

REF 2021 submission system validation rules

Updated December 2020

This document is aimed at supporting institutions importing data into the REF 2021 submission system and is not intended to be a policy guidance document. For policy guidance on REF 2021 please see <https://ref.ac.uk/guidance/>.

This document lists all validation rules that are enforced when importing data into the REF 2021 submission system either using the web user interface or the API. Field names are as listed in the [published data requirements](#).

Revision history

Section	Page	Change	Date changed
n/a	n/a	First draft	February 2020
Research Outputs (REF2), Impact case studies (REF3), Institutional level environment template (REF5a)	Multiple	Added guidance regarding COVID changes & fields	September 2020
Research Outputs (REF2)	Multiple	Minor changes made to "Warning" messages for Output COVID validation messages.	November 2020
Research Outputs (REF2)	17	Added "Media of Output"	December 2020

Validation rule levels

The validation rules for each field are divided into up to three parts:

Save – The record cannot be imported if any of these rules are broken.

Submission – The record can be imported if any of these rules are broken but the problem must be resolved in order for the institution to submit to REF 2021.

Warning – The field is acceptable for submission to REF 2021 but you may want to check that it is correct.

Data types

The following table describes each data type. Where Save/Submission/Warning is stated, this indicates whether providing an invalid value will result in a save error, a submission error or a warning for the field:

Data type	Comments
Text (maximum characters)	Any text up to the given length.
Text (Save/Submission/Warning) <ul style="list-style-type: none"> • Value1 • Value2 • Value3 	Any of the given values only.
Text (A-E, Save/Submission/Warning)	Any capital letter from A to E inclusive.
Integer (x to y, Save/Submission/Warning)	Any whole number between x and y inclusive.
Number (x to y, Save/Submission/Warning)	Any number between x and y inclusive. The number of expected decimal places will be indicated e.g. 1.00-5.00 indicates two decimal places.
Boolean	One of: true, false, yes, no. If a Boolean field is marked as mandatory this means that one of the four values must be provided ; it doesn't mean the value must be positive (yes or true). Validation rule descriptions below will use the words 'true' and 'false' rather than 'yes' and 'no'.
Date	Date fields should be formatted as a date in an Excel file. Dates imported using XML or JSON should be in the format 'YYYY-MM-DD' e.g. 2nd Jan 2013 = '2013-01-02'.
Binary	Binary data, typically used to represent a file. Only supported by XML and JSON and the data must be BASE64 encoded.

Structure of the validation report

The validation report for an import or validation job may contain some error messages that will enable you to identify where data is invalid for submission. The report will contain, for each error, the UOA, the form, the record where the error occurs, the type of error (Save / Submit / Warning) and the description of the error.

Common fields

Name	Data type	Validation rules	GoS reference
Institution	Text (8)	<u>Save</u> Mandatory. Must match the UKPRN of the importing institution.	
unitOfAssessment	Integer (1 to 34, Save)	<u>Save</u> Mandatory. There must be an existing submission in the given UOA for the importing institution.	Annex D
multipleSubmission	Text (1)	<u>Save</u> If provided, the value must match a multiple submission identifier in the given UOA for the importing institution. If not provided then there must be a single submission in the given UOA for the importing institution.	Paragraph 73

Research groups

Name	Data type	Validation rules	GoS reference
code	Text (1)	<u>Save</u> Mandatory. Any single letter or digit (a lower case letter will be stored in upper case). Must not be duplicated in the submission.	
name	Text (128)	<u>Save</u> Mandatory. Must not be duplicated in the submission.	

Research staff (REF1a)

If neither hesaStaffIdentifier nor staffIdentifier are provided a new staff member will not be created on import. If two or more REF1a records in the same import file have the same hesaStaffIdentifier or the same staffIdentifier then the record that appears closest to the end of the file will overwrite any conflicting details in the first records.

Name	Data type	Validation rules	GoS reference
hesaStaffIdentifier	Text (13)	<u>Save</u>	

		<p>Must not be duplicated within the submission.</p> <p><u>Submission</u> Must not be duplicated within the institution. Must be in the form XXDDDDDDDDDDDC (X=any digit or X, D = any digit, C = check digit) and the check digit must be valid; see <u>HESA website</u> for more detail.</p>	
staffIdentifier	Text (24)	<p><u>Save</u> Mandatory if hesaStaffIdentifier is not provided. Only collected for staff where there is no HESA identifier at the point of submission. Must not be duplicated within the submission.</p>	
surname	Text (64)	<p><u>Submission</u> Mandatory.</p>	
initials	Text (12)	<p><u>Submission</u> Mandatory.</p>	
dateOfBirth	Date	<p><u>Submission</u> Mandatory Must be between 01/01/1920 and 01/08/1999 inclusive.</p>	
Orcid	String (37)	<p>Submission The ORCID should not begin with https://orcid.org/, as the submission system will add the prefix. Must be a valid ORCID with correct checksum.</p>	
contractedFte	Number (0 to 9.99, Save) (0.20 to 1.00, Submission)	<p><u>Submission</u> Mandatory</p>	
researchConnection	Text (7,500)	<p><u>Submission</u> Mandatory if FTE is between 0.2 and 0.29</p>	See Guidance on Submissions paragraphs 123 to 127.
reasonsForNoConnectionStatement	Text	<p><u>Submission</u> Mandatory if researchConnection is not completed and FTE is between 0.2 and 0.29</p>	See Guidance on Submissions

