

GNU Health Federation Roadmap



GNUHealth
The Free / Libre Hospital and Health Information System



GNU Health Con 2019
Liège – Belgium – Dec 13 - 15th 2019

The GNU Health Federation ecosystem roadmap
Dr. Luis Falcon, M.D.

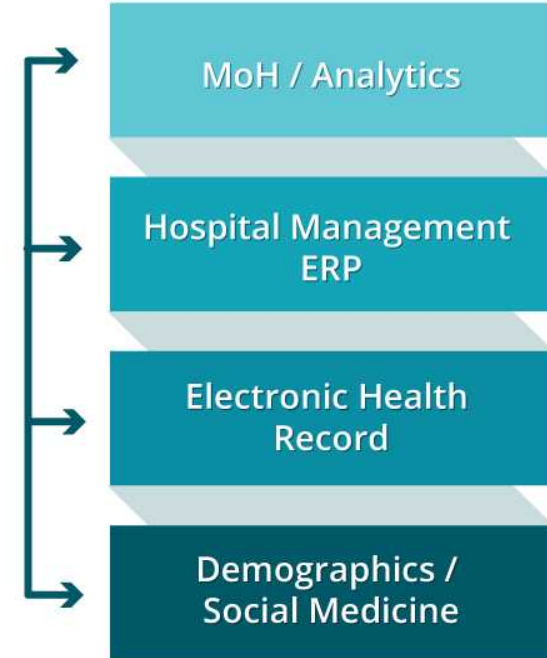
GNU Health Ecosystem



GUADEC 2019: The GNOME Conference
Thessaloniki, August 23rd

The fight for our rights in Public Health
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GNU Health ecosystem



GNUHealth



Hospital and Laboratory Management



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HMIS and LIMS Server



Server : Based on Tryton 5.0 (LTS)

GTK Client : Based on Tryton 5.2

Currently health **45 packages**

Development focus

- Oral health / Dentistry package
- Canvas plugin (surgery, forensics, ...)
- Enhance Interoperability (FHIR, IHE, analyzers...)
- Optimize ergonomics / usability
- Greater integration with the Federation HIS
- Packaging (by the GNU/Linux & BSD distributions)



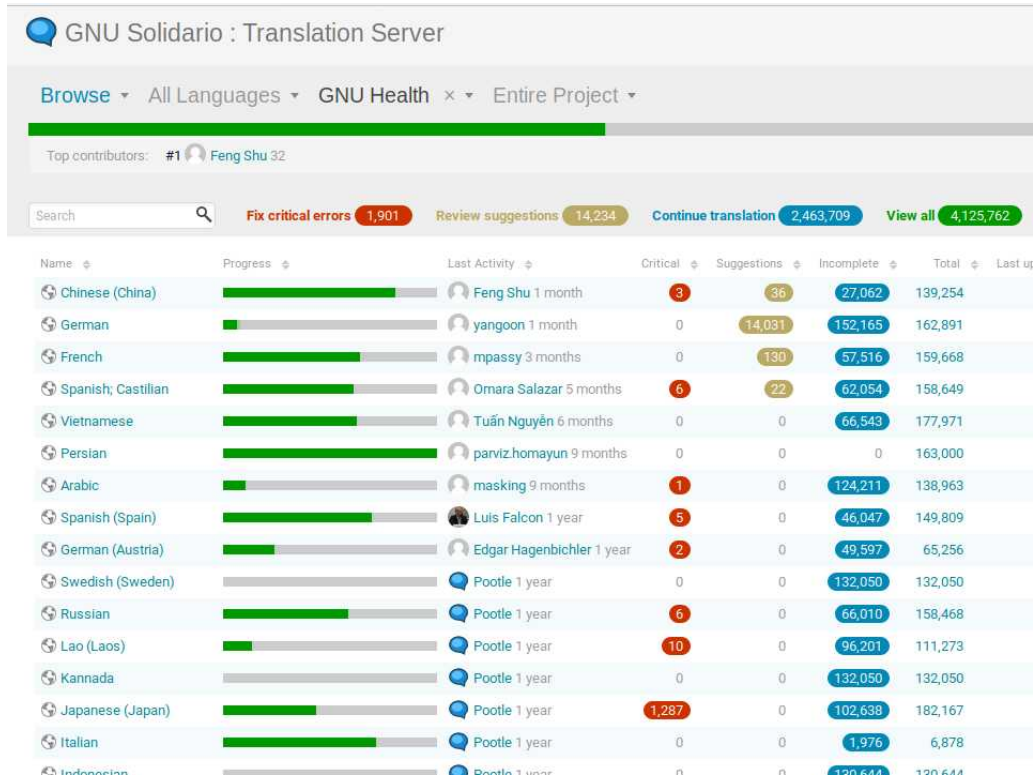
GNU Health Localization i18n



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Localization (i18n)



