

# Preparation of the Future with Minecraft® on Demand

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**Abstract:** The French national mapping agency, Institut national de l'information géographique et forestière (IGN France), launched a new web service in June 2016, called Minecraft® on Demand specifically for young people. This free web service is designed to provide Minecraft® maps with the raster and vector geographic databases that IGN produce on the French territories. This new service was recognized by different community: scientific, young people, French ministry. Different statistics allow analyzing the success obtained since 3 years. The new using of Minecraft® on demand for national contest to imagine the future and for education is presented.

**Keywords:** Minecraft, Minetest, on Demand, Future, Education, Contest

## 1. Introduction

The French national mapping agency, Institut national de l'information géographique et forestière (IGN), launched a new web service in June 2016, called Minecraft® on Demand<sup>1</sup> (Fremont et al, 2016) (Lecordix et al, 2017). This free web service is designed to provide Minecraft® maps, the world's most popular video game, from the different geographic database that IGN produces:

- RGE ALTI® provides a digital terrain model (DTM) with a 1 m resolution to generate the topographic relief;
- BDCARTO®, a vector database, provides a continuous land cover on whole France with a resolution of 10 meters;
- Registre parcellaire graphique (RPG), a non-continuous vector database provides different cultures in agricultural areas and consequently provides more information than BD CARTO® to distinguish cultures;
- BD TOPO®, a vector topographic database, with a resolution of 1 meter and 3D information, to generate blocks of roads, rivers, buildings, etc.

After having selected the center of the desired area in any position in France, the player can easily input a corresponding map of 5 km long and 5 km wide, at the scale 1:1 into Minecraft®. Minecraft® on Demand was developed more specifically for young people, since it may enable them to discover IGN data and geography.

This service was recognized by the scientific community, first in France during the Festival International of Geography at Saint-Dié des Vosges in geovisualisation competition<sup>2</sup> in October 2016 and then at the International Map Exhibition of the 28<sup>th</sup> ICC in Washington in July 2017 with the first maps award in digital products category.

Since this recognition by the scientific community, this service has experienced new successes which will be presented in the first part of this article, as well as the evolutions of this service, realized or in progress for addressing new needs, which will be presented in the second part.

## 2. New successes

### 2.1 Recognition by young people

The first success came from the young public with an exceptional enthusiasm from the end of July 2017, following a presentation of the young youtuber Oximoz who made a video to present the service Minecraft® on Demand. This video proposed on Youtube<sup>3</sup> was not the first one which was produced on this service. But it was very widely seen during the summer 2017 (600,000 views) and reached 783,000 views in January 2019, which corresponds to the most viewed video for this youtuber. From the beginning of August 2017 until September 2017, our service has seen a record of consultations and orders of maps.

Due to the long computing time needed to generate a map (more than 1 hour), an asynchronous solution was chosen for this service: the back-end launches the engine as soon as possible, and delivers the map to the users as a downloadable set of files. In order to minimize the risk of breakdown, some solutions were introduced to limit the number of maps computed each day (usually 50 maps a day, increasable if necessary). At the beginning, this maximum number of maps was initialised at midnight each day. After the video of the youtuber Oximoz and throughout the summer, all maps (at this moment, 150 each day) were ordered one minute after midnight and some young users expressed their disappointment at not being able to order a map during many days. This

<sup>1</sup> [www.ign.fr/Minecraft](http://www.ign.fr/Minecraft)

<sup>2</sup> [http://mappemonde.mgm.fr/120geov\\_intro/](http://mappemonde.mgm.fr/120geov_intro/)

<sup>3</sup> <https://www.youtube.com/watch?v=0JOi1UHmpWE>

exceptional demand of maps started to decrease when the summer holidays were finished.

Since the opening of the service in June 2016, 50,000 maps Minecraft have been delivered in April 2019, with an average of 50 maps per day. In figure 1, it is possible to observe this long period of important demand of maps during summer 2017. The second peak of demand which appears in figure 1 will be explained on the second part.

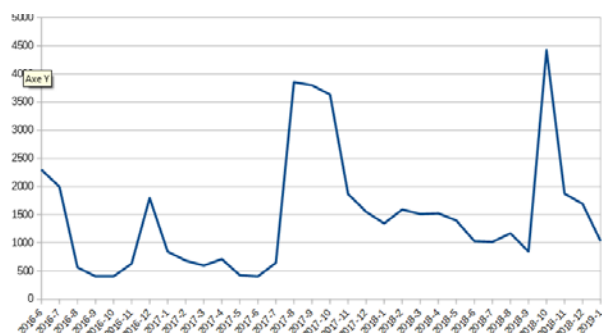


Figure 1. Number of maps delivered each month by the service Minecraft® on Demand since the opening in June 2016.

In addition to delivered maps statistics that track the success of this service, the many thank-you messages sent by users, often very young, have identified a strong interest in this new and original service proposed by IGN.

## 2.2 Demand on whole France

By creating this service, IGN aimed to reach a new, younger audience by using the Minecraft® video game. The promotional slogan indicated that “The children would be able to rediscover the geography of their country with Minecraft® on Demand”. After almost three years of existence, it is interesting to consider whether the slogan is true.

The mapping (figure 2) and the analysis of delivered maps distribution made it possible to observe that the whole of France was requested. On the 36,000 municipalities in France, more than 11,000 have been the place of a request with Minecraft® on Demand. The 20 most requested municipalities (big cities) represent about 20% of the demand, with Paris concentrating 11% of demand (more than 5,000 maps).

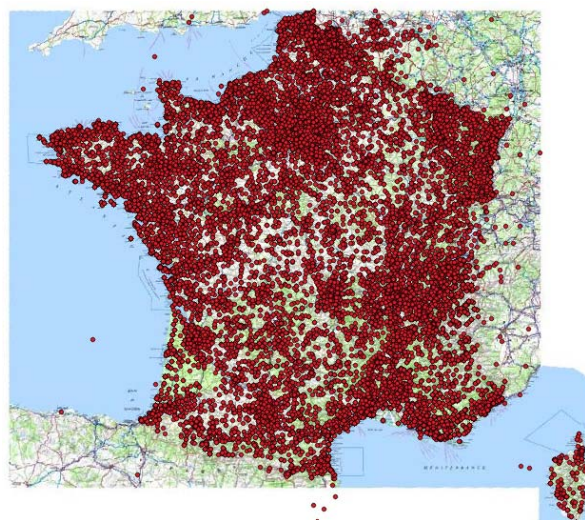


Figure 2. Localization of maps delivered by the service Minecraft® on Demand since the opening in June 2016

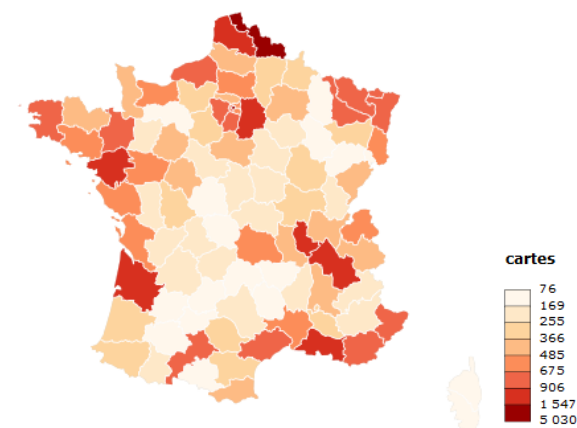


Figure 3. Repartition by department of maps delivered by the service Minecraft® on Demand since the opening in June 2016

Even outside metropolitan France, the demand in the various French overseas territories appeared during the launch, in April 2018, of version 2 of the service that now offers these territories (figure 4).



Figure 4. Localization of maps delivered by the service Minecraft® on Demand on overseas territories (La Réunion, Guyane, Mayotte, Guadeloupe, Martinique)

More surprisingly, a significant demand (about 1,000 maps) appears on foreign countries, especially in

Belgium, even if the maps of these countries could not be provided by IGN France.

### 2.3 Recognition by French ministry

Beyond the scientific community and the general public, the Minecraft® on Demand service has interested several French ministries, for the same reason: to offer the possibility of reaching a younger audience.

First, even before the opening of the service in 2016, the Service of Information of Government, attached to the Prime Minister's Office, was interested in this service to launch a construction contest in Minecraft of football stadiums of Euro 2016 which was held in France that year. But the idea was finally abandoned for a reason of too fair delay.

Then, in March 2017, the service received a special prize in a competition organized by the General Secretariat for the Modernization of Public Action (SGMAP) to distinguish innovative actions among public actors.

In July 2017, the Ministry of National Education selected a project presented by IGN based on this service which will be presented in the following section.

The notoriety obtained also made it possible to draw attention of another French ministry, the Ministry of Territorial Cohesion (MCT) which asked IGN in 2018 to use this web service for a national Minecraft contest which is presented below.

## 3. Minecraft® on Demand for the Future

### 3.1 National contest Cities and Territories of Tomorrow

In 2018, the MCT also wished to raise awareness and consult a large audience to imagine their cities or territories of tomorrow that will face many challenges: improve the quality of life of citizens, contribute to a more inclusive society, design, build and renovate buildings and neighborhoods, develop urban nature and urban mobility while limiting pollution, provide solutions to climate change and the ecological transition of society, optimize the management of water and energy... But for this kind of consultation, it is generally difficult to reach a young audience. That is why the MCT decided to try an original experience with a national Minecraft contest Cities and territories of Tomorrow, in 2050<sup>4</sup>.

This national contest, which was made to imagine the evolution of their familiar environment into providing more enjoyable living spaces, was launched from October 5, 2018 to January 31, 2019. In addition to IGN, Microsoft France and Mimaki have been partners of this contest, in particular to offer contest prizes (Xbox One, 3D colour printing of model). The projects must be crafted using Minecraft or Minetest (a free open source

version of Minecraft that the second version of service Minecrat® on Demand delivers) and rely on the maps initially produced by Minecraft® on Demand. This constraint to use Minecraft on Demand was introduced to encourage to imagine an evolution of territories and not a new city with no link with the present. A 3 minutes long presentation video of the project must determine the winners).

For the launch of the contest, the MCT decided to use again an original solution for a ministry: the more popular youtuber on Minecraft in France, Roi Louis (near 200,000 subscribers) presented the contest on his live video channel. The result could be observed immediately on the site Minecraft® on Demand with more than 300 maps delivered in one day and 4,500 maps in one month (see figure 1). More than 10,000 maps have been loaded during the contest period, spread throughout the national territory (figure 5). At the end, 1,200 people have registered to participate on the site of the contest.

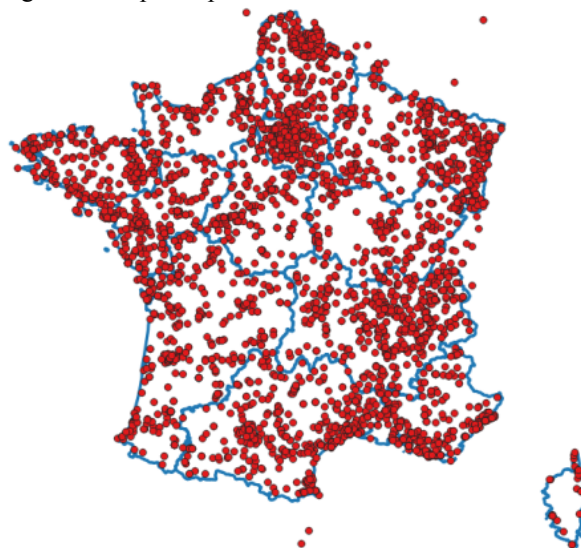


Figure 5. Localization of maps delivered by the service Minecraft® on Demand during the national contest period.

In February 2019, 27 candidatures were received and validated to participate for the contest. It turned out that the request to produce a video to participate at the contest was a strong and difficult constraint for the young participants. Associated with the difficult theme of the contest for children, this explains the large gap between the number of people registered on the ministry website and the final number of candidates.

The candidatures were very different: young children alone, 30 pupils of a school (Beychac et Caillau en 2050) or students from an architecture schools (Lunéville 2050, figure 6)... Different ecological solutions are proposed for energy (solar panels, wind and hydro turbines...) transport, buildings ... All the videos are available on the MCT website<sup>5</sup>.

<sup>4</sup> <https://villeterritoires-minecraft.gouv.fr/>

<sup>5</sup> <https://villeterritoires-minecraft.gouv.fr/projets>





Figure 6. Lunéville in 2050 proposed by Minecraft club of Ecole nationale supérieure d'Architecture de Nancy (ENSAN).

The last step of this contest is to produce the 3D printing for the winner of the special jury prize (Auray 2050). This printing, with extraction from Minecraft, is in progress (figure 7) and will produce on Mimaki 3D printer which already produced an example (figure 8).



Figure 7. Preparation of the Minecraft map of the winner (Auray 2050) in 3D format to be printed in 3D.



Figure 8. Example of 3D colour printing provided by Mimaki with the service Minecraft® on Demand. The winner of the national Minecraft contest Cities and Territories of Tomorrow will obtain the 3D colour printing of the area that he will craft.

### 3.2 Project for teaching

Quickly after the creation of Minecraft® on Demand, IGN wanted to use this service for teaching. As part of a call for projects from the Ministry of Education to create innovative digital services, the IGN proposed a project to develop new educational tools on Minetest, (an open source voxel game inspired from Minecraft) based on the geographic data produced by the IGN and introduced in the Minetest game. This project, funded by Ministry of Education with Programme d'Investissements d'Avenir, aims to develop an innovative approach to

multidisciplinary digital learning. With Minetest maps generated on any point of the French territory, three main themes will then be approached which will link the geographical data and some parts of the programs of the national education: Orientation around home, Territory development, Prevention of the natural risks.

With this project started in March 2017 for two years, the second version of the service Minecraft® on Demand has been developed with many news:

- New territories with various French overseas territories;
- New formats for the maps delivery, in particular Minetest to answer of the ministry requirement to use free open source software;
- New parameters : a scale factor and not only one block for one meter, different area until 5 km long and 5 km wide, different orientation.

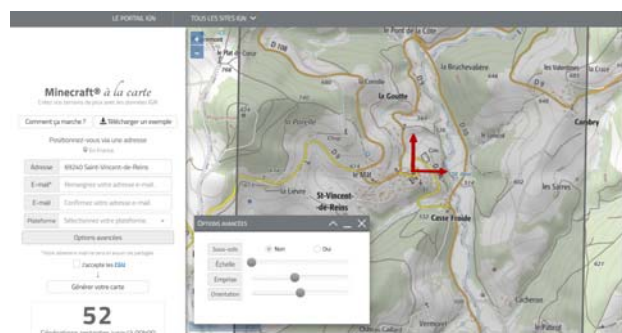


Figure 9. New interface of the version 2 of Minecraft® on Demand with more options.

The first pedagogic tools for the prevention of the natural risks are developed at this moment in Minetest. The user will be able to observe the effect of the rising waters in a Minetest map and so he will be able to detect the buildings – and the schools – that will be flooded.

### 4. Conclusion

Three years after the launch of service Minecraft® on Demand by IGN France, 50,000 maps are delivered on the whole France and show a great success for this service. New uses like national contest have boosted the interest of the service which will know new uses for the education in the future.

### 5. References

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