

18.11.8. Assign a legend to indicator or data element

You can assign a legend to an indicator or a data element in the **Maintenance** app, either when you create the object or edit it. When you then select the indicator or data element in the **GIS** app, the system automatically selects the assigned legend.

18.11.9. See also

- [Using the GIS app](#)

18.12. Manage predictors

18.12.1. About predictors

A predictor tells DHIS2 how to generate a data value based on data values from past periods. It defines which past data values to use, and how to combine them to produce a predicted value. A predictor always generates an aggregate data value, but the past data values used to calculate the predicted value may come from aggregate data, event data, or both.

A simple use of predictors would be to copy a past period data value into a new period, for example into the next month, or into the same quarter in the next year. A more complex use of predictors would be for disease surveillance, to predict what value would be expected in a given week or month of the year, based on previous data values. A validation rule could then be used to see how the actual value compares with the expected (predicted) value.

You can specify the organisation unit level(s) for which a predictor will generate values. For example in disease surveillance you can use one predictor to give the expected value at each local facility, given the amount of variation you would expect at a single facility, while using a different predictor to estimate the value you would expect summed over all facilities in a district, given the (smaller) proportional variation that you would expect when adding up the values for all facilities in the district. You could also define additional predictors at any higher levels of the organisation unit hierarchy, where you might expect different proportions of variation.

In the **Maintenance** app, you manage the following predictor objects:

Table 18.17. Predictor objects in the Maintenance app

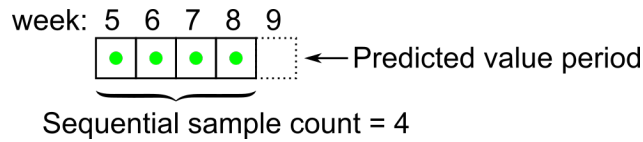
| Object type | Available functions |
|-------------|---|
| Predictor | Create, edit, clone, delete, show details and translate |

18.12.2. Sampling past periods

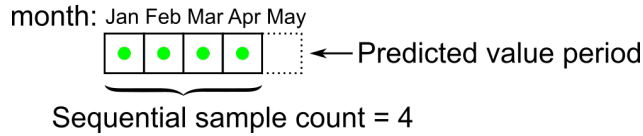
Predicted values are based on sampled values from past periods (prior to the period of the predicted value, which may itself be in the past, present or future). Several predictor parameters affect which past periods are sampled from:

18.12.2.1. Sequential sample count

A predictor's *Sequential sample count* gives the number of immediate prior periods to sample. For example, if a predictor's period type is *Weekly* and the *Sequential sample count* is 4, this means to sample four prior weeks immediately preceding the predicted value week. So the predicted value for week 9 would use samples from weeks 5, 6, 7, and 8:



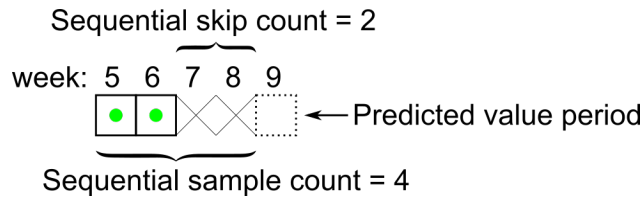
If a predictor's period type is *Monthly* and the *Sequential sample count* is 4, this means to sample four prior months immediately preceding the predicted value month. So the predicted value for May would use samples from weeks January, February, March, and April:



18.12.2.2. Sequential skip count

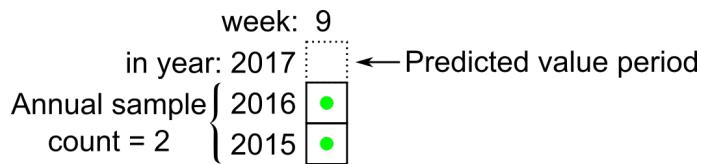
A predictor's *Sequential skip count* tells how many periods should be skipped immediately prior to the predicted value period. This could be used, for instance, in outbreak detection to skip one or more immediately preceding samples that might in fact contain values from the beginning of an outbreak that you are trying to detect.

For example, if the *Sequential sample count* is 4, but the *Sequential skip count* is 2, then the two samples immediately preceding the predicted period will be skipped, resulting in only two periods being sampled:



18.12.2.3. Annual sample count

A predictor's *Annual sample count* gives the number of prior years for which samples should be collected at the same time of year. This could be used, for instance, for disease surveillance in cases where the expected incidence of the disease varies during the year and can best be compared with the same relative period in previous years. For example, if the *Annual sample count* is 2 (and the *Sequential sample count* is zero), then samples would be collected from periods in the immediately preceding two years, at the same time of year.