Currently Pootle

Focus:

- Localization teams
- Merge languages
- Optimize version management
- Improve GH Control center
 - * Download versions



The GNU Health Federation



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GH Federation components



Nodes

Message Server

Information System

Thalamus



**Thalamus is the GH Federation
Message and Authentication Server**

Focus on

Endpoints for epidemiology / analytics

Include more resources

Strengthen security



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GH Federation Portal

Developed on Vue.js (2.x)

Focus on

Account management

Patient portal

Health Professional Portal

Analytics

* Demographics

* Epidemiology



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A proposal to our governments

Unique ID & history

Person demographics and **medical history up-to-date** no matter the health institution she goes across the country

Improve quality of care

Health professionals have better and timely patient information. Saving time and providing better healthcare

Empower the community

The person is now an active player in the system of health



Public Money, Public Code !

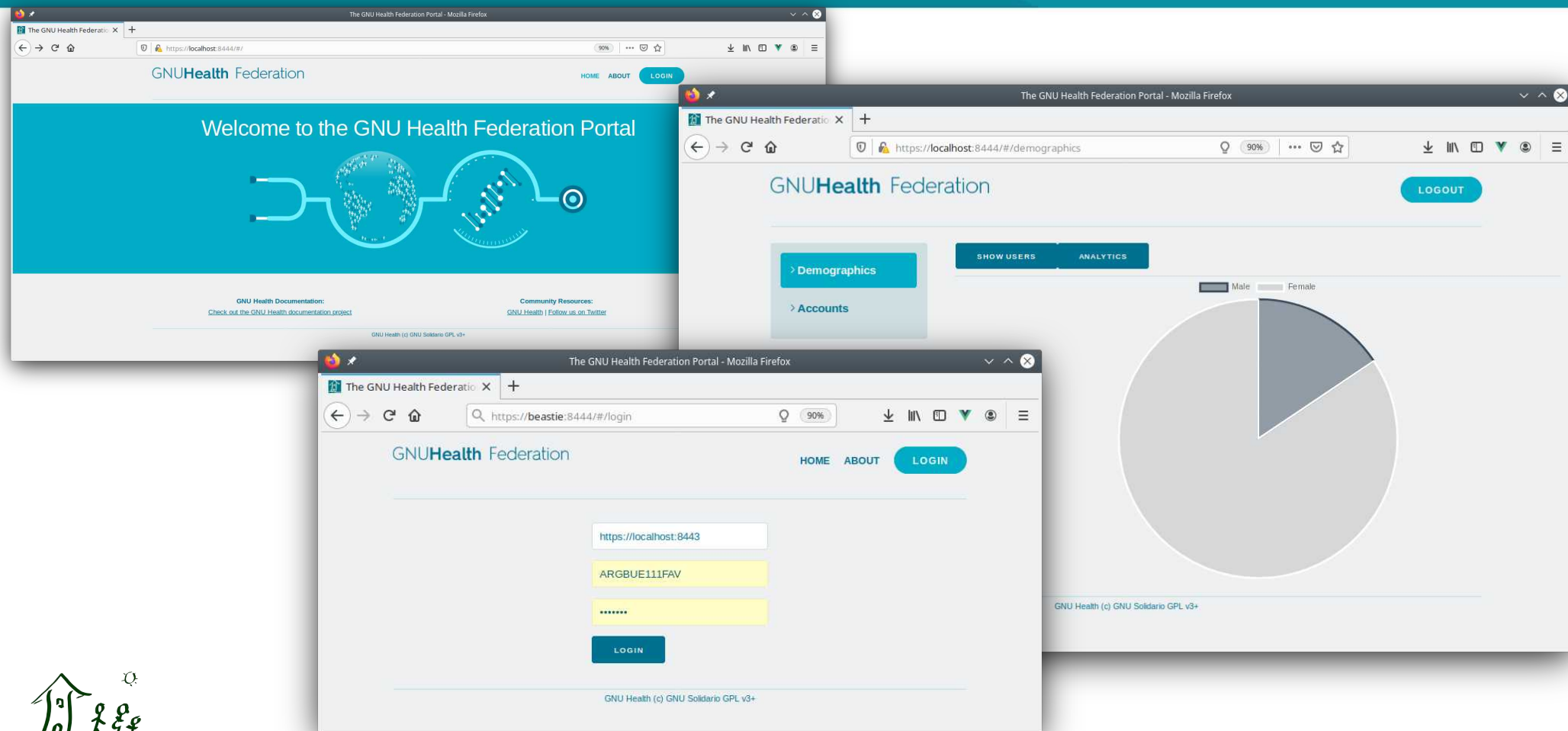
Libre Software: No hidden code, no blackboxes in healthcare.

