



## REID - Unique Company Identification

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## Introduction

### Scope

The aim of the REID (Registered Entity Identifier) initiative is to establish a way in which entities in business registers can be identified by a number that is unique at the world level.

This document outlines the conclusions of the discussions thus far.

We are deliberately using the generic term “entities” although what is being addressed here is primarily the identification of companies. The process of identification can be applied to any entity that is entered in a register. Apart from other business types, such as limited liability partnerships, credit unions or co-operatives, we could also be discussing company directors, auditors or disqualified persons. For ease of comprehension we refer in this document to companies only.

### BRITE

This issue is quite general but has been progressed as a core requirement in the BRITE project. BRITE ([www.briteproject.net](http://www.briteproject.net)) is the acronym for “Business Register Interoperability Throughout Europe”. It is an EU Commission funded research project on the establishment of links between Business Registers. BRITE will focus on the practical communication links that will assist in the management of the registries in the face of increasing cross border trade in a multi-language environment.

### Context

There are extensive benefits, outside of the communications between registers, which would encourage the establishment of a unique numbering structure. E-commerce has long been demanding a unique numbering system. The main offering is the D-U-N-S number created by Dun & Bradstreet:

[http://www.dnb.com/US/duns\\_update/index.html](http://www.dnb.com/US/duns_update/index.html).

In Europe we are aware of the emergence of other systems. There are extensive discussions about company identification for example:

[http://www.autoid.org/ANSI\\_MH10/2003%20ANSI%20MH10%20Documents/aug/MH108\\_03035\\_E\\_DIFICE\\_GUI.pdf](http://www.autoid.org/ANSI_MH10/2003%20ANSI%20MH10%20Documents/aug/MH108_03035_E_DIFICE_GUI.pdf)

[http://www.uc-council.org/ean\\_ucc\\_system/stnds\\_and\\_tech/eanucc-faq.html](http://www.uc-council.org/ean_ucc_system/stnds_and_tech/eanucc-faq.html)

<http://standards.ieee.org/faqs/OUI.html>

[http://www.gs1uk.org/free\\_txt\\_temp.asp?fid=76](http://www.gs1uk.org/free_txt_temp.asp?fid=76)

<http://www.vivavip.com/VIP-Issue1.pdf>

Given that company registries have already assigned a number to virtually every company in the world, the existence of alternative non-comprehensive systems points





to a failure of the registries to present a comprehensible alternative based on existing registry systems. This initiative is not however an effort to replace other identification systems. What it proposes is a codification of a classification system for things that already exist.

### **Directory of Registers**

The BRITE project is tasked with developing an infrastructure to support inter-registry communications. The communications will be transmitted via a secure virtual private network of registries on the Internet. These registries identifiers will be designated by a central authority. The directory of registers will be maintained in a manner similar to the European Business Register ([www.ebr.org](http://www.ebr.org)).

BRITE will implement a construct, which is in effect a “Directory of Registers”. The creation of such a directory will have many benefits outside of the BRITE project but we will not address those here. The Directory of registers will support a lead register (ITALY = IT, Canada = CA) with identification of sub registers (Venice = ITVE, Ontario = CAON).

### **Constraints**

The existing registry numbering systems impose certain constraints.

Within any given identified register, and there may be more than one register per registry, the numbering sequence is assumed to provide a unique key to the company.

We anticipate that registries will not want to change their existing numbering system in any way.

We know that not all company “numbers” are fully numeric. Numbers in Sweden contain hyphens (ASCII 45); in Belgium full stops (ASCII 46); in South Africa “forward slash” (ASCII 47); in Spain open and close brackets (ASCII 40 and 41).

### **Acronym for the System**

In describing this proposal in the past we have used the acronym “WUID” for World Unique Identifier. We are now proposing a more descriptive acronym viz. “REID” for Registered Entity Identifier. We consider this to be a more informative acronym.

The existence of an agreed acronym is important in e-Commerce. Identification of the registration system (e.g. “D-U-N-S” as the Dun and Bradstreet number) is used in messages in combination with the ID to allow trading partners to be directed to the correct system.





## Legal Position

The European First Directive on Company Law provides that:

*Member States shall stipulate that letters and order forms... shall state ...**the information necessary to identify the register** in which the file [...] is kept, together with **the number of the company in that register***

The same directive requires that, from January 1, 2007, that information should also be on a company's web site.