		One or more of CaringResponsibilities, PersonalCircumstances, ApproachingRetirement, DisciplinePractice	paragraphs 123 to 127.
isEarlyCareerResearcher	Boolean	<u>Submission</u> Mandatory if no HESA ID provided.	Paragraphs 146- 148
isOnFixedTermContract	Boolean	<u>Submission</u> Mandatory	
contractStartDate	Date	<u>Submission</u> Mandatory if isOnFixedTermContract set to true. Must not be provided if isOnFixedTermContract set to false. Must be on or before 31/07/2020.	
contractEndDate	Date	<u>Submission</u> Mandatory staff if isOnFixedTermContract set to true. Must not be provided if isOnFixedTermContract set to false. Must be on or after 31/07/2020. contractEndDate cannot be before the contractStartDate.	
isOnSecondment	Boolean	<u>Submission</u> Mandatory	
secondmentStartDate	Date	<u>Submission</u> Mandatory if isOnSecondment set to true. Must not be provided if isOnSecondment set to false. Must be between 31/07/2018 and 31/07/2020 inclusive. Must not be more than two years before secondmentEndDate.	
secondmentEndDate	Date	<u>Submission</u> Mandatory if isOnSecondment set to true. Must not be provided if isOnSecondment set to false. Must be between 31/07/2020 and 31/07/2022 inclusive. Must not be more than two years after secondmentStartDate secondmentEndDate must not be before the secondmentStartDate.	
isOnUnpaidLeave	Boolean	<u>Submission</u>	

		Mandatory	
unpaidLeaveStartDate	Date	<u>Submission</u> Mandatory if isOnUnpaidLeave set to true. Must not be provided if isOnUnpaidLeave set to false. Must be between 31/07/2018 and 31/07/2020 inclusive. Must not be more than two years before unpaidLeaveEndDate.	
unpaidLeaveEndDate	Date	<u>Submission</u> Mandatory if isOnUnpaidLeave set to true. Must not be provided if isOnUnpaidLeave set to false. Must be between 31/07/2020 and 31/07/2022 inclusive. Must not be more than two years after unpaidLeaveStartDate. unpaidLeaveEndDate must not be before unpaidLeaveStartDate.	
ResearchGroup1	Text (1)	<u>Save</u> Must match the code for a research group in the same submission as the staff member, otherwise the value will be ignored. <u>Submission</u> The research group must not be repeated in the same staff member.	
ResearchGroup2	Text (1)		
ResearchGroup3	Text (1)		
ResearchGroup4	Text (1)		

Former staff(REF1b)

Field name	Data Type	Validation rules	GoS reference
staffIdentifier	Text (24)	<u>Save</u> Mandatory. Must not be duplicated within the submission.	
Surname	Text (64)	<u>Submission</u> Mandatory.	
Initials	Text (12)	<u>Submission</u> Mandatory.	

dateOfBirth	Date	<u>Submission</u> Mandatory Must be between 01/01/1920 and 01/08/1999 inclusive.	
Orcid	Text (37)	<u>Submission</u> The ORCID should not begin with https://orcid.org/ , as the submission system will add the prefix. Must be a valid ORCID with correct checksum. Must be 37 characters	
excludeFromSubmission	Boolean	<u>Submission</u> Must be set to false before submission.	

Former staff employment record (contract)

1. For each former staff member this information may be repeated for each employment record (contract). For the non-hierarchical file formats the staff identifier fields from the **Former staff** table will be included in the table as well.

