Skills Funding Agency

The Advanced Learner Loans Bursary Funding Calculation Rulebase for the 2015 to 2016 funding year

Version 1

This document sets out the Advanced Learner Loans Bursary funding calculation for the 2015 to 2016 funding year.

It corresponds to the logic in the current version of the Funding Information System (FIS) and online systems. The version number defined within the rulebase is shown in section 4 of this document, on page 11.

December 2015

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2. Introduction

This document is an annotated version of the Advanced Learner Loans Bursary ('Loans Bursary') funding calculation for the Skills Funding Agency in the 2015 to 2016 funding year.

The funding calculation is implemented as a 'rulebase' using a rules management product called Oracle Policy Automation (OPA), which uses a natural-language approach to turn statements into computer logic.

This document itself is compiled into the product to produce the calculations; there is no separate set of programming code to implement the logic.

The next section briefly explains about the rulebase and how it is constructed and viewed. The formatting in the rulebase is important as some types of formatting represent a certain function or logic. We explain this fully in the next section.

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3. Introduction to rulebases

3.1. What is a rule?

A **rule** is an assertion that a conclusion can be drawn from a particular state of affairs. For example:

> If you leave the ice cream in the sun, then the ice cream will melt.
>
> Full-time students and pensioners are eligible for a discount at the university bookshop.
>
> Your plane can take-off from the airport if it has permission from the control tower and has completed a safety check.

Rules operate on data and can incorporate operations such as comparisons and mathematical functions.

3.2. What is a rulebase?

A **rulebase** is simply a collection of one or more connected rules. For example:

Rule 1:

> the person is eligible for a discount at the university bookshop if
>
> the person is a full-time student or
>
> the person is a pensioner

Rule 2:

> the person is a full-time student if
>
> the person is studying a full-time course and
>
> the person does not have a full-time job

3.3. Conclusions and conditions

Each rule must have a **conclusion** (the state of affairs that can be determined) and usually has at least one **condition** (the conditions upon which that determination may be made). A conclusion is the "Then" part of an "If... Then..." statement. A condition is the "If" part of an "If.... Then..." statement.

> CONCLUSION: the ice-cream will melt if
>
> CONDITION: the ice-cream has been left in the sun
>
> CONCLUSION: the person is eligible for a discount at the university bookshop if
>
> CONDITION: the person is a full-time student
>
> CONDITION: the person is a pensioner
>
> CONCLUSION: your plane can take-off from the airport if
>
> CONDITION: it has permission from the control tower
>
> CONDITION: it has completed a safety check

3.4. What is an attribute?

An attribute is a single unit of data or fact. For example:

- the person is a full-time student
- the ice-cream has been left in the sun

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An attribute is of a particular data type: boolean, or variable (text, number, currency, date, time of day, or date and time). Boolean attributes can either have a true or false value, and variable attributes take a text, number, currency, date, time of day, or date and time value depending on the type of variable.

The following are some examples of attributes and types:

- the person is hungry (boolean attribute)
- the person's name (variable attribute – text)
- the person's date of birth (variable attribute – date)
- the number of cookies the person wants to eat (variable attribute – number)
- the cost of the person's meal (variable attribute – currency)

Attributes form the building blocks of rules.

3.5. Connecting conditions using and/or

Where a rule contains multiple conditions, the conditions must be separated by an **and** or an **or** to indicate whether one or all conditions are required to satisfy the conclusion.

For instance,

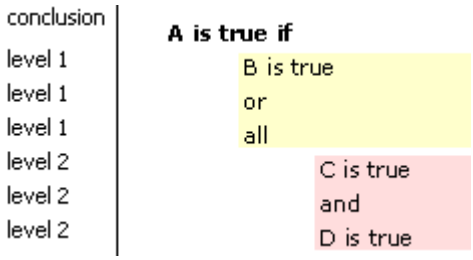
Example 1	Example 2
the person is eligible for a pension if:	the person is eligible for a pension if:
the person is over 65.	the person is over 65.
AND	OR
the person is a citizen.	the person is unable to work.

In Example 1, both conditions must be true to be able to draw a positive outcome for the person's eligibility. If either condition is false, then only a negative outcome can be drawn.

In Example 2, either the first or second condition, or both, must be true to be able to draw a positive outcome. If both the conditions are proved false, then a negative outcome is drawn.

3.6. Grouping conditions using both/all and either/any

The **all** operator is used to group conditions separated by **and**. In the example "A if B or (C and D)" the brackets are around the conditions joined by an **and** so you must use the **all** operator in your rule:



The **any** operator is used to group conditions separated by **or**. In the example "A if (B or C) and D" the brackets are around the conditions joined by an **or** so you must use the **any** operator in your rule:

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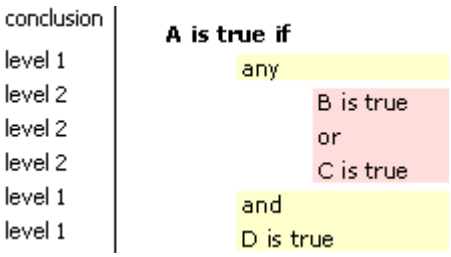
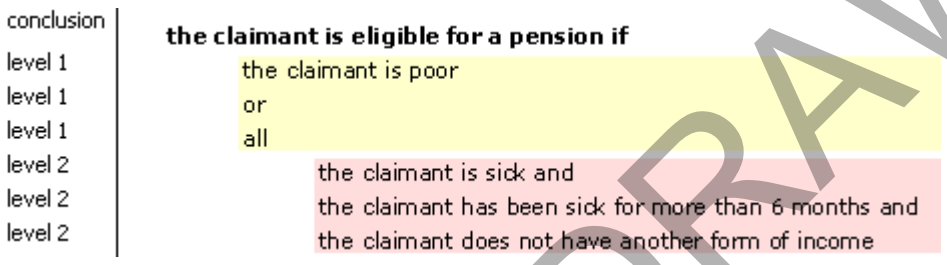


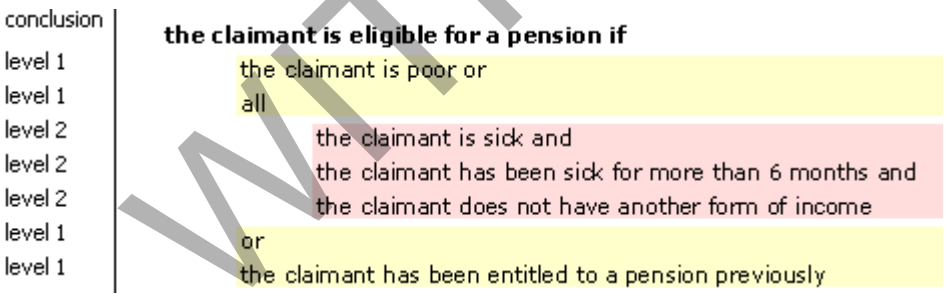
NOTE: You may also use the word **both** in place of **all** and **either** in place of **any**. Using these words has the same effect but may make the text more readable where only two conditions are grouped.