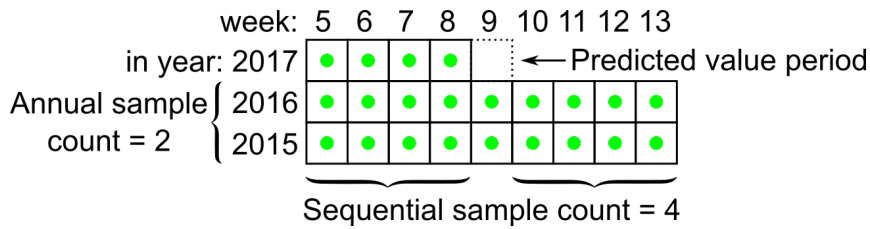


18.12.2.4. Sequential and annual sample counts together

You can use the sequential and annual sample counts together to collect samples from a number of sequential periods over a number of past years. When you do this, samples will be collected in prior years during the period at the same time of year as the predicted value period, and also in previous years both before and after the same time of year, as determined by the *Sequential sample count* number.

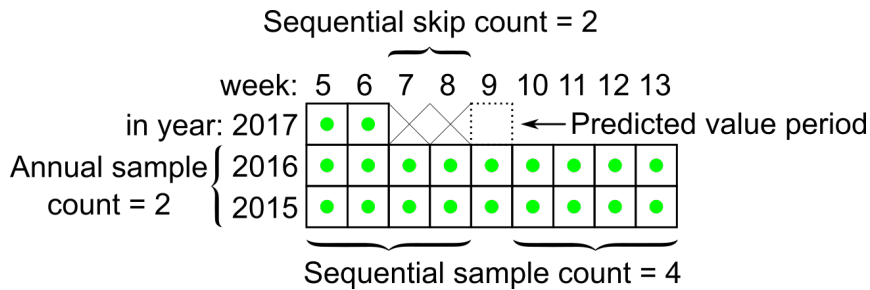
For example, if the *Sequential sample count* is 4 and the *Annual sample count* is 2, samples will be collected from the 4 periods immediately preceding the predicted value period. In addition

samples will be collected in the prior 2 years for the corresponding period, as well as 4 periods on either side:

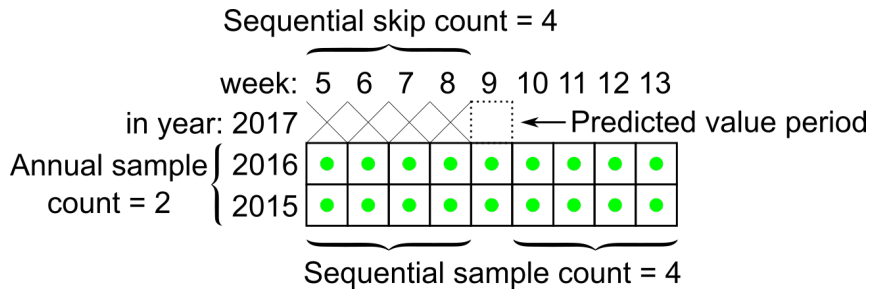


18.12.2.5. Sequential, annual, and skip sample counts together

You can use the *Sequential skip count* together with the sequential and annual sample counts. When you do this, the *Sequential skip count* tells how many periods to skip in the same year as the predicted value period. For example, if the *Sequential sample count* is 4 and the *Sequential skip count* is 2, then the two periods immediately preceding the predicted value period will be skipped, but the two periods before that will be sampled:



If the *Sequential skip count* is equal to or greater than the *Sequential sample count*, then no samples will be collected for the year containing the predicted value period; only periods from past years will be sampled:

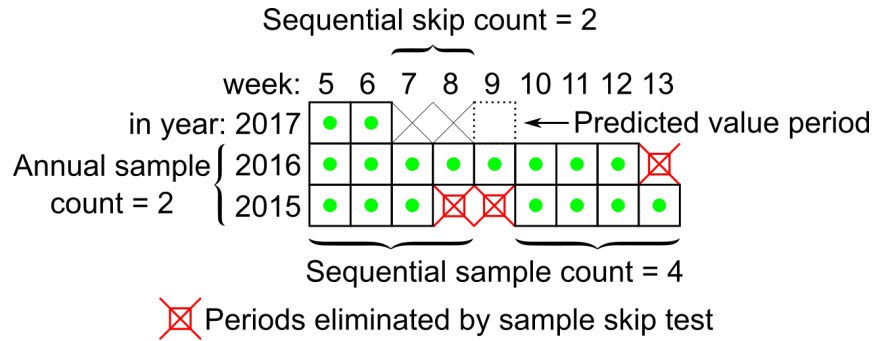


18.12.2.6. Sample skip test

You can use the *Sample skip test* to skip samples from certain periods that would otherwise be included, based on the results of testing an expression within those periods. This could be used, for instance, in disease outbreak detection, where the sample skip test could identify previous disease outbreaks, to exclude those samples from the prediction of a non-outbreak baseline expected value.

The *Sample skip test* is an expression that should return a value of true or false, to indicate whether or not the period should be skipped. It can be an expression that tests any values in each previous period. For example, it could test for a data value that was explicitly entered to indicate that a previous period should be skipped. Or it could compare a previously predicted value for a period with the actual value recorded for that period, to determine if that period should be skipped.