Field name	Data Type	Validation rules	GoS reference
hesaStaffIdentifier	Text (13)	<u>Save</u> Must not be duplicated within the submission. <u>Submission</u> Must not be duplicated within the institution. Must be in the form XXDDDDDDDDDC (X=any digit or X, D = any digit, C = check digit) and the check digit must be valid; see HESA website for more detail.	
contractFTE	Number (0 to 9.99, Save) (0.20 to 1.00, Submission)	<u>Submission</u> Mandatory	
researchConnection	Text (7,500)	<u>Submission</u> Mandatory if FTE is between 0.2 and 0.29	See Guidance on Submissions paragraphs 123 to 127.

reasonsForNoConnectionStatement	Text	One or more of CaringResponsibilities, PersonalCircumstances, ApproachingRetirement, DisciplinePractice	See Guidance on Submissions paragraphs 123 to 127.
startDate	Date	<u>Submission</u> Mandatory Must be before the endDate	
endDate	Date	<u>Submission</u> Mandatory Must be between 1/1/2014 and 30/07/2020 (inclusive). endDate cannot be before the startDate.	
isOnSecondment	Boolean	<u>Submission</u> Mandatory	
secondmentStartDate	Date	<u>Submission</u> Mandatory if isOnSecondment set to true. Must not be provided if isOnSecondment set to false. Must not be more than two years before secondmentEndDate.	
secondmentEndDate	Date	<u>Submission</u> Mandatory if isOnSecondment set to true. Must not be provided if isOnSecondment set to false. Must be between 1/1/2014 and 30/07/2020 (inclusive). Must not be more than two years after secondmentStartDate secondmentEndDate must not be before the secondmentStartDate.	
isOnUnpaidLeave	Boolean	<u>Submission</u> Mandatory	
unpaidLeaveStartDate	Date	<u>Submission</u> Mandatory if isOnUnpaidLeave set to true. Must not be provided if isOnUnpaidLeave set to false. Must not be more than two years before unpaidLeaveEndDate.	
unpaidLeaveEndDate	Date	<u>Submission</u> Mandatory if isOnUnpaidLeave set to true.	

		<p>Must not be provided if isOnUnpaidLeave set to false. Must be between 1/1/2014 and 30/07/2020 (inclusive). Must not be more than two years after unpaidLeaveStartDate. unpaidLeaveEndDate must not be before unpaidLeaveStartDate.</p>	
<p>ResearchGroup1 ResearchGroup2 ResearchGroup3 ResearchGroup4</p>	<p>Text (1) Text (1) Text (1) Text (1)</p>	<p><u>Save</u> Must match the code for a research group in the same submission as the staff member, otherwise the value will be ignored.</p> <p><u>Submission</u> The research group must not be repeated in the same staff member.</p>	

Research outputs (REF2)

A submission warning will be produced if a staff member does not have an output and does not have a request to remove the requirement of the minimum of one.

A submission error will be produced if a staff member has more than 5 outputs.

A submission error will be produced if there are more than the required number of outputs, taking into account any requests to remove the minimum of one or to reduce the number of outputs required.

A warning will be produced if there are less than the required number of outputs.

A submission error will be produced if an output of any of the following types has no PDF associated with it:

- D – Journal article
- E – Conference proceeding
- G – Software
- S - Research datasets and databases
- U – Working paper

- M – Exhibition
- Q – Digital or visual media
- T – Other

For types D and E, if the REF team has not been able to download a PDF for the output then the PDF must be uploaded manually via REF2 on the submission system website or using the submission system web service by the submission deadline (noon 31 March 2021).

For all other types listed above, a PDF for the output must be uploaded manually via REF2 on the submission system website or using the submission system web service by the submission deadline (noon 31 March 2021).

Some of the above submission errors will only appear in the full Submit validation process which will precede final submission.

Name	Data type	Validation rules	GoS reference
outputIdentifier	Text (24)	<u>Save</u> Mandatory. Must not be duplicated within the submission.	
webOfScienceIdentifier	Text(20)		
outputType	Text (A-V)	<u>Save</u> Mandatory.	
title	Text (7,500)	<u>Submission</u> Mandatory.	
place	Text (256)	<u>Submission</u> Mandatory if outputType is one of: L, P, I, M, S and isPendingPublication is false. <u>Warning</u> Should not be provided if outputType is one of: A, B, C, R, D, E, U, F, N, O, K, J, H, G, V If not supplied for a COVID-19 delayed output, a Warning will be displayed.	
publisher	Text (256)	<u>Submission</u> Mandatory if outputType is one of: A, B, C, U, N, O, G, T. <u>Warning</u> Should not be provided if outputType is one of: D, E, L, M, I, F, K, J, S, H.	