The health software will be a **public good**.

Save millions of euros in licenses that can go to improve the public health system.



GH Federation Portal



Community Server



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GNU Health Federation Community Hub



Community public server in Munich
Demo and test environment
Main Federation components:

- * HMIS node and PostgreSQL
- * Thalamus message server
- * Person / Patient Master Index HIS
- * openSUSE Leap OS

Focus on

- Federation Portal component
- Enhance demo data, both at HMIS node and HIS database



Bioinformatics & Medical Genetics



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Precision Medicine & Medical Genetics

GNU Health - admin@localhost/genetics - Administrator - GNU SOLIDARIO HTAL [Euro]

Window Help

Variant Phenotypes

Variant Phenotypes 17 / 40

BRCA1

Gene & Protein	Variant	Phenotype
BRCA1 (P38398):breast cancer 1, early onset	VAR_007778 : p.Thr1025Ile	DI-02602:Breast cancer
BRCA1 (P38398):breast cancer 1, early onset	VAR_007781 : p.Val1047Ala	DI-02602:Breast cancer
BRCA1 (P38398):breast cancer 1, early onset	VAR_007782 : p.Pro1150Ser	DI-02602:Breast cancer
BRCA1 (P38398):breast cancer 1, early onset	VAR_007796 : p.Ala1708Glu	DI-02602:Breast cancer
BRCA1 (P38398):breast cancer 1, early onset	VAR_007799 : p.Met1775Arg	DI-02602:Breast cancer
BRCA1 (P38398):breast cancer 1, early onset	VAR_020679 : p.Glu10Lys	DI-02602:Breast cancer
BRCA1 (P38398):breast cancer 1, early onset	VAR_020680 : p.Glu23Lys	DI-02602:Breast cancer
BRCA1 (P38398):breast cancer 1, early onset	VAR_020683 : p.Asp749Tyr	DI-02602:Breast cancer
BRCA1 (P38398):breast cancer 1, early onset	VAR_020690 : p.Ser1187Ile	DI-02602:Breast cancer
BRCA1 (P38398):breast cancer 1, early onset	VAR_020691 : p.Gln1200His	DI-02602:Breast cancer
BRCA1 (P38398):breast cancer 1, early onset	VAR_020692 : p.Arg1204Ile	DI-02602:Breast cancer
BRCA1 (P38398):breast cancer 1, early onset	VAR_020693 : p.Lys1207Asn	DI-02602:Breast cancer
BRCA1 (P38398):breast cancer 1, early onset	VAR_020695 : p.Ser1217Tyr	DI-02602:Breast cancer
BRCA1 (P38398):breast cancer 1, early onset	VAR_063212 : p.Met1775Lys	DI-02602:Breast cancer
BRCA1 (P38398):breast cancer 1, early onset	VAR_075666 : p.Arg1699Trp	DI-02602:Breast cancer
BRIP1 (Q9BX63):BRCA1 interacting protein C-t	VAR_020896 : p.Pro47Ala	DI-02602:Breast cancer
BRIP1 (Q9BX63):BRCA1 interacting protein C-t	VAR_020900 : p.Met299Ile	DI-02602:Breast cancer
BRCA1 (P38398):breast cancer 1, early onset	VAR_007757 : p.Cys61Gly	DI-01655:Ovarian cancer
BRCA1 (P38398):breast cancer 1, early onset	VAR_020702 : p.Cys1697Arg	DI-01655:Ovarian cancer
BRCA1 (P38398):breast cancer 1, early onset	VAR_075666 : p.Arg1699Trp	DI-01655:Ovarian cancer
BRCA1 (P38398):breast cancer 1, early onset	VAR_020679 : p.Glu10Lys	DI-01559:Breast-ovarian cancer, familial, 1
BRCA1 (P38398):breast cancer 1, early onset	VAR_020680 : p.Glu23Lys	DI-01559:Breast-ovarian cancer, familial, 1
BRCA1 (P38398):breast cancer 1, early onset	VAR_020690 : p.Ser1187Ile	DI-01559:Breast-ovarian cancer, familial, 1
BRCA1 (P38398):breast cancer 1, early onset	VAR_020691 : p.Gln1200His	DI-01559:Breast-ovarian cancer, familial, 1
BRCA1 (P38398):breast cancer 1, early onset	VAR_020695 : p.Ser1217Tyr	DI-01559:Breast-ovarian cancer, familial, 1
BRCA1 (P38398):breast cancer 1, early onset	VAR_020696 : p.Phe1226Leu	DI-01559:Breast-ovarian cancer, familial, 1
BRCA1 (P38398):breast cancer 1, early onset	VAR_020697 : p.Arg1243Gly	DI-01559:Breast-ovarian cancer, familial, 1
BRIP1 (Q9BX63):BRCA1 interacting protein C-t	VAR_023700 : p.Gln255His	DI-01603:Fanconi anemia complementation gr
BRIP1 (Q9BX63):BRCA1 interacting protein C-t	VAR_023702 : p.Ala349Pro	DI-01603:Fanconi anemia complementation gr
BRIP1 (Q9BX63):BRCA1 interacting protein C-t	VAR_023703 : p.Trp647Cys	DI-01603:Fanconi anemia complementation gr
BRIP1 (Q9BX63):BRCA1 interacting protein C-t	VAR_023704 : p.Arg707Cys	DI-01603:Fanconi anemia complementation gr