The grouping operators sit above the conditions they are grouping. The conditions being grouped sit beneath the grouping operator and should therefore take the style of the next level down. For example, if the word "any" is in **Level 1** style, the conditions it is grouping should be in **Level 2** style.

The following example demonstrates this placement:



Where your rule continues (as in the example below) at the higher level, the appropriate operator (**and** or **or**) should be added as a separate line at the same level as the subsequent condition. For example:



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3.7. Alternative conclusions

By default, Oracle Policy Modelling assumes all rules contain an **alternative conclusion**. That is, if the conditions are not satisfied, you can infer the opposite of the conclusion. For example, given the rule:

CONCLUSION: it is a good idea to take an umbrella if

CONDITION: it is raining outside

If it is not raining outside, you may conclude that it is not a good idea to take an umbrella.

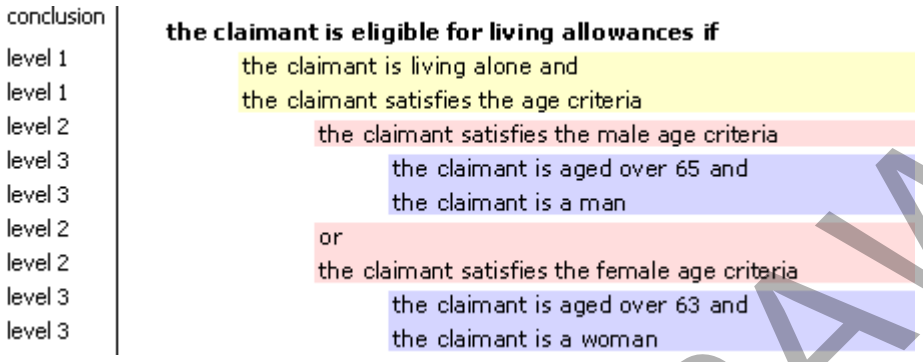
The alternative conclusion need not be stated, it is assumed in all rules unless otherwise indicated.

3.8. Understand Oracle Policy Modelling format and structure

Oracle Policy Modelling format is quite strict in order to maintain consistency and completeness of rules and to avoid logical ambiguity. In particular, styles and indentation play an important role in recognizing the meaning of rules. Indentation and styles are used to separate the conditions from the conclusion, and conditions of different levels from each other. Distinct conditions are separated onto different lines, and the placement of **and** and **or** between conditions has special significance.

Rules are marked up in Word using Oracle Policy Modelling styles. Each style has a unique style name and colouring to make it easy to identify.

The rule below shows an example of how a rule would be formatted in Word using Oracle Policy Modelling document styles:



3.9. Rule tables in Word documents

In many cases it is more efficient to use rule tables for expressing logic, especially where there is an implied order of logic and/or you need to make sure a conclusion is always reached.

The following diagram shows how a rule table is structured:

attribute to be set (conclusion)	
value if	premise
value if	premise
...	...
value	otherwise

The first row of the table defines which variable or statement will be used as the conclusion attribute for the rule.

The left hand column is used to specify values (includes mathematical expressions) which will set the value of the conclusion attribute if the condition in the right hand column of the same row equates to true.

The final row provides an alternative conclusion, to which the conclusion will be set if all of the conditions equate to false.

In other words:

B	
C	A
E	D
F	**otherwise**

would mean 'If A is true then B is set to C, otherwise if D is true then B is set to E, otherwise B is set to F'.

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Rule tables operate from top to bottom, with an implicit 'otherwise' between each row. So the conclusion is set based on the first condition that is proved to be true and the rule exited at that point (without assessing any of the conditions in the rows below). Therefore the order of the rows in rule tables is important.

3.10. Uncertain vs Unknown

We use 'uncertain' as well as 'unknown' in rule bases and it is important to understand the difference between the two.

An attribute is unknown if it has simply not been provided (or in the context of an interview, the question has not yet been asked).

An attribute is uncertain if some or all of the information necessary to prove a conclusion has been provided but the conclusion can still not be determined to be either true or false.

The following truth tables show how uncertainty works with **and** and **or** statements:

P	Q	P AND Q
TRUE	UNCERTAIN	UNCERTAIN
UNCERTAIN	TRUE	UNCERTAIN
FALSE	UNCERTAIN	FALSE
UNCERTAIN	FALSE	FALSE
UNCERTAIN	UNCERTAIN	UNCERTAIN

P	Q	P OR Q
TRUE	UNCERTAIN	TRUE
UNCERTAIN	TRUE	TRUE
FALSE	UNCERTAIN	UNCERTAIN
UNCERTAIN	FALSE	UNCERTAIN
UNCERTAIN	UNCERTAIN	UNCERTAIN

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3.11. Determining whether an attribute's value is certain or known

The known and certain operators are used on rule conditions and cause the condition to evaluate a predictable way when the underlying attribute in the condition has a particular value:

The **uncertain** operator causes the condition to return true only if its value is uncertain. A condition using the uncertain operator returns false if the underlying value is not uncertain.

The **known** operator is commonly used in procedural rules that drive an investigation. For example, forcing attributes to be known in a particular order before determining a goal.

The **currently known** operator is used to test whether an attribute is known, without causing it to be brought up in the question search and asked of the user, ie it will test the *current* state of the attribute. It is used a lot where the rule base runs off data (rather than an interactive interview) where the data may or may not be provided, and the fact that a piece of data has not been provided has meaning (e.g. if the 'eligibility for entitlement funding' is simply not returned in the ILR then we can infer that the learner is not eligible for entitlement).

The **unknown** operator is most commonly used for defaulting values in the rulebase where the user has the option of providing an overriding value (either directly or through an inferred attribute).