		If not supplied for a COVID-19 delayed output, a Warning will be displayed.	
volumeTitle	Text (256)	<p><u>Submission</u> Mandatory if outputType is one of: C, R, D, E.</p> <p><u>Warning</u> Should not be provided if outputType is one of: A, N, U, L, P, M, I, F, O, K, J, Q, S, H, G, T. If not supplied for a COVID-19 delayed output, a Warning will be displayed.</p>	
volume	Text (16)	<p><u>Submission</u> Mandatory if outputType is D.</p> <p><u>Warning</u> Should not be provided if outputType is not D or E. If not supplied for a COVID-19 delayed output, a Warning will be displayed.</p>	
issue	Text (16)	<p><u>Warning</u> Should not be provided if outputType is not D or E. Not required for a COIVD-19 delayed output</p>	
firstPage	Text (8)	<p><u>Submission</u> Mandatory if outputType is D, isPendingPublication is false and articleNumber is not provided. Mandatory if outputType is E.</p> <p><u>Warning</u> Should not be provided if outputType is not D or E. If not supplied for a COVID-19 delayed output, a Warning will be displayed.</p>	
articleNumber	Text (32)	<p><u>Submssion</u> Mandatory if outputType is D, isPendingPublication is false and firstPage is not provided.</p> <p><u>Warning</u> Should not be provided if outputType is not D. If not supplied for a COVID-19 delayed output, a Warning will be displayed.</p>	

isbn	Text (24)	<p><u>Submission</u> Mandatory if outputType is A, B or C and isPendingPublication is false.</p> <p><u>Warning</u> Should not be provided if outputType is one of: D, E, U, L, P, M, I, F, N, O, K, J, Q, S, H, G, T. Should be in one of the following forms (any dashes or spaces included will be ignored): DDDDDDDDDX DDDDDDDDDDDDDD (X=any digit or X, D = any digit). The final character is a check digit; a warning will be produced if it is not valid. See http://isbn-information.com/10-digit-isbn.html for details of how the check digit is calculated for a 10 digit ISBN and http://isbn-information.com/isbn-check-digit.html for a 13 digit ISBN. If not supplied for a COVID-19 delayed output, a Warning will be displayed.</p>	
issn	Text (24)	<p><u>Submission</u> Mandatory if outputType is D and isPendingPublication is false.</p> <p><u>Warning</u> Should not be provided if outputType is not D or E. Should be in the following form (any dashes or spaces included will be ignored): DDDDDDDX (X=any digit or X, D = any digit). The final character is a check digit; a warning will be produced if it is not valid. If not supplied for a COVID-19 delayed output, a Warning will be displayed.</p>	
doi	Text (1024)	<p>Please do not include a prefix i.e. http://dx.doi.org/</p> <p><u>Submission</u> Must be in the form:</p>	

		<p>10.DDDDD/anycharacter (D = any digit, anycharacter = any number of characters that can be used in a URL).</p> <p><u>Warning</u> Should not be provided if outputType is one of: U, L, P, M, I, F, O, K, J, Q, H, G. Should be provided if available and outputType is D or E.</p>	
openAccessStatus	Text	<p><u>Submission</u> <u>Mandatory for type D.</u> <u>Mandatory for type E if ISSN entered</u></p> <p><u>Warning</u> <u>Must not be supplied for outputTypes that aren't D or E</u></p> <p><u>Values from:</u> Compliant NotCompliant DepositException AccessException TechnicalException OtherException OutOfScope ExceptionWithin3MonthsOfPublication</p>	
patentNumber	Text (24)	<p><u>Submission</u> Mandatory if outputType is F and isPendingPublication is false.</p> <p><u>Warning</u> Should not be provided if outputType is not F. If not supplied for a COVID-19 delayed output, a Warning will be displayed.</p>	
month	Text (One of 1 – 12 or January – December or Jan – Dec)	<p><u>Submission</u> Mandatory for outputs linked to former staff members</p> <p><u>Warning</u> Not required if output is linked to former staff member</p>	See Guidance on Submissions paragraph 264b.
year	Text (Submission):	<u>Submission</u>	

	<ul style="list-style-type: none"> • 2014 • 2015 • 2016 • 2017 • 2018 • 2019 • 2020 • 2021 	<p>Mandatory Must be 2021 or blank if isDelayedByCovid19 is checked</p> <p><u>Warning</u> If Year is not provided for a COVID-19 delayed output</p>	
url	Text (1024)	<p><u>Submission</u> Mandatory if outputType is H and isPendingPublication is false.</p> <p><u>Warning</u> Should start with one of: http://, https://, ftp://. Not required for output type O If not supplied for a COVID-19 delayed output, a Warning will be displayed.</p>	
isPhysicalOutput	boolean	<p><u>Submission</u> Mandatory for all types, default choice is: TRUE Must be FALSE if URL has been provided</p> <p><u>Warning</u> Not required for output types D</p>	
numberOfAdditionalAuthors	Integer (0 to 9999, Submission) (-32768 to 32767, Save)		paragraphs 268 to 272.
isPendingPublication	Boolean	<p><u>Submission</u> Must not be provided. Pending publication provisions no longer apply</p>	https://ref.ac.uk/media/1417/guidance-on-revisions-to-ref-2021-final.pdf paras 44-45).
pendingPublicationReserve	Text (24)	<p><u>Submission</u> Must not be provided. Pending publication provisions no longer apply</p>	https://ref.ac.uk/media/1417/guidance-on-revisions-to-ref-2021-final.pdf