Any periods for which the *Sample skip test* is true will not be sampled. For example:



18.12.3. Create or edit a predictor

1. Open the **Maintenance** app and click **Other > Predictor**.
2. Click the add button.
3. In the **Name** field, type the predictor name.
4. (Optional) In the **Code** field, assign a code.
5. (Optional) Type a **Description**.
6. Select an **Output data element**. Any value generated by this predictor is stored as a value of this data element. The value is rounded according to the value type of the data element: If the value type is an integer type, the predicted value is rounded to the nearest integer. For all other value types, the number is rounded to four significant digits. (However if there are more than four digits to the left of the decimal place, they are not replaced with zeros.)
7. Select a **Period type**.
8. Assign one or more organisation unit levels. The output value will be assigned to an organisation unit at this level (or these levels). The input values will come from the organisation unit to which the output is assigned, or from any level lower under the output organisation unit.
9. Create a **Generator**. The generator is the expression that is used to calculate the predicted value.
 - a. Type a **Description** of the generator expression.
 - b. Enter the generator expression. You can build the expression by selecting data elements for aggregate data, or program data elements, attributes or indicators. Organisation unit counts are not yet supported.

You should enclose any items you select in one of the following aggregate functions:

| Aggregate Function | Meaning |
|--------------------|--------------------------|
| AVG | Average (mean) value |
| COUNT | Count of the data values |
| MAX | Maximum value |
| MEDIAN | Median value |
| MIN | Minimum value |
| STDDEV | Standard deviation |
| SUM | Sum of the values |

You can build more complex expressions by clicking on (or typing) any of the elements below the expression field: () * / + - Days. Constant numbers may be added by typing them. The Days option inserts [days] into the expression which resolves to the number of days in the period from which the data came.

Examples:

| Generator Expression | Means |
|--|---|
| SUM(#{FTRrcoaog83.tMwM3ZBd7BN}) | Sum of the sampled values of data element FTRrcoaog83 and category option combination (disaggregation) tMwM3ZBd7BN |
| AVG(#{FTRrcoaog83}) + 2 * STDDEV(#{FTRrcoaog83}) | Average of the sampled values of data element FTRrcoaog83 (sum of all disaggregations) plus twice its standard deviation |
| SUM(#{FTRrcoaog83}) / SUM([days]) | Sum of all sampled values of data element FTRrcoaog83 (sum of all disaggregations) divided by the number of days in all sample periods (resulting in the overall average daily value) |

10(Optional) Create a **Sample skip test**. The sample skip test tells which previous periods if any to exclude from the sample.

- a. Type a **Description** of the skip test.
- b. Enter the sample skip test expression. You can build the expression by selecting data elements for aggregate data, or program data elements, attributes or indicators. Organisation unit counts are not yet supported. As with the generator function, you may click on (or type) any of the elements below the expression field: () * / + - Days.

The expression should evaluate to true or false. The following operators may be used to compare two values resulting in a boolean expression: <, >, !=, ==, >=, and <= . The following operators may be used to combine two boolean expressions: && (logical and), and || (logical or). The unary operator ! may be used to negate a boolean expression.

Examples:

| Skip test Expression | Means |
|---|--|
| #{FTRrcoaog83} > #{M62VHgYT2n0} | The value of data element FTRrcoaog83 (sum of all disaggregations) is greater than the value of data element M62VHgYT2n0 (sum of all disaggregations) |
| #{uF1DLnZNIWe} > 0 | The value of data element uF1DLnZNIWe (sum of all disaggregations) is greater than the zero |
| #{FTRrcoaog83} > #{M62VHgYT2n0} #{uF1DLnZNIWe} > 0 | The value of data element FTRrcoaog83 (sum of all disaggregations) is greater than the value of data element M62VHgYT2n0 (sum of all disaggregations) or the value of data element uF1DLnZNIWe (sum of all disaggregations) is greater than the zero |

11Enter a **Sequential sample count** value.

This is for how many sequential periods the calculation should go back in time to sample data for the calculations.

12 Enter an **Annual sample count** value.

This is for how many years the calculation should go back in time to sample data for the calculations.

13 (Optional) Enter a **Sequential skip count** value.

This is how many sequential periods, immediately preceding the predicted value period, should be skipped before sampling the data.

14 Click **Save**.

18.12.4. Clone metadata objects

Cloning a data element or other objects can save time when you create many similar objects.

1. Open the **Maintenance** app and find the type of metadata object you want to clone.
2. In the object list, click the options menu and select **Clone**.
3. Modify the options you want.
4. Click **Save**.

18.12.5. Delete metadata objects



Note

You can only delete a data element and other data element objects if no data is associated to the data element itself.



Warning

Any data set that you delete from the system is irrevocably lost. All data entry forms, and section forms which may have been developed will also be removed. Make sure that you have made a backup of your database before deleting any data set in case you need to restore it at some point in time.

1. Open the **Maintenance** app and find the type of metadata object you want to delete.
2. In the object list, click the options menu and select **Delete**.
3. Click **Confirm**.

18.12.6. Display details of metadata objects

1. Open the **Maintenance** app and find the type of metadata object you want to view.
2. In the object list, click the options menu and select **Show details**.

18.12.7. Translate metadata objects

DHIS2 provides functionality for translations of database content, for example data elements, data element groups, indicators, indicator groups or organisation units. You can translate these elements to any number of locales. A locale represents a specific geographical, political, or cultural region.