For example:

Operator	Example
certain	the claimant is eligible for the benefit if it is certain whether or not the claimant is entitled to a payment or the claimant's eligibility status is certain
uncertain	the outcome is unclear if it is uncertain whether or not the means have been achieved or the status of the investigation is uncertain
known	the interview has been completed if it is known whether or not the claimant is eligible for a payment or the claimant's rate of benefit is known
unknown	the generic heading should be shown if it is unknown whether or not the person is eligible or the person's rate of entitlement in unknown
currently known	income details are available if the applicant's income is currently known

3.12. How are comments shown?

Some explanatory comments are added within the rules. These are not part of the rules but may give background information or context. They are shown in the following format:

Comments are shown in this format.

They are usually shown above the rule or set of rules which the comment relates to.

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4. Rulebase version

the current version of the rulebase = "1516.04.06"

5. Parameters

This section contains some parameters used by the calculation. They are grouped together in this section rather than 'hard-coding' values such as the current funding year start date, to make for easier maintenance of the rulebase in future.

the 24+ Loan Bursary ALB 1 rate = £50

the 24+ Loan Bursary ALB 2 rate = £150

the 24+ Loan Bursary ALB 3 rate = £250

the current funding year start date = 2015-08-01

the current funding year end date = 2016-07-31

the 24+ Loans policy start date = 2013-08-01

For learning deliveries start from this day onwards, the categories in LARS will be used to determine the maximum length of Loans. Also, a new type of Access to HE Diploma will be used from this date.

the category policy start date = 2015-08-01

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6. Categorisations

This section includes categorisations. In many cases they are simple translations of ILR values into attributes to be used in other rules.

6.1. 24+ Loan Indicator

the learning delivery is a 24+ Loan	
false	the learning delivery's adjusted start date is earlier than the 24+ Loans policy start date
true	the learning delivery's ADL FAM code is currently known and the learning delivery's ADL FAM code = 1
false	**otherwise**

6.2. Restart Indicator

the learning delivery is a restart if

the learning delivery's RES FAM code is currently known and

the learning delivery's RES FAM code = 1

6.3. Funding Line Type

the learning delivery's funding line type	
"24+ Advanced Learning Loans Bursary"	the learning delivery is eligible for 24+ Loan Bursary area uplift funding or the learning delivery is eligible for 24+ Loan Bursary support funding
"None"	**otherwise**

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6.4. Course Type

This identifies the type and level of the course from Learning Delivery categories

the learning delivery's course type from LARS categories	
"Tech Level: 2 Years"	For at least one of the learning delivery's LARS categories (the category) the category's reference = 7 and the category's effective from date is on or earlier than the learning delivery's adjusted start date and either the category's effective to date is currently unknown or all the category's effective to date is currently known and the category's effective to date is certain and the category's effective to date is on or later than the learning delivery's adjusted start date
"Tech Level: 3 Years"	For at least one of the learning delivery's LARS categories (the category) the category's reference = 8 and the category's effective from date is on or earlier than the learning delivery's adjusted start date and either the category's effective to date is currently unknown or all the category's effective to date is currently known and the category's effective to date is certain and the category's effective to date is on or later than the learning delivery's adjusted start date
"Early Years: 2 Years"	For at least one of the learning delivery's LARS categories (the category) the category's reference = 10 and the category's effective from date is on or earlier than the learning delivery's adjusted start date and either the category's effective to date is currently unknown or all the category's effective to date is currently known and the category's effective to date is certain and the category's effective to date is on or later than the learning delivery's adjusted start date
"Early Years: 3 Years"	For at least one of the learning delivery's LARS categories (the category) the category's reference = 11 and the category's effective from date is on or earlier than the learning delivery's adjusted start date and either the category's effective to date is currently unknown or all the category's effective to date is currently known and the category's effective to date is certain and the category's effective to date is on or later than the learning delivery's adjusted start date
"Other: 2 Years"	For at least one of the learning delivery's LARS categories (the category) the category's reference = 13 and the category's effective from date is on or earlier than the learning delivery's adjusted start date and either

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	the category's effective to date is currently unknown or all the category's effective to date is currently known and the category's effective to date is certain and the category's effective to date is on or later than the learning delivery's adjusted start date
"Other: 3 Years"	For at least one of the learning delivery's LARS categories (the category) the category's reference = 14 and the category's effective from date is on or earlier than the learning delivery's adjusted start date and either the category's effective to date is currently unknown or all the category's effective to date is currently known and the category's effective to date is certain and the category's effective to date is on or later than the learning delivery's adjusted start date
""	**Otherwise**

This identifies the type and level of the course

the learning delivery's course type	
"AS/A2/and A-level"	the learning delivery's learning aim reference type is currently known and any the learning delivery's learning aim reference type = "0001" or the learning delivery's learning aim reference type = "0002" or the learning delivery's learning aim reference type = "1413" or the learning delivery's learning aim reference type = "1430" or the learning delivery's learning aim reference type = "1431" or the learning delivery's learning aim reference type = "1432" or the learning delivery's learning aim reference type = "1433" or the learning delivery's learning aim reference type = "1434" or the learning delivery's learning aim reference type = "1453" or the learning delivery's learning aim reference type = "1435"
"QAA Access to HE Diploma"	the learning delivery's learning aim reference type is currently known and any the learning delivery's learning aim reference type = "1440"
"QAA Access to HE Diploma"	the learning delivery's learning aim reference type is currently known and the learning delivery's learning aim reference type = "1460" and the learning delivery's adjusted start date is on or later than the category policy start date
the learning delivery's course type from LARS categories	the learning delivery's course type from LARS categories is currently known and the learning delivery's course type from LARS categories is certain the learning delivery's course type from LARS categories <> "" and the learning delivery's adjusted start date is on or later than the category policy start date
"QCF level 3 Certificate"	the learning delivery's notional NVQ level v2 is currently known and the learning delivery's regulated credit value is currently known and the learning delivery's notional NVQ level v2 = "3" and the learning delivery's regulated credit value >= 13 and the learning delivery's regulated credit value <= 36

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"QCF level 3 Diploma"	the learning delivery's notional NVQ level v2 is currently known and the learning delivery's regulated credit value is currently known and the learning delivery's notional NVQ level v2 = "3" and the learning delivery's regulated credit value >= 37
"QCF level 4 Certificate"	the learning delivery's notional NVQ level v2 is currently known and the learning delivery's regulated credit value is currently known and the learning delivery's notional NVQ level v2 = "4" and the learning delivery's regulated credit value >= 13 and the learning delivery's regulated credit value <= 36
"QCF level 4 Diploma"	the learning delivery's notional NVQ level v2 is currently known and the learning delivery's regulated credit value is currently known and the learning delivery's notional NVQ level v2 = "4" and the learning delivery's regulated credit value >= 37
"uncertain"	**otherwise**