			ref-2021-final.pdf paras 44-45).
isForensicScienceOutput	Boolean		Paragraphs 275 and 276.
isCriminologyOutput	Boolean		Paragraphs 277 and 278.
isNonEnglishOutput	Boolean		Paragraphs 285 to 287
englishAbstract	Text (7,500)	<u>Submission</u> Mandatory if isNonEnglish is true Maximum 100 words.	
isInterdisciplinary	Boolean		Paragraphs 273 and 274
proposeDoubleWeighting	Boolean		Paragraphs 279 to 283
doubleWeightingStatement	Text (7,500)	<u>Submission</u> Mandatory if proposeDoubleWeighting is true. Must not be provided if proposeDoubleWeighting is false. Maximum 100 words.	
doubleWeightingReserve	Text	<u>Save</u> Output identifier must match an output in the same submission. <u>Submission</u> Must not be provided if proposeDoubleWeighting is false. Must not identify a double-weighted or pending publication output. Must not identify an output that is a reserve for another double-weighted or pending publication output.	
conflictedPanelMembers	Text (512)	<u>Warning</u> Should not be provided if outputType is not O.	Paragraphs 261 to 263
crossReferToUoa	Integer (1 to 34, Save)	<u>Submission</u> Must identify a different unit of assessment to the one that the output belongs to.	Paragraphs 399 to 404
additionalInformation	Text (7,500)	<u>Submission</u> 100 additional words allowed if doesIncludeSignificantMaterialBefore2014 is true	See Para 284 for further information

		300 additional words allowed if . doesIncludeResearchProcess 100 additional words allowed if doesIncludeFactualInformationAboutSignificance is true (UOAs 11 and 12 only)	
isDelayedByCovid19	Boolean		https://ref.ac.uk/media/1417/guidance-on-revisions-to-ref-2021-final.pdf paras 28-40
covid19Statement	Text (100)	<u>Submission</u> Maximum 100 words.	https://ref.ac.uk/media/1417/guidance-on-revisions-to-ref-2021-final.pdf paras 28-40
doesIncludeSignificantMaterialBefore 2014	Boolean		
doesIncludeResearchProcess	Boolean		
doesIncludeFactualInformationAbout Significance	Boolean	<u>Save</u> Must not be checked for any UOA outside of 11 & 12	
outputAllocation1	Text(128)	<u>Submission</u> Must be provided for UOAs 7, 10, 11, 12, 26, 27, 28, 29, 33 and 34. Must not be provided for any UOA other than 7,10, 11, 12, 26, 27, 28, 29, 33 and 34. Must be one of the expected output allocation categories for UOAs 7, 11, 12, 26, 27, 28, 29, 33 and 34.	See output allocation guidance at http://www.ref.ac.uk/guidance/additional-guidance/ for more information.
outputAllocation2	Text(128)	<u>Submission</u> Must be provided for UOA 26. Must not be provided for any UOA other than 10, 12 and 26.	As above see output allocation guidance at http://www.ref.ac.uk

		Must be one of the expected output allocation categories for UOA 12 or 26. Must not be the same as outputAllocation1 or outputAllocation3 for UOA 12.	k/guidance/additional-guidance/ for more information.
outputAllocation3	Text(128)	<u>Submission</u> Must not be provided for any UOA other than 12. Must be one of the allocation categories for UOA 12. Must not be the same value as outputAllocation1 or outputAllocation2.	As above see output allocation guidance at http://www.ref.ac.uk/guidance/additional-guidance/ for more information.
outputSubProfileCategory	Text(128)	<u>Submission</u> Must not be provided for any UOAs other than 3 and 12. Must be one of the output sub-profile categories.	See panel criteria and working methods paragraphs 181 and 183.
SupplementaryInformation	Text(1024)	<u>Warning</u> Can only be supplied for output types D and E Must be a URL or a DOI If DOI, must be in the form: 10.DDDDD/anycharacter (D = any digit, anycharacter = any number of characters that can be used in a URL). If URL, should start with one of: http://, https://, ftp://.	See paragraph 88a for more information
mediaOfOutput	Text(256)	Must be used to describe the version of electronic output being returned where not possible to submit the final version in electronic form. E.g. "Proof", "Author Accepted Manuscript". <u>Save</u> Must not exceed 264 characters in length	See updated invitation to submit to REF 2021 as PDF at: https://ref.ac.uk/publications/updated-invitation-to-submit-to-ref-2021/ for more information.

Link between staff and outputs

This table links staff to outputs, so the submission system can check the numbers of output submitted per staff member.

