# Using Assessment Type: Actual and Inherent

The Actual and Inherent assessment type allows you to assess the risk based on both all preventive and mitigating controls as they are currently working and as if there were no controls.

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## Task 1: (Optional) Complete the General Information section

In the General Information section, do the following:

1. Provide a description of the risk event.
2. If you don't want the risk event to be included in aggregations, select Exclude from aggregations.

* **Note:** The Status field is based on two factors: whether required data (Risk, Risk Event Name, Consequence Instances, Driver Instances) is present in the Risk Event record in Archer and whether you have completed filling out this form. If either is incomplete, or if you selected "Exclude from aggregations", the status is Exclude, meaning that the risk event will not be aggregated.

## Task 2: Enter rates

1. In the Number of Occurrences section, enter actual and inherent rates. For Actual, consider current controls and mitigations in place. For Inherent, consider without controls and mitigations in place.
2. Insight uses the numbers you enter to define the probability distributions on the right.

* The risk event is assumed to occur randomly, meaning that occurrence is independent from the time since the last occurrence. The number of occurrences may vary significantly from year to year.

1. Review the chart and adjust the number until the probability distributions feels reasonable for an average year.

**Note:** If you have historical data covering a period where the conditions that influence the occurrence of this risk event resemble the current conditions, you can use the average historical annual rate of occurrence.

The value of preventive controls is populated once you define consequences.

## Task 3: Add consequences

1. In the Consequences section, click +.
2. Enter a name, select a type, and click Add.
   * The following consequence types are economic: Financial
   * The following consequence types are non-economic: Environmental, Health & Safety, Reputation, Social, and Sustainability
3. Do one of the following:
   * For economic consequences, enter the minimum, median, and downside impacts in dollars and the reduction factor.
     + The minimum impact is an absolute least possible impact, often representing fixed unavoidable costs.
     + The median impact is the mid-point of the distribution in the sense that it is equally likely for the impact to be less than or greater than the median.
     + The downside impact is only exceeded 10% of the time. It is not a worst case.
     + The reduction factor is a percentage amount by which actual values are reduced from the inherent scenario. Insight uses this number to calculate the inherent values.
   * Insight uses the values you provide to model a range of potential impacts that could happen when a risk event occurs. Use the menu to view one of the following figures:
     + **Loss Per Occurrence** shows the economic loss incurred by a single occurrence of the risk event. The figure shows the probability density function (pdf) of this uncertainty, which indicates the range over which the loss is more or less likely to fall.
     + **Actual Annual Loss** takes account of both the number of occurrences and the loss incurred on each occurrence, given current controls and mitigations in place.
     + **Inherent Annual Loss** takes account of both the number of occurrences and the loss incurred on each occurrence, without considering current controls and mitigations in place.
     + For both annual loss figures:
       - The annual loss is zero if there are no occurrences. The uncertainty range of non-zero losses is slightly broader than for a single loss because of the possibility of multiple occurrences.
       - The figure shows a cumulative distribution curve, which indicates the probability that the loss is the horizontal value or less. The curve starts at the probability of no occurrence (and thus no loss).
       - The figure also shows the density function for non-zero loss for one or more occurrences of the risk. This indicates the range over which a loss is more or less likely to fall, when there is a loss at all.
   * Insight also calculates the expected annual loss, value at risk, and the conditional value at risk, which are displayed under the figures. The value at risk and conditional value at risk percentages are what you defined in [Set Up Insight UI Settings](insight_uc_setting_up.htm#Set2).
   * For non-economic consequences, enter the minimum, most likely, and maximum impact levels as a utility scale and the impact level reduction. Click the ? icon to view descriptions of what type of impact qualifies for each level based on the selected impact type.
     + The minimum impact level is the smallest possible impact.
     + The most likely impact level is the most likely possible impact.
     + The maximum impact level is the largest possible impact.
     + The impact level reduction is the number of impact levels by which the actual impact is reduced from the inherent impact. Insight uses this value to calculate the inherent levels.
   * Insight uses the values you provide to model a range of potential impacts that could happen when a risk event occurs. You can hover over any point in the probability distribution to see the probability for a specific impact level.
4. Repeat steps 1 - 3 for each consequence.

## Task 4: Review the quantified metrics

As you enter risk and consequence information, the values in the Quantified Metrics panel automatically update. When you're using the Actual and Inherent assessment type, you get actual and inherent values.

| Value | Description |
| --- | --- |
| Rate | The expected number of times a risk event occurs annually. |
| *Economic section* | |
| Expected loss per occurrence | If the risk occurs once, the expected impact based on all financial consequences.  For example, say you have two financial consequences. Financial Consequence 1 has a expected loss of $700,000, Financial Consequence 2 has an expected loss of $300,000. Your economic impact per occurrence would be $1m. |
| Expected annual loss | Annual expected impact of financial consequences based on the number of expected occurrences of the risk event annually.  Continuing with the previous example, your economic impact per occurrence is $1m, but your number of occurrences is 2, so your annual economic impact would be $2m. |
| Value at risk at *n%* | The value at risk is effectively the best outcome of the worst n% of occurrences.  The percentage is what you defined in [Set Up Insight UI Settings](insight_uc_setting_up.htm#Set2) |
| Conditional value at risk at *n%* | The conditional value is the average of the worst n% of occurrences.  The percentage is what you defined in [Set Up Insight UI Settings.](insight_uc_setting_up.htm#Set2) |
| *Total section* | |
| Expected impact per occurrence | If the risk occurs, the expected impact based on all consequences (financial and non-financial).  The economic equivalent for each consequence is totaled and then converted to the [utility scale](insight_uc_setting_up.htm#Populate).  Continuing with the previous examples, say you also have 1 reputational consequence, and 1 environmental consequence. Reputational Consequence has an expected economic equivalent loss of $400,000 and Environmental Consequence has a economic equivalent loss of $200,000.  Also, say your [global variables](insight_uc_setting_up.htm#Task1) are the following:   * # of levels 6 * Level 1 = 1,000 * Level 6 = 100,000,000   This gives you a level ratio of 10. Each level is 10 times the previous one:   1. 1,000 2. 10,000 3. 100,000 4. 1,000,000 5. 10,000000 6. 100,000,000   Given this, to get your total impact per occurrence, all of the economic equivalents are added (700,000 + 300,000 + 400,000 + 200,000 = $1.6m) and converted to the utility scale.  The utility scale conversion is (1 + LN(value/Level1)/LN(LevelRatio), so in this example you would have 1 + LN(1.6M/1,000)/LN(10), which gives you a utility scale value of 4.2  **Note:** You will not see the economic equivalent of any single consequence in the assessment. |
| Expected annual impact | If the risk occurs, the expected impact based on all consequences (financial and non-financial) and the rate of occurrence.  The financial equivalent for each consequence is totaled and then converted to the [utility scale](insight_uc_setting_up.htm#Populate).  Finishing the example above, the annual total impact would be 4.5. The total impact per occurrence (in economic equivalents): $1.6m, multiplied by the number of occurrences: 2 = $3.2m, converted to the utility scale: 1 + LN(3.2M/1,000)/LN(10). |