6.5. Entity Counts

The Learning Delivery Funding and Monitoring Code (FAM) entity count has to be done in two stages because if there are no Learning Delivery FAM records, OPA returns an unknown rather than a zero.

the learning delivery's number of FAM records stage 1 = the number of the learning delivery's FAMs

the learning delivery's number of FAM records	
the learning delivery's number of FAM records stage 1	the learning delivery's number of FAM records stage 1 is currently known
0	**otherwise**

6.6. Upper Case Conversions

The ILR data is case insensitive, but OPA is case sensitive, so the FAM type is upper-cased here so that, for example, "ALb" can be used in the rulebase without worrying about the case of the original ILR data.

the learning delivery FAM's upper case type = ToUpper(the learning delivery FAM's type)

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7. Date Rules

This section contains some derived date attributes and attribute which define the start and end of various periods or years.

7.1. Period Start and End Dates

These temporal attributes are set to the start and end date of each period in the current funding year. They are used to turn the values that peak on the 1st of each period into values that are spread across the whole period.

the period start date = AddMonths(the current funding year start date, TemporalMonthsSince(the current funding year start date, the current funding year end date))

the period end date = AddDays(AddMonths(the current funding year start date, TemporalMonthsSince(the current funding year start date, the current funding year end date) + 1), -1)

7.2. Liability Dates

The first liability date is the minimum number of days to qualify for the learner to be liable for their loan payment after the learning delivery's start date.the learning delivery's first liability date = the date the minimum number of days to qualify for ALB days after the learning delivery's learning start date

the start of the period of the learning delivery's first liability date = MakeDate(ExtractYear(the learning delivery's first liability date), ExtractMonth(the learning delivery's first liability date), 1)

Re-label the first liability date as the output attribute.

the learning delivery's liability date = the learning delivery's first liability date

the learning delivery's known end date for ALB	
the learning delivery's learning actual end date	the learning delivery's learning actual end date is currently known
the learning delivery FAM's date applies to which is the greatest for all of the learning delivery's FAMs for which it is the case that the learning delivery FAM's upper case type = "ALB"	**otherwise**

The last liability date is the 1st of the period of the learning delivery actual end date, or if the actual end date is unknown, it is the 1st of the period of the latest valid ALB learning delivery FAM record end date.

the learning delivery's last liability date = MakeDate(ExtractYear(the learning delivery's known end date for ALB), ExtractMonth(the learning delivery's known end date for ALB), 1)

This temporal attribute is true on the learning delivery's liability dates and false on all other dates.

the date is a learning delivery liability date stage 1 if

TemporalOncePerMonth(the learning delivery's first liability date, the date 1 day after the learning delivery's last liability date, 1) or

TemporalOn(the learning delivery's first liability date)

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Remove any uncertain values outside of the date range.

the date is a learning delivery liability date	
true	it is currently known whether the date is a learning delivery liability date stage 1 and it is certain whether the date is a learning delivery liability date stage 1 and the date is a learning delivery liability date stage 1
false	**otherwise**

7.3. Start Indicator

The learning delivery is considered to be a start for 24+ Loan purposes if it plans to end (and actually ends if the actual end date is known) on or after the first liability date.

the learning delivery is a start for 24+ Loan purposes if

the learning delivery's learning planned end date is on or later than the learning delivery's first liability date and
any

the learning delivery's learning actual end date is unknown or
all

the learning delivery's learning actual end date is currently known and
the learning delivery's learning actual end date is on or later than the learning delivery's first liability date

7.4. Learning Delivery and Programme Start Dates

Use the original start date if it is known. Otherwise use the start date.

the learning delivery's adjusted start date	
the learning delivery's original learning start date	the learning delivery's original learning start date is currently known
the learning delivery's learning start date	**otherwise**

7.5. Qualifying Days

The usual qualifying period is 14 days, except for restarts.

the minimum number of days to qualify for ALB	
0	the learning delivery is a restart
14	**otherwise**

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7.6. Area Uplift End Date

The last permitted area uplift payment date is a number of years (based on the course type) after the learning delivery's learning start date.

the maximum number of years the learning delivery can attract loan funding	
0	the learning delivery is not a 24+ Loan
3	the learning delivery's course type = "uncertain"
2	the learning delivery's course type = "AS/A2/and A-level"
2	the learning delivery's course type = "QAA Access to HE Diploma"
2	the learning delivery's course type = "QCF level 3 Certificate"
3	the learning delivery's course type = "QCF level 3 Diploma"
2	the learning delivery's course type = "QCF level 4 Certificate"
3	the learning delivery's course type = "QCF level 4 Diploma"
2	the learning delivery's course type = "Tech Level: 2 Years" or the learning delivery's course type = "Early Years: 2 Years" or the learning delivery's course type = "Other: 2 Years"
3	the learning delivery's course type = "Tech Level: 3 Years" or the learning delivery's course type = "Early Years: 3 Years" or the learning delivery's course type = "Other: 3 Years"
3	**otherwise**

the learning delivery's last permitted payment date = AddDays(AddYears(the learning delivery's learning start date, the maximum number of years the learning delivery can attract loan funding), -1)

The end date for area uplift funding is the earliest of the actual end date (if known), planned end date and last permitted payment date.

the learning delivery's known end date for area uplift	
the earliest of the earliest of the learning delivery's learning planned end date and the learning delivery's learning actual end date and the learning delivery's last permitted payment date	the learning delivery's learning actual end date is currently known
the earliest of the learning delivery's learning planned end date and the learning delivery's last permitted payment date	**otherwise**

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8. Area Uplift

This section contains the main funding calculation.