Field name	Type	Validation	GOS reference
hesaStaffIdentifier	Text(13)	<u>Save</u> Must be one of the stored hesaStaffIdentifier from REF1a or REF1b in the same submission Must not be provided if staffIdentifier provided.	
staffIdentifier	Text (24)	<u>Save</u> Must be one of the stored staffIdentifier from REF1a or REF1b in the same submission Must not be provided if hesaStaffIdentifier provided.	
outputIdentifier	Text (24)	<u>Save</u> Must be one of the stored outputIdentifiers from REF2	
researchGroup	Text (1)	<u>Save</u> Must exist in the submission <u>Submission</u> Must be one of the research groups the staff member belongs to	
authorContributionStatement	Text (7,500)	<u>Submission</u> Must not exceed 100 words.	See Panel Criteria and Working Methods p42
isAdditionalAttributedStaffMember	Boolean		A value indicating whether this staff member is an additional attributed staff

			member for a double weighted output or an output submitted to main panel D.
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Impact case studies (REF3)

Fields of type binary will only be supported in some of the file formats. Text based file formats (XML and JSON) for example will require the binary data to be BASE64 encoded.

Field name	Type	Validation	GOS reference
caseStudyIdentifier	Text (24)	<u>Save</u> <u>Mandatory</u> Must be unique in the submission	
Title	Text (256)	<u>Submission</u> Mandatory	
redactionStatus	Text	<u>Submission</u> Mandatory. One of: NotRedacted, RequiresRedaction, NotForPublication	
conflictedPanelMembers	Text (512)	<u>Warning</u> Should not be provided if redactionStatus is NotRedacted.	
caseStudyPdf	Binary	<u>Save</u> Must be a PDF file no larger than 10Mb. <u>Submission</u> Mandatory. Must not contain more than five pages.	

redactedCaseStudyPdf	Binary	<p><u>Save</u> Must be a PDF file no larger than 10 Mb.</p> <p><u>Warning</u> Must be provided by 01 June 2021 if redactionStatus is RequiresRedaction. Should not be provided if redactionStatus is not RequiresRedaction.</p>	
caseStudyDocument	Binary	<p><u>Save</u> Must be a Word file no larger than 10 Mb.</p> <p><u>Submission</u> Mandatory unless redactionStatus is 'NotForPublication'</p> <p><u>Warning</u> Must be provided by 01 June 2021</p>	
crossReferToUoa	Integer (1 to 34, Save)	<p><u>Submission</u> Must identify a different unit of assessment to the one that the case study belongs to.</p>	
corroboratingEvidence	Binary	<p><u>Save</u> Must be a zip file no larger than 100MB.</p> <p><u>Warning</u> Must be provided before 01 June 2021</p>	
IsCovid19StatementNotForPublication	Boolean	<p><u>Submission</u> Must not be true if Covid19Statment is blank</p>	<p>https://ref.ac.uk/media/1417/guidance-on-revisions-to-ref-2021-final.pdf paras 53-62</p>
Covid19Statement	Text (100)	<p><u>Submission</u> Maximum 100 words</p>	<p>https://ref.ac.uk/media/1417/guidance-on-revisions-to-ref-2021-final.pdf paras 53-62</p>

Impact case study additional contextual data

Field name		Type	Validation	GoS Reference
grantsFunding	number	Text (256)		
	amount	Integer (0 to 150,000,000, Submission) (-2,147,483,648 to 2,147,483,647, Save)		
nameOfFunders		Text (256)		
globalResearchIdentifiers		Text (256)		
fundingProgrammes		Text (256)		
researcherOrcids		Text (37)	Submission The ORCID should not begin with https://orcid.org/ , as the submission system will add the prefix. Must be a valid ORCID with correct checksum. Must be 37 characters	
formalPartners		Text (256)		
Countries		Text (256)		

Impact case study contacts

For each impact case study this information may be repeated for each contact. For the non-hierarchical file formats the case study identifier field from the **Impact case study** table will be included on the table as well.

Field name	Type	Validation	GoS Reference
Number	Number (1-5)	<u>Save</u> Mandatory Between 1 and 5	
Name	Text (64)	<u>Submission</u> Mandatory	

jobTitle	Text (64)	<u>Submission</u> Mandatory	
emailAddress	Text (128)	<u>Save</u> Must be structured as a valid e-mail address. <u>Submission</u> Mandatory if no Phone number Must not match the alternateEmailAddress	
alternateEmailAddress	Text (128)	<u>Save</u> Must be structured as a valid e-mail address. <u>Submission</u> Must not match the emailAddress	
Phone	Text (24)	<u>Submission</u> Mandatory if no email Address	
Organisation	Text (128)	<u>Submission</u> Mandatory	

Research doctoral degrees awarded (REF4a)