The directory of registers will provide a unique identification of the register. Thus, coupled with the unique number within that register we can uniquely identify the registered entity as follows:

[Register Identifier] [Number in register]

In Europe at least therefore, the position is that there is a way of creating a unique number that would require virtually no change to a registry's system. In all other jurisdictions of which we are aware there is a similar numbering system within registries.

To create a unique ID system, what is required is an external representation of the company number with additional information to identify the register within which the number is unique. By 'external representation' we mean that, when it appears on documents or is contained in electronic messages, the full ID would be used, but there would be no requirement to alter the number.

## Adoption of a Standard

We invite registries to take this opportunity to improve on the current proposal. We cannot make it obligatory for registries to adopt this or any identification system. We are optimistic however that registries would agree that no alternative system would be proposed or put in place. The REID structure would be registered under ISO 6523 (see below).

## Proposed REID Structure

A number of alternatives for the structure of REID have been suggested. In particular, attention has been drawn to the advantages of following the IBAN structure.

<http://www.lookintoireland.com/iban.htm>





The advantages of that approach are clear; there is already a wide acceptance and recognition for the IBAN system and that would ease the task of marketing the use of the identification system.

However unlike in the banking world, there will not, in many cases, be a need to identify the number “owner” (Bank branch/Register) as many countries have adopted unique number structures or a single national register for all entities. If we are to get the REID widely recognised, and included on certificates and headed notepaper, there will be resistance to the inclusion of what some people will think of as surplus characters. In Norway for example there is only one register so that register can be uniquely identified by the ISO country code “NO”.

### Machine-to-Machine Standard Different from Presentation Standard

Splitting the presentation rules from the machine transferable rules will enable us to retain the benefits of fixed length fields in machine-to-machine communications while giving greater brevity in the displayed version. It conforms to ISO 6523 (see below) where separate rules can be declared for display requirements.

#### Format for Machine-to-Machine Transmission:

CCRRRRRR N <sub>1</sub> .NNNNNNN ..N <sub>20</sub> PP	
CC	ISO Country Code – fixed 2 characters
RRRRRR	Register identifier within country. 6 Characters Characters 0-9, A-Z, - / Aligned left
N <sub>1</sub> , N <sub>2</sub> , ....., N <sub>20</sub>	Number unique within the register Fixed length. [20 characters]
PP	2 Character Check Digit

#### Format for Display (e.g. on certificates or headed notepaper)

CCRRRR.NNNNNNNN-P	
CC	ISO Country Code – fixed 2 characters





	REQUIRED
RRRRRR	Register identifier within country  REQUIRED where the company would not be uniquely identified without it  RECOMMENDED where company would be uniquely identified without it but where it is needed to identify the place of registration. <sup>1</sup>
	Otherwise it is OPTIONAL  It is REQUIRED that, if it is used, it be the same as the identifier used for electronic transfer  Maximum length 6  0-9, A-Z, -, /
“.”:	Divider  Full stop (period); ASCII 46.  REQUIRED except where the register identifier within country is not used <u>and</u> the company number cannot contain an ASCII 46 <sup>2</sup> character.
N <sub>1</sub> , N <sub>2</sub> , ....., N <sub>20</sub>	Number unique within the register – Maximum 20 characters.
“-“	Separator Hyphen
PP	2 Check Characters

## Check Digit Algorithm for the REID

Check digits are a “checksum” on a number or word to help prevent manual typing errors and are a simple and easy way to neutralize the human element of keying in

<sup>1</sup> In France for example while all companies are uniquely identified in the INPI register the company register itself is located elsewhere. The absence of an identifier for the register would mean that the number failed to meet the requirements of the First Directive. While that may be regrettable, the use of a register identifier in those circumstances can only be a recommendation and not a requirement as the ID will have met the essential requirement of being unique at the world level

<sup>2</sup> Otherwise the reader would not know where the number started.





data. Different methods of assigning check digits are better at detecting certain kinds of errors than others and there are a variety of algorithms for calculating these.

A two digit check digit is proposed that is calculated in accordance with the ISO 7064, Mod 97-10 international standard. This method has an especially compact formula and is easy to calculate. This scheme has been shown to catch just about every possible error. It is the standard that is used by most countries in calculating the International Bank Account Number (IBAN). For these reasons this method was selected for calculating the check digits for the REID.

The ISO 7064 specifies a set of check character systems capable of protecting strings against errors which occur when people copy or key data. These strings may be of fixed or variable length and may have character sets which are numeric (10 digit: 0 to 9), alphabetic (26 letters: A to Z) or alphanumeric (letters and digits). This standard is for use in information interchange between organizations and it is also strongly recommended as good practice for internal information systems.