The area uplift funding is calculated as follows:

1. **Calculate the area cost factor.**
2. **Obtain the weighted rate for the learning delivery from LARS.**
3. **Calculate the number of planned (and actual) instalments.**
4. **Calculate the proportion of funding remaining.**
5. **Calculate the applicable programme weighting.**
6. **Calculate the specialist resources uplift.**
7. **Calculate the Apprenticeship contribution factor.**
8. **Calculate the area uplift aim value using the weighted rate multiplied by the above factors.**
9. **Spread that aim value over the periods that are eligible for area uplift funding.**
10. **Pay a balancing payment if applicable, i.e. if the learning delivery achieved early.**

8.1. Area Cost Factor

If the area cost factor is 1.03 for example, then the adjusted area cost factor is 0.03, on the assumption that the learner will pay the "1" part of the area cost factor and the Skills Funding Agency pay the difference. The intention is a learner should not have to pay more for a course delivered in London or the South East.

the learning delivery's adjusted area cost factor	
0	the learning delivery is not a 24+ Loan
the learning delivery's area cost factor – 1	the learning delivery's area cost factor is currently known and the learning delivery's area cost factor > 1
0	**otherwise**

8.2. Eligibility

The learning delivery is eligible for area uplift funding if it is a start (i.e. meets the start and threshold criteria), it has an ADL FAM record (i.e. it is a 24+ Loan), it has an area cost factor > 1 (an area cost factor of 1 or less would require no additional area uplift payment), and it is not an ERR/PLTS non-funded Apprenticeship.

the learning delivery is eligible for 24+ Loan Bursary area uplift funding if

the learning delivery is a start for 24+ Loan purposes and

the learning delivery is a 24+ Loan and

the learning delivery's adjusted area cost factor > 0

8.3. Weighted Rate

Obtain the matrix weighted rate for the learning delivery from LARS.

the learning delivery's base weighted rate = ValueAt(the learning delivery's adjusted start date, the learning delivery's Matrix weighted rate)

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Only set the weighted rate for eligible learning deliveries, and default unknown rates to 0.

the learning delivery's applicable weighted rate	
the learning delivery's base weighted rate	the learning delivery is eligible for 24+ Loan Bursary area uplift funding and the learning delivery's base weighted rate is currently known and the learning delivery's base weighted rate is certain
0	**otherwise**

8.4. Instalments

The learning delivery's planned instalments are calculated from the first liability date to the earlier of the planned end date and the last permitted payment date (based on the maximum loan length for particular aim types).

the learning delivery's planned instalments	
1 + the number of months from the start of the period of the learning delivery's first liability date to the earliest of the learning delivery's learning planned end date and the learning delivery's last permitted payment date	the learning delivery is eligible for 24+ Loan Bursary area uplift funding
0	**otherwise**

The learning delivery's actual instalments are calculated from the first liability date to the earlier of the actual end date and the last permitted payment date (based on the maximum loan length for particular aim types).

the learning delivery's actual instalments	
the learning delivery's planned instalments	the learning delivery's learning actual end date is unknown
1 + the number of months from the start of the period of the learning delivery's first liability date to the earliest of the learning delivery's learning actual end date and the learning delivery's last permitted payment date	the learning delivery is eligible for 24+ Loan Bursary area uplift funding
0	**otherwise**

8.5. Funding Adjustment

Calculate a combined funding adjustment using both the funding adjustment for prior learning and the other funding adjustment where one or both is known.

the learning delivery's known funding adjustment	
the learning delivery's funding adjustment for prior learning / 100 * the learning delivery's other funding adjustment / 100	the learning delivery's funding adjustment for prior learning is currently known and the learning delivery's other funding adjustment is currently known
the learning delivery's funding adjustment for prior learning / 100	the learning delivery's funding adjustment for prior learning is currently known
the learning delivery's other funding adjustment / 100	the learning delivery's other funding adjustment is currently known
1	**otherwise**

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8.6. Applicable Programme Weighting

Use the LARS Matrix (Adult Skills Budget (ASB)) programme weighting code.

the learning delivery's applicable programme weighting factor stage 1 = ValueAt(the learning delivery's adjusted start date, the learning delivery's Matrix programme weighting factor)

the learning delivery's applicable programme weighting factor	
the learning delivery's applicable programme weighting factor stage 1	the learning delivery's applicable programme weighting factor stage 1 is currently known and the learning delivery's applicable programme weighting factor stage 1 is certain
"A"	**otherwise**

8.7. Specialist Resources Uplift

Programme weighting factor "G" no longer attracts an extra uplift if the provider has been flagged as a specialist resource provider.

the learning delivery's specialist resources uplift = 1

8.8. Aim Value

Calculate the total aim value using the weighted rate from LARS multiplied by the above factors.

the learning delivery's area uplift aim value = the learning delivery's applicable weighted rate * the learning delivery's adjusted area cost factor * the learning delivery's known funding adjustment * the learning delivery's specialist resources uplift

8.9. Instalment Amount

The periodic instalment amount is the aim value spread over the planned instalments. Note that this value is spread evenly and, unlike the mainstream funding calculation, does not have a double instalment in the first period. This is to align more closely with the Student Loan Company (SLC) approach to payments.

the learning delivery's area uplift instalment amount	
the learning delivery's area uplift aim value / the learning delivery's planned instalments	the learning delivery's planned instalments > 0
0	**otherwise**

If the area uplift is in the middle of the month then set the attribute to the end of the month, for example, if the area uplift end date is 20th October, this attribute will be set to 31st October.

the end of the period of the learning delivery's area uplift end date = the date 1 days before the date 1 months after MakeDate(ExtractYear(the learning delivery's known end date for area uplift), ExtractMonth(the learning delivery's known end date for area uplift), 1)

This temporal attribute is true on the days that area uplift funding is applicable, that is from the start of the period of the first liability date, to the end of the period of the area uplift end date.

the learning delivery has area uplift cash if

the learning delivery is eligible for 24+ Loan Bursary area uplift funding and
TemporalOnOrAfter(the start of the period of the learning delivery's first liability date) and
TemporalOnOrBefore(the end of the period of the learning delivery's area uplift end date)

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8.10. On-Programme Payment

Assign the area uplift funding to the learning delivery, this is a temporal value

the learning delivery's area uplift on-programme cash	
the learning delivery's area uplift instalment amount	the learning delivery has area uplift cash
0	**otherwise**

8.11. Balancing Payment

Balancing payments occur when a learning delivery has been achieved before the planned end date. In this case the provider will be paid the balance of the cash for the remaining planned payments.