Name	Data type	Validation rules	GoS reference
year	One of the values (Save): <ul style="list-style-type: none"> • 2013 • 2014 • 2015 • 2016 • 2017 • 2018 • 2019 	<u>Save</u> Mandatory.	
degreesAwarded	Number (0.00 to 9999.99, Submission) (-9999.99 to 9999.99, Save)		

Research income (REF4b)

Name	Data type	Validation rules	GoS reference
source	Integer (1 to 15, Save) 1 : BEIS Research Councils, The Royal Society, British Academy and The Royal Society of Edinburgh 2 : UK-based charities (open competitive process) 3: UK-based charities (other) 4 : UK central government bodies, local authorities, health and hospital authorities 5: UK central government tax credits for research and development expenditure 6 : UK industry, commerce and public corporations 7: UK government bodies 8 : EU government bodies 9 : EU-based charities (open competitive process) 10 : EU industry, commerce and public corporations 11 : EU (excluding UK) other 12 : Non-EU based charities (open competitive process) 13: Non-EU industry, commerce and public corporations 14 : Non-EU other 15: Health research funding bodies	<u>Save</u> Mandatory. 15 is only valid within Main Panel A (UOAs 1 to 6).	Paragraph 172

Income2013	Integer (-10,000,000 to 150,000,000, Submission) (-2,147,483,648 to 2,147,483,647, Save)		
Income2014	Integer (-10,000,000 to 150,000,000, Submission) (-2,147,483,648 to 2,147,483,647, Save)		
Income2015	Integer (-10,000,000 to 150,000,000, Submission) (-2,147,483,648 to 2,147,483,647, Save)		
Income2016	Integer (-10,000,000 to 150,000,000, Submission) (-2,147,483,648 to 2,147,483,647, Save)		
Income2017	Integer (-10,000,000 to 150,000,000, Submission) (-2,147,483,648 to 2,147,483,647, Save)		
Income2018	Integer (-10,000,000 to 150,000,000, Submission) (-2,147,483,648 to 2,147,483,647, Save)		
Income2019	Integer (-10,000,000 to 150,000,000, Submission) (-2,147,483,648 to 2,147,483,647, Save)		

Research income in kind (REF4c)

Name	Data type	Validation rules	GoS reference
source	Integer (16 to 17, Save) 16 : Research Councils income-in-kind 17: Health research funding bodies income-in-kind	<u>Save</u> Mandatory. 17 is only valid within Main Panel A (UOAs 1 to 6).	Paragraph 172
Income2013	Integer (-10,000,000 to 150,000,000, Submission) (-2,147,483,648 to 2,147,483,647, Save)		
Income2014	Integer (-10,000,000 to 150,000,000, Submission) (-2,147,483,648 to 2,147,483,647, Save)		
Income2015	Integer (-10,000,000 to 150,000,000, Submission) (-2,147,483,648 to 2,147,483,647, Save)		
Income2016	Integer (-10,000,000 to 150,000,000, Submission) (-2,147,483,648 to 2,147,483,647, Save)		
Income2017	Integer (-10,000,000 to 150,000,000, Submission) (-2,147,483,648 to 2,147,483,647, Save)		
Income2018	Integer (-10,000,000 to 150,000,000, Submission) (-2,147,483,648 to 2,147,483,647, Save)		
Income2019	Integer (-10,000,000 to 150,000,000, Submission)		

	(-2,147,483,648 to 2,147,483,647, Save)		
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Validation of REF4a/b/c totals

The total number of research degrees awarded, the total research income and the total research income-in-kind will be validated against the numbers held by HESA (or the research councils / health research funding bodies for income-in-kind) during bulk validation, but **not** on import. The REF submission system is set to limit the difference between the data returned in submissions by your institution and the corresponding data extracted from HESA or provided by UKRI or the UK health research funding bodies. The tolerance limits of the submission system apply at the institutional level.

Validation errors will be prompted in the submission system if:

- a. The total number of research degrees awarded submitted by the institution as a whole exceeds the total number of degrees awarded provided in HESA student record by more than 20 awards and 5% over the period 2013-14 to 2018-19.
- b. The total number of research degrees awarded submitted by the institution as a whole exceeds the total number of degrees awarded provided in HESA student record by more than 10 awards and 10% in any academic year between 2013-14 and 2018-19.
- c. The total amount of research income submitted by the institution as a whole exceeds the total amount of income provided in the HESA finance record by more than £200,000 and 5% over the period 2013-14 to 2018-19.
- d. The total amount of research income submitted by the institution as a whole exceeds the total amount of income provided in the HESA finance record by more than £100,000 and 10% in any academic year between 2013-14 and 2018-19.
- e. The total amount of research income submitted by the institution as a whole exceeds the total amount of income provided in the HESA finance record by more than £100,000 and 10% in any source of income over the period 2013-14 to 2018-19.
- f. The total amount of research income-in-kind submitted by the institution as a whole exceeds the total amount of income-in-kind provided by the research councils and health research funding bodies by more than £200,000 and 5% over the period 2013-14 to 2018-19.
- g. The total amount of research income-in-kind submitted by the institution as a whole exceeds the total amount of income-in-kind provided by the research councils and health research funding bodies by more than £100,000 and 10% in any academic year between 2013-14 and 2018-19.

