 8.0, this option is hardcoded to always include both on-floodplain and off-floodplain losses; the user cannot change this setting.



To ensure loss numbers are the same between AIR Web Services and Touchstone, the user should select (check) both on-floodplain and off-floodplain losses for Touchstone loss analysis. Note this is the Touchstone default.

About AIR Worldwide

AIR Worldwide (AIR) provides risk modeling solutions that make individuals, businesses, and society more resilient to extreme events. In 1987, AIR Worldwide founded the catastrophe modeling industry and today models the risk from natural catastrophes, terrorism, pandemics, casualty catastrophes, and cyber incidents. Insurance, reinsurance, financial, corporate, and government clients rely on AIR's advanced science, software, and consulting services for catastrophe risk management, insurance-linked securities, longevity modeling, site-specific engineering analyses, and agricultural risk management. AIR Worldwide, a Verisk (Nasdaq:VRSK) business, is headquartered in Boston with additional offices in North America, Europe, and Asia. For more information, please visit <u>www.air-worldwide.com</u>.