Establish if the learning delivery has been successfully achieved.

the learning delivery has been achieved if

the learning delivery's completion status is currently known and
the learning delivery's completion status = 2 and
the learning delivery's outcome is currently known and
any
the learning delivery's outcome = 1 or
the learning delivery's outcome = 6 or
the learning delivery's outcome = 7
and
the learning delivery's learning actual end date is currently known

If the learning delivery finishes before the planned end period and is achieved then it qualifies for a balancing payment.

the learning delivery qualifies for balancing area uplift payments if

the learning delivery is eligible for 24+ Loan Bursary area uplift funding and
the learning delivery's actual instalments < the learning delivery's planned instalments and
the learning delivery has been achieved

Calculate the number of outstanding instalments which is the difference between the planned instalments and the actual instalments.

the learning delivery's outstanding instalments	
the learning delivery's planned instalments - the learning delivery's actual instalments	the learning delivery is eligible for 24+ Loan Bursary area uplift funding and the learning delivery's actual instalments < the learning delivery's planned instalments
0	**otherwise**

If the actual end date is in the middle of the month then set this attribute to the start of the month, for example, if the actual end date is 20th October, this attribute will be set to 1st October. This specifies when the balancing payment is paid.

the start of the period of the learning delivery's actual end date = MakeDate(ExtractYear(the learning delivery's learning actual end date), ExtractMonth(the learning delivery's learning actual end date), 1)

Assign the balancing payment to the learning delivery.

the learning delivery's area uplift balancing cash	
the learning delivery's outstanding instalments * the learning delivery's area uplift instalment amount	the learning delivery qualifies for balancing area uplift payments and TemporalOnOrAfter(the start of the period of the learning delivery's actual end date) and TemporalBefore(the date 1 months after the start of the period of the learning delivery's actual end date)
0	**otherwise**

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9. Loans Bursary Support

The support funding amount is calculated as follows:

1. Calculate the learning delivery's liability dates. The first liability date is 14 days after the start date, unless it is a restart in which case the start date is used with no offset. The subsequent liability dates are the 1st of each period after that, up to and including the 1st of the period of the actual end date (if known), or the 1st of the period of the latest valid ALB learning delivery FAM record end date.

2. Go through the learning delivery's ALB FAM records and determine which ones are active on the learning delivery's liability dates, using the FAM record's from and to dates.

3. Use the FAM record's code to work out the ALB rate which applies to the FAM record.

4. For each learning delivery, look across all of the FAM records which are active on each of the learning delivery's liability dates to find the highest ALB rate in each month. This is the amount of funding that the learner will receive on that liability date.

5. As the funding calculation outputs are at learning delivery level, use the prioritisation process described later in this document to assign that amount of support funding back to a particular learning delivery.

9.1. Eligibility

The learning delivery is eligible for support funding if it is a start (that is, it meets the start and threshold criteria), a 24+ Loan learning delivery, and it has at least one ALB (support funding) FAM record.

the learning delivery is eligible for 24+ Loan Bursary support funding if

the learning delivery is a start for 24+ Loan purposes and
the learning delivery is a 24+ Loan and
for at least one of the learning delivery's FAMs
  the learning delivery FAM's upper case type = "ALB" and
  any
    the learning delivery FAM's code = "1" or
    the learning delivery FAM's code = "2" or
    the learning delivery FAM's code = "3"

9.2. ALB FAM Eligibility, Rates and Codes

This attribute is true between the FAM's from and to dates, assuming the learning delivery itself is eligible for support funding.

the learning delivery FAM is valid for ALB if

the learning delivery is eligible for 24+ Loan Bursary support funding and
the learning delivery FAM's upper case type = "ALB" and
any
  the learning delivery FAM's code = "1" or
  the learning delivery FAM's code = "2" or
  the learning delivery FAM's code = "3"
and
the learning delivery FAM's date applies from is currently known and
the learning delivery FAM's date applies to is currently known and
TemporalOnOrAfter(the learning delivery FAM's date applies from) and
TemporalOnOrBefore(the learning delivery FAM's date applies to)

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Convert the FAM code into a rate.

the learning delivery FAM's ALB rate	
0	the learning delivery FAM is not valid for ALB
the 24+ Loan Bursary ALB 3 rate	the learning delivery FAM's code = "3"
the 24+ Loan Bursary ALB 2 rate	the learning delivery FAM's code = "2"
the 24+ Loan Bursary ALB 1 rate	the learning delivery FAM's code = "1"
0	**otherwise**

Find the FAM's ALB rate and code on the learning delivery's liability dates. It needs to be done in two stages because the first liability date might not be the 1st of the period, but we need the temporal attribute to spike on the 1st of each period so it can be aggregated up to learner level more easily.

This is because a learner may have 2 aims with different liability dates in the same month, but we need to find the highest value across the 2 aims, so the values need to be 'moved' to the first of the month so they can be compared.

the learning delivery FAM's ALB rate on the learning delivery's liability dates stage 1	
the learning delivery FAM's ALB rate	the learning delivery FAM is valid for ALB and the date is a learning delivery liability date
0	**otherwise**

the learning delivery FAM's ALB code on the learning delivery's liability dates stage 1	
Number(the learning delivery FAM's code)	the learning delivery FAM is valid for ALB and the date is a learning delivery liability date
0	**otherwise**

the learning delivery FAM's ALB rate on the first liability date = ValueAt(the learning delivery's first liability date, the learning delivery FAM's ALB rate on the learning delivery's liability dates stage 1)

the learning delivery FAM's ALB code on the first liability date = ValueAt(the learning delivery's first liability date, the learning delivery FAM's ALB code on the learning delivery's liability dates stage 1)

For most liability dates, the liability date is already the first of the month. But the first liability date may not be the first of the month, so we need to convert the temporal rate value to occur on the first of that month. We then need to zero out the value on the first liability date itself, (unless it was itself the first of a month) so that the 'otherwise' row does not pick it up.

the learning delivery FAM's ALB rate on the learning delivery's liability dates	
the learning delivery FAM's ALB rate on the first liability date	TemporalOn(the start of the period of the learning delivery's first liability date)
0	TemporalOn(the learning delivery's first liability date)
the learning delivery FAM's ALB rate on the learning delivery's liability dates stage 1	**otherwise**

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For most liability dates, the liability date is already the first of the month. But the first liability date may not be the first of the month, so we need to convert the temporal ALB code value to occur on the first of that month. We then need to zero out the value on the first liability date itself, (unless it was itself the first of a month) so that the 'otherwise' row does not pick it up.

the learning delivery FAM's ALB code on the learning delivery's liability dates	
the learning delivery FAM's ALB code on the first liability date	TemporalOn(the start of the period of the learning delivery's first liability date)
0	TemporalOn(the learning delivery's first liability date)
the learning delivery FAM's ALB code on the learning delivery's liability dates stage 1	**otherwise**

9.3. Learning Delivery Prioritisation

Find the highest ALB rate and code for the learning delivery, across all of the FAMs. Note that there can only be one FAM at any one time for each learning delivery.

the learning delivery's ALB rate on the liability dates	
the greatest of all the learning delivery FAM's ALB rate on the learning delivery's liability dates for all of the learning delivery's FAMs	the learning delivery's number of FAM records > 0
0	**otherwise**

the learning delivery's ALB code on the liability dates	
the greatest of all the learning delivery FAM's ALB code on the learning delivery's liability dates for all of the learning delivery's FAMs	the learning delivery's number of FAM records > 0
0	**otherwise**

Work out which learning delivery to assign the support funding to.

