

12. Division of Information and Communication Systems

The Department of Information and Communication System (ICS) was founded in 2014 in order to develop and maintain the information and network systems of NIFS efficiently. All of the information system experts in NIFS belong to the ICS. There are one office and four TASK groups which correspond to the job classifications in NIFS. The Information Security Office, established in 2020, oversees the overall information security of the institute. The Network Operation task group manages and maintains the communication systems in NIFS, such as the E-mail system including security issues. The Experimental Data System task group performs operation and development of data acquisition systems for the LHD experiment. The Backbone Information Systems task group, which was created by merging the Institutional Information Task Group and Integrated ID management and Authentication System task group in 2020, carries out the maintenance and development of the management systems for collaboration research and its output. The Atomic and Molecule Database task group maintains the atom and molecule database which is open to researchers around the world.

The ICS works as follows: the request for the maintenance, improvement, and development of the information and communication system from each section is submitted to the ICS. The deputy division directors of ICS check all the requests, establish the priority among them, and assign them to the appropriate Task Group. Because all the experts belong to the Technical Service Section of ICS, each Task Group Leader asks the Section Leader to allot the required number of experts for a prescribed period of time so as to finish the job.

In NIFS, three research projects extend across the research divisions. It can be said that the ICS is another “project” which lies across all the divisions in the institute for keeping the information and communication systems stable, secure, and up-to-date.

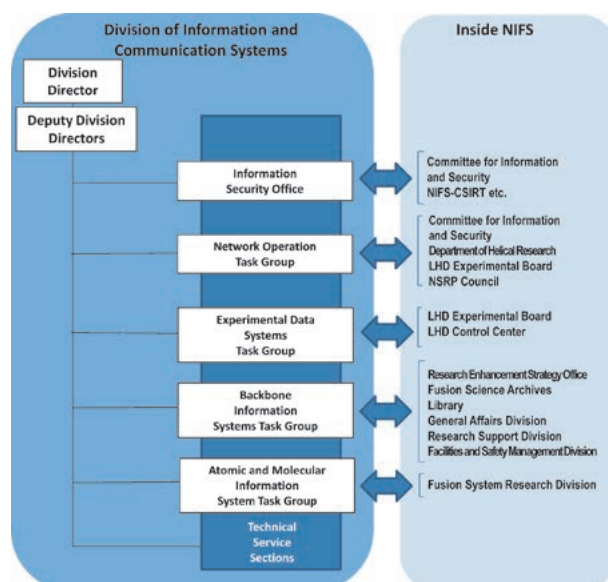


Fig. 1 Structure of Division for Information and Communication Systems.

Migration of e-mail service to Gmail and Google Groups

The mail service of the National Institute for Fusion Research (NIFS) had been operated by on-premises servers consisting of MailSuite and DeepAnchor of Qualitia (then DEEPSOFT) running on a virtual server system, and a secondary server built on Linux server. DeepAnchor provides a variety of services, but we used it to convert large attachments into a URL for the download.

As the maintenance period of MailSuite expires at the end of FY2020, we decided to adopt Google Gmail as the next mail system based on various conditions such as spam filters, stability of e-mail transmission, convenience, and incident cases.

The operation start time of Gmail was set to the beginning of August 2020 in consideration of the influence on the plasma experiment of NIFS. A migration period of about one month was set so that the migration of the mail system would not be concentrated at a certain point but could be done at the user’s convenience. During the transition period, new mail was delivered to both the old and new systems, so that there would be no interruption in business operations regardless of which system was used.

In order to carry out the migration work in a short period of time, it was decided that the administrators would treat almost all of the migration work of Gmail and Google Group, the mailing list, in order to reduce the time required for explanations and inquiries to the users. In order to carry out these migration tasks, a special team was formed within the Information and Communication Systems Department.

The two-step authentication is mandatory for Gmail in the same way of MailSuite, and as the second factor, we encouraged users to select multiple options from voice guidance over the phone, SMS to their smartphones, and authentication applications (Google Authenticator). In addition, a YubiKey was procured and distributed to all users for whom did not have or did not want to use a smartphone or for their backup. All users were able to complete the two-step verification within the scheduled period.

Currently, Gmail and Google Groups are operating without problems along with other G Suite apps.

Backbone Information Systems Task Group

Two task groups in the Division of Information and Communication Systems, that is the Institutional Information Systems task group (IIS-TG) and the Integrated ID Management and Authentication System task group (IDMAS-TG), are evolutionally merged into the Backbone Information Systems Task Group (BIS-TG) in April 2020. Japanese name of the task group is '*Kikan-Joho*', which is the same pronunciation as of IIS-TG.

In May of 2020, NIFS changed the license plan of Microsoft products from OVS-ES to EES. To adapt the EES, BIS-TG established a regime for user administration under Azure Active Directory. On the ramp-up period, existing user account was exported from the email system operated by the NetTG and imported into Azure AD via a web interface and customized with use of PowerShell scripts. This enables