The ISO specifications are designed to detect the following types of errors:

- All single substitution errors (the substitution of a single character for another, for example 4234 for 1234);
- All or nearly all single (local) transposition errors (the transposition of two single characters, either adjacent or with one character between them, for example 12354 or 12543 for 12345);
- All or nearly all shift errors (shifts of the whole string to the left or right);
- A high proportion of double substitution errors (two separate single substitution errors in the same string, for example 7234587 for 1234567);
- A high proportion of all other errors.

The general formula is given by:

$$\mathbf{digit(2) = mod(98 - mod(data * 100, 97), 97)}$$

### **Method for Calculating the REID Check Digits**

Taking the following REID as an example, IECROCR358857kk, the check digits should be calculated in the following way:

- 1) Replace the check digit characters with '0' and remove all non alphanumerics.

$$\mathbf{IECROCR358857kk = IECROCR35885700}$$







- 2) Convert the letters into numeric in accordance with the following conversion table, taken from the international standard ISO 13616. Basically, A becomes 10, B becomes 11 etc. up to Z becoming 35.

A=10	G=16	M=22	S=28	Y=34
B=11	H=17	N=23	T=29	Z=35
C=12	I=18	O=24	U=30	
D=13	J=19	P=25	V=31	
E=14	K=20	Q=26	W=32	
F=15	L=21	R=27	X=33	

**IECROCR35885700=1814122724122735885700**

- 3) Apply ISO 7064, Mod 97-10 to the number.

$$kk = \text{mod}(98 - \text{mod}(1814122724122735885700 * 100, 97), 97)$$

$$kk = \text{mod}(98 - 38, 97)$$

$$kk = \text{mod}(96, 97)$$

$$kk = 60$$

**REID= IECROCR35885760**

This produces a virtually error free, two digit, check digit. Consequently the REID can also be verified performing a computational check of the identifier against the check digits.

## Usage

The REID would be available for all electronic communications in respect of a registered company.

In a communication between a company and its “home” register, the register identifier would not be necessary. To encourage uptake and transparency however, registries would be encouraged to include the full REID on certificates of incorporation.

The REID would in almost all circumstances meet the requirements of the 1<sup>st</sup> Directive and so could be placed on letters and web sites.





## ISO 6523

The ISO has a standard for unique identifiers – ISO 6523. The above proposal on REID conforms to that standard. We understand from ISO that the current standard is considered stable and that there are no proposals for modification.

REID if adopted would be registered with ISO as an organization identification scheme (OIS) defined as:

*An identification scheme dedicated to the unique identification of organizations.*

Some authority, such as EBR or BRITE, would register with ISO as an issuing organisation. An “issuing organisation” (IO) is:

*“A body that assumes responsibility for the administration of a specific organization identification scheme.”*

No further identification of an issuing authority or organisation is required to create global uniqueness or identification.

ISO maintains a list of IOs. Each IO is identified by an International Code Designator (ICD). The ICD is a number expressed as 0000 – 9999.

<http://asn1.elibel.tm.fr/oid/doc/ICD-list.htm>

For electronic communications outside of BRITE the ICD would be affixed before the REID. Provided that BRITE did not propose to use other coding systems, the ICD would not have to be included in BRITE messages.

What we would normally call the “company number” is, within ISO 6523, called an **organization identifier (OI)** defined as:

*The identifier assigned to an organization within an organization identification scheme, and unique within that scheme.*

The standard fixes the length of the identifier at a maximum of 35 characters and provides that the format of the identifier, including the actual number of characters and character repertoire used, shall “comply with the identification scheme as documented upon registration”

Apart from the ICD and OI, the standard includes an optional further two fields identifying a part of the organisation. This could be used for the name of a company or for a branch. That option has not been adopted in any examples we have seen and is not proposed by us.





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Participants in ISO 6523 include I.N.S.E.E. (with SIREN), SWIFT, Dun & Bradstreet (with D-U-N-S) and the Swiss Federal Office of Justice (with Zefix).

Attention is drawn in particular to the Swiss “Zefix” entry in the ISO 6523 register. The developers of the REID proposal acknowledge the influence of the Zefix structure and its robust and long standing use in Switzerland.

## **Conclusion**

We are convinced of the value of a Unique ID system for both the registries and for companies in a global economy. We consider the above proposal is a minimalist approach that will achieve our objective.

It is our view that if this proposal were adopted by a number of registries, in due course the remaining registers would follow suit.

We are open to discussions in Europe and with our colleagues particularly in the CRF and IACA.