In order of priority we will use:

1. **The highest ALB rate.**
2. **If two or more learning deliveries have the highest rate, assign to the learning delivery with the earliest start date.**
3. **If two or more learning deliveries have the highest rate and the same start date, assign to the learning delivery with the lowest aim sequence number.**

Find the highest ALB rate for the learner, across all of the learning deliveries.

the learner's ALB rate on the liability dates = the greatest of all the learning delivery's ALB rate on the liability dates for all of the learner's learning deliveries

Of those learning deliveries find the earliest start date.

the learner's earliest highest rate start date = the learning delivery's learning start date which is the earliest for all the learner's learning deliveries for which it is the case that the learning delivery's ALB rate on the liability dates = the learner's ALB rate on the liability dates

the learning delivery is the earliest highest rate aim if

the learning delivery's learning start date = the learner's earliest highest rate start date and
the learning delivery is eligible for 24+ Loan Bursary support funding

Of those learning deliveries find the lowest aim sequence number. This is the learning delivery that attracts the area uplift funding.

the learning delivery attracts the ALB funding stage 1 if

the learning delivery's aim sequence number = the learning delivery's aim sequence number which is the least for all the learner's learning deliveries for which it is the case that the learning delivery is the earliest highest rate aim

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the learning delivery attracts the ALB funding	
true	it is certain whether the learning delivery attracts the ALB funding stage 1 and the learning delivery attracts the ALB funding stage 1
false	**otherwise**

Store the aim sequence number of the learning delivery that attracts the area uplift funding at learner level.

the learner's ALB funding assigned learning delivery sequence number stage 1 = InstanceValueIf(the learner's learning deliveries, the learning delivery's aim sequence number, the learning delivery attracts the ALB funding)

Remove the uncertain values.

the learner's ALB funding assigned learning delivery sequence number stage 2	
the learner's ALB funding assigned learning delivery sequence number stage 1	the learner's ALB funding assigned learning delivery sequence number stage 1 is certain
0	**otherwise**

Turn the value which peaks on the 1st of each period into a value which is spread across the whole period.

the learner's ALB funding assigned learning delivery sequence number	
ValueAt(the period start date, the learner's ALB funding assigned learning delivery sequence number stage 2)	TemporalOnOrAfter(the period start date) and TemporalOnOrBefore(the period end date)
0	**otherwise**

Find the ALB code which is applicable on each liability date. This converts the temporal ALB code variable chosen by the prioritisation process above into a single value.

the learning delivery's ALB code	
ValueAt(the period start date, the learning delivery's ALB code on the liability dates)	the learning delivery's aim sequence number = the learner's ALB funding assigned learning delivery sequence number and TemporalOnOrAfter(the period start date) and TemporalOnOrBefore(the period end date)
0	**otherwise**

9.4. Assign the ALB Support Funding

Assign the ALB cash to the appropriate learning delivery.

the learning delivery's ALB support cash stage 1	
the learner's ALB rate on the liability dates	it is certain whether the learning delivery attracts the ALB funding and the learning delivery attracts the ALB funding
0	**otherwise**

Turn the value which peaks on the 1st of each period into a value which is spread across the whole period.

the learning delivery's ALB support cash	
ValueAt(the period start date, the learning delivery's ALB support cash stage 1)	TemporalOnOrAfter(the period start date) and TemporalOnOrBefore(the period end date)
0	**otherwise**

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10. Interface fields

This section lists inputs to, and outputs from the OPA Rulebase.

10.1. Inputs

global

Public Name	OPA Local Name	Data Type	Temporal	Source
LARSVersion	the LARS reference data version	Text		CurrentVersion FROM LARS.LARS_Current_Version
PostcodeAreaCostVersion	the postcode area cost reference data version	Text		
SpecialistResources	the provider has specialist resources	Boolean		True if record exists and FundingFactorValue=1 FROM Org.ORG_Funding WHERE LearningProvider.UKPRN=ORG_Funding.UKPRN
UKPRN	the provider's UKPRN	Number		UKPRN FROM DCSS Intrajob 1516 Valid.LearningProvider

Learner

Public Name	OPA Local Name	Data Type	Temporal	Source
LearnRefNumber	the learner's learner reference number	Text		LearnRefNumber FROM DCSS Intrajob 1516 Valid.Learner

LearningDelivery

Public Name	OPA Local Name	Data Type	Temporal	Source
AimSeqNumber	the learning delivery's aim sequence number	Number		AimSeqNumber FROM DCSS Intrajob 1516 Valid.LearningDelivery
AreaCostFactor	the learning delivery's area cost factor	Number		SFA_AreaCostFactor FROM Postcode Factors.PostcodeAreaCost WHERE LearningDelivery.DelLocPostCode=PostcodeAreaCost.Postcode
CompStatus	the learning delivery's completion status	Number		CompStatus FROM DCSS Intrajob 1516 Valid.LearningDelivery
LearnActEndDate	the learning delivery's learning actual end date	Date		LearnActEndDate FROM DCSS Intrajob 1516 Valid.LearningDelivery
LearnAimRefType	the learning delivery's learning aim reference type	Text		LearnAimRefType FROM LARS.LARS_LearningDelivery WHERE LearningDelivery.LearnAimRef=LARS_LearningDelivery.LearnAimRef
LearnPlanEndDate	the learning delivery's learning planned end	Date		LearnPlanEndDate FROM DCSS Intrajob 1516 Valid.LearningDelivery