Connected

VMD 1.8.4s13 OpenGL Display

File Edit View Bookmarks Settings Help

```

Info) Angles: 0 Dihedrals: 0 Improvers: 0 Cross-terms: 0
Info) Bondtypes: 0 Angletypes: 0 Dihedraltypes: 0 Improptypes: 0
Info) Residues: 224
Info) Waters: 3
Info) Segments: 1
Info) Fragments: 5 Protein: 2 Nucleic: 0

```

GNU Health Embedded



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Become a member and win a Raspberry Pi !



www.gnuhealth.org/join

Get a Raspberry Pi with GNU Health!

Become a Member of GNU Solidario and get a Raspberry Pi with GNU Health ready to run!
<https://www.gnuhealth.org/join>

 GNUHealth

 *Become a Member*



MyGNUHealth



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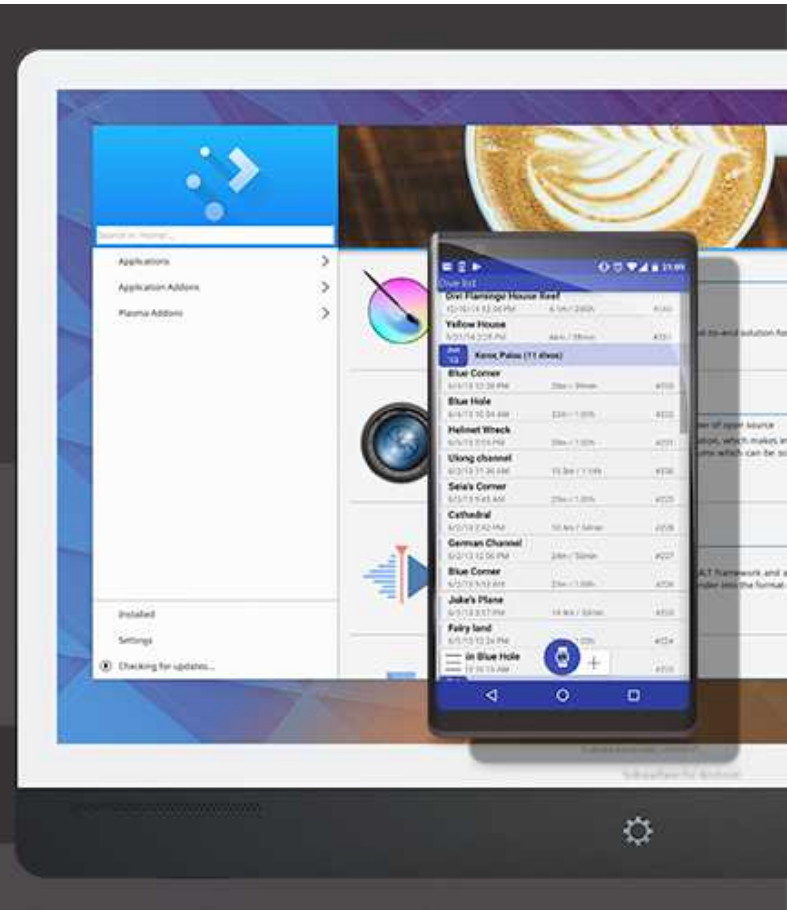
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QT Client

Kirigami UI

Build apps that adapt beautifully to mobile, desktop, and everything in between.

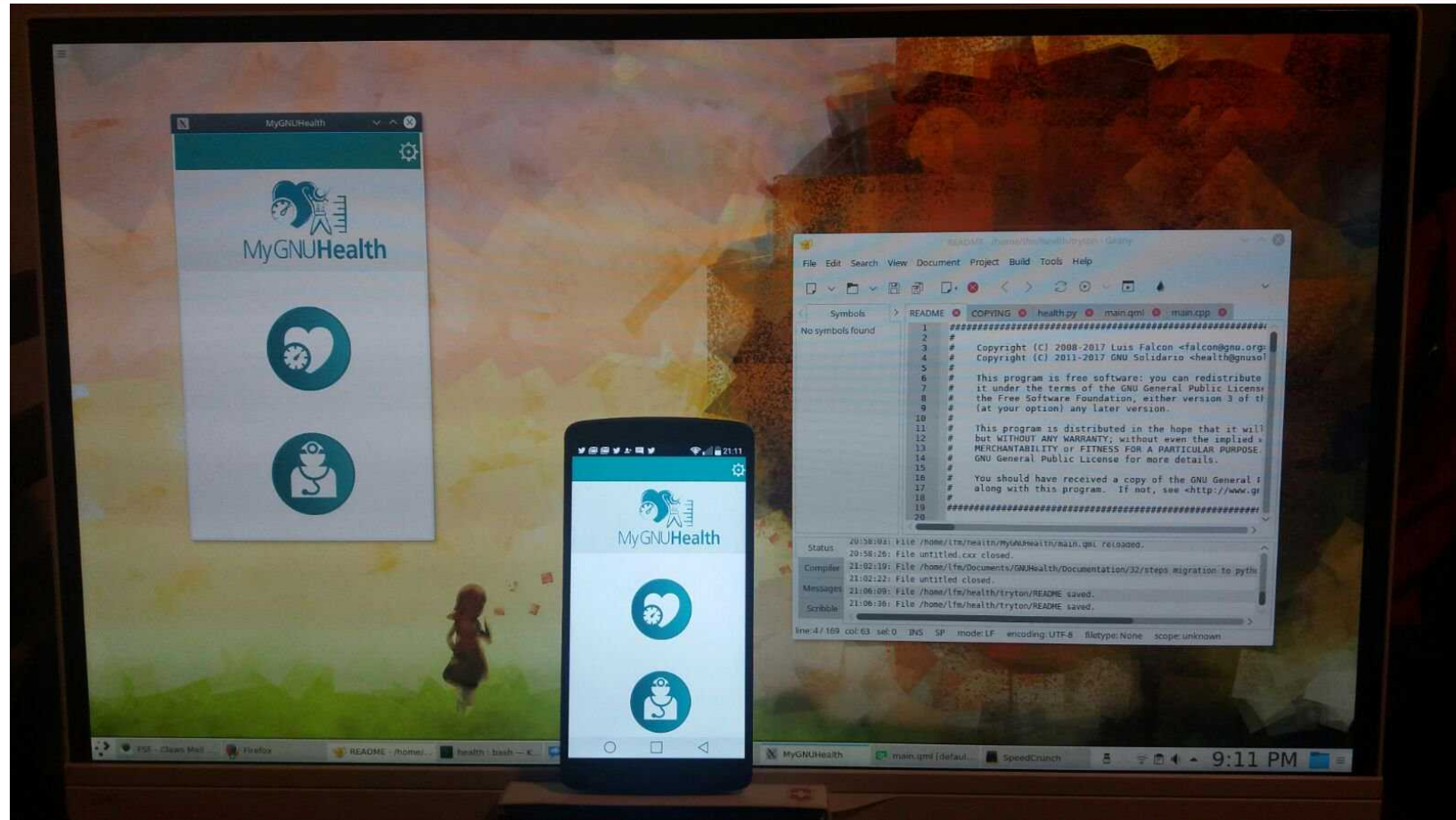
KIRIGAMI



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Desktop and mobile client



Interoperability



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FHIR, IHE and openEHR



GH early adopted FHIR since 2014 !

Focus on

FHIR Read and Write ops

Add new FHIR resources

Update FHIR API to Python3

IHE standard

European Commission Recom.

Discuss openEHR integration
(meeting in Tokyo this February)



Join us !



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health@gnusolidario.org



Health must remain a non-negotiable human right



GNU Solidario first project :Santiago del Estero, Argentina, 2006