Institutional level environment template (REF5a)

Name	Data type	Validation rules	GoS reference
requiresRedaction	Boolean		Paragraph 359

statement	Binary	<u>Save</u> Must be a PDF file no larger than 10Mb. <u>Submission</u> Mandatory. Must not contain more than the allowed word limit based on Category A submitted staff FTE in the Institution.	
statementDocument	Binary	<u>Save</u> Must be a Word file no larger than 10 Mb. <u>Submission</u> Mandatory	
redactedStatement	Binary	<u>Save</u> Must be a PDF file no larger than 10 Mb. <u>Warning</u> Must be provided before 01 June 2021 if requiresRedaction is true. Should not be provided if requiresRedaction is not provided or false.	
covid19Statement	Text (500)	<u>Submission</u> Maximum 500 words	

Environment template (REF5b)

Name	Data type	Validation rules	GoS reference
requiresRedaction	Boolean		Paragraph 36
statement	Binary	<u>Save</u> Must be a PDF file no larger than 10Mb. <u>Submission</u> Mandatory. Must not contain more than the allowed word limit based on Category A submitted staff FTE in the submission.	
statementDocument	Binary	<u>Save</u> Must be a Word file no larger than 10 Mb.	

		<u>Submission</u> Mandatory	
redactedStatement	Binary	<u>Save</u> Must be a PDF file no larger than 10 Mb. <u>Warning</u> Must be provided before 01 June 2021 if requiresRedaction is true. Should not be provided if requiresRedaction is not provided or false.	

Requests to remove the minimum of one requirement (REF6a)

Name	Data type	Validation rules	GoS reference
hesaStaffIdentifier	Text (13)	<u>Save</u> Mandatory <u>Submission</u> Must not be duplicated within the institution. Must be in the form XXDDDDDDDDDC (X=any digit or X, D = any digit, C = check digit) and the check digit must be valid; see HESA website for more detail.	paragraphs 178 to 183
staffIdentifier	Text (24)	<u>Save</u> Mandatory if hesaStaffIdentifier is not provided. Only collected for staff where there is no HESA identifier at the point of submission. Must not be duplicated within the submission.	
circumstances	Text	<u>Submission</u> Mandatory One of ECR, SecondmentsOrCareerBreaks,	See Guidance on Submissions paragraphs 179 and 180.

		FamilyRelatedLeave, JuniorClinicalAcademic, RequiringJudgement	
supportingInformation	Text (7,500)	<u>Submission</u> Mandatory	See Guidance on Submissions paragraphs 182.

Unit reduction requests (REF6b)

Multiple records may be added for a single HESA id, each record will require a unique HESA id / typeOfCircumstance pair. Guidance on the accepted combinations of circumstance types can be found in the Guidance on Submissions paragraphs 160 – 162 and annex L.

Field name	Type	Restrictions	Comments
hesaStaffIdentifier	Text (13)	<u>Save</u> <u>Mandatory</u> <u>Submission</u> Must not be duplicated within the institution. Must be in the form XXDDDDDDDDDC (X=any digit or X, D = any digit, C = check digit) and the check digit must be valid; see HESA website for more detail.	
staffIdentifier	Text (24)	<u>Save</u> Mandatory if hesaStaffIdentifier is not provided. Only collected for staff where this no HESA identifier at the point of submission. Must not be duplicated within the submission	Only required if there is no HESA staff identifier.
typeOfCircumstance	Text	<u>Submission</u> Mandatory One of ECR, SecondmentsOrCareerBreaks, FamilyRelatedLeave,	See Guidance on Submissions paragraphs 160 to 162.

		JuniorClinicalAcademic, RequiringJudgement	
tariffBand	Integer (0-3, Save)	<u>Submission</u> Mandatory	Should map to the rows of Table 1 or Table 2 in the annex L of the Guidance on Submissions for the circumstance being claimed.
supportingInformation	text (7,500)	<u>Submission</u> Mandatory if typeOfCircumstance is RequiringJudgement	See Guidance on Submissions paragraph 193.

Unit rationale statement

Field name	Type	Restrictions	Comments
unitRationaleStatement	Text (7,500)	<u>Submission</u> Mandatory Maximum length 300 words	See Guidance on Submissions paragraph 177.