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LearningDelivery

Public Name	OPA Local Name	Data Type	Temporal	Source
	date			
LearnStartDate	the learning delivery's learning start date	Date		LearnStartDate FROM DCSS Intrajob 1516 Valid.LearningDelivery
LrnDelFAM_ADL	the learning delivery's ADL FAM code	Number		LrnDelFAM_ADL FROM DCSS Intrajob 1516 Valid.LearningDelivery
LrnDelFAM_RES	the learning delivery's RES FAM code	Number		LrnDelFAM_RES FROM DCSS Intrajob 1516 Valid.LearningDelivery
MatrixWeightedRate	the learning delivery's Matrix weighted rate	Temporal Currency	Y	RateWeighted FROM LARS.LARS_Funding WHERE LearningDelivery.LearnAimRef=LARS_Funding.LearnAimRef
MatrixWeightingFactor	the learning delivery's Matrix programme weighting factor	Temporal Text	Y	WeightingFactor FROM LARS.LARS_Funding WHERE LearningDelivery.LearnAimRef=LARS_Funding.LearnAimRef
NotionalNVQLevelv2	the learning delivery's notional NVQ level v2	Text		NotionalNVQLevelv2 FROM LARS.LARS_LearningDelivery WHERE LearningDelivery.LearnAimRef=LARS_LearningDelivery.LearnAimRef
OrigLearnStartDate	the learning delivery's original learning start date	Date		OrigLearnStartDate FROM DCSS Intrajob 1516 Valid.LearningDelivery
OtherFundAdj	the learning delivery's other funding adjustment	Number		OtherFundAdj FROM DCSS Intrajob 1516 Valid.LearningDelivery
Outcome	the learning delivery's outcome	Number		Outcome FROM DCSS Intrajob 1516 Valid.LearningDelivery
PriorLearnFundAdj	the learning delivery's funding adjustment for prior learning	Number		PriorLearnFundAdj FROM DCSS Intrajob 1516 Valid.LearningDelivery
RegulatedCreditValue	the learning delivery's regulated credit value	Number		RegulatedCreditValue FROM LARS.LARS_LearningDelivery WHERE LearningDelivery.LearnAimRef=LARS_LearningDelivery.LearnAimRef

LearningDeliveryFAM

Public Name	OPA Local Name	Data Type	Temporal	Source
LearnDelFAMCode	the learning delivery FAM's code	Text		LearnDelFAMCode FROM DCSS Intrajob 1516 Valid.LearningDeliveryFAM
LearnDelFAMDateFrom	the learning delivery FAM's date applies from	Date		LearnDelFAMDateFrom FROM DCSS Intrajob 1516 Valid.LearningDeliveryFAM
LearnDelFAMDateTo	the learning delivery FAM's date applies to	Date		LearnDelFAMDateTo FROM DCSS Intrajob 1516 Valid.LearningDeliveryFAM
LearnDelFAMType	the learning delivery FAM's type	Text		LearnDelFAMType FROM DCSS Intrajob 1516 Valid.LearningDeliveryFAM

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LearningDeliveryLARSCategory

Public Name	OPA Local Name	Data Type	Temporal	Source
LearnDelCatDateFrom	the learning delivery LARS category's effective from date	Date		EffectiveFrom FROM LARS.LARS_LearningDeliveryCategory WHERE LearningDelivery.LearnAimRef=LARS_LearningDeliveryCategory.LearnAimRef
LearnDelCatDateTo	the learning delivery LARS category's effective to date	Date		EffectiveTo FROM LARS.LARS_LearningDeliveryCategory WHERE LearningDelivery.LearnAimRef=LARS_LearningDeliveryCategory.LearnAimRef
LearnDelCatRef	the learning delivery LARS category's reference	Number		CategoryRef FROM LARS.LARS_LearningDeliveryCategory WHERE LearningDelivery.LearnAimRef=LARS_LearningDeliveryCategory.LearnAimRef

10.2. Outputs

global

Public Name	OPA Local Name	Data Type	Size	Precision	Temporal
LARSVersion	the LARS reference data version	Text	20		
PostcodeAreaCostVersion	the postcode area cost reference data version	Text	20		
RulebaseVersion	the current version of the rulebase	Text	10		
UKPRN	the provider's UKPRN	Number	8	0	

Learner

Public Name	OPA Local Name	Data Type	Size	Precision	Temporal
ALBSeqNum	the learner's ALB funding assigned learning delivery sequence number	Number	2		Y
LearnRefNumber	the learner's learner reference number	Text	12		

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LearningDelivery

Public Name	OPA Local Name	Data Type	Size	Precision	Temporal
Achieved	the learning delivery has been achieved	Boolean			
ActualNumInstalm	the learning delivery's actual instalments	Number	3		
AdvLoan	the learning delivery is a 24+ Loan	Boolean			
AimSeqNumber	the learning delivery's aim sequence number	Number	2		
ALBCode	the learning delivery's ALB code	Number	3		Y
ALBPaymentEndDate	the learning delivery's last permitted payment date	Date			
ALBSupportPayment	the learning delivery's ALB support cash	Currency	10	5	Y
ApplicProgWeightFact	the learning delivery's applicable programme weighting factor	Text	1		
AreaCostFactAdj	the learning delivery's adjusted area cost factor	Number	10	5	
AreaCostInstalment	the learning delivery's area uplift instalment amount	Currency	10	5	
AreaUpliftBalPayment	the learning delivery's area uplift balancing cash	Currency	10	5	Y
AreaUpliftOnProgPayment	the learning delivery's area uplift on-programme cash	Currency	10	5	Y
CourseType	the learning delivery's course type	Text	100		
FundLine	the learning delivery's funding line type	Text	50		
FundStart	the learning delivery is a start for 24+ Loan purposes	Boolean			
LiabilityDate	the learning delivery's liability date	Date			
LoanBursAreaUplift	the learning delivery is eligible for 24+ Loan Bursary area uplift funding	Boolean			
LoanBursSupp	the learning delivery is eligible for 24+ Loan Bursary support funding	Boolean			
MaxNumYears	the maximum number of years the learning delivery can attract loan funding	Number	3		
OutstndNumOnProgInstalm	the learning delivery's outstanding instalments	Number	3		
PlannedNumOnProgInstalm	the learning delivery's planned instalments	Number	3		
SpecResUplift	the learning delivery's specialist resources uplift	Number	10	5	
WeightedRate	the learning delivery's applicable weighted rate	Currency	10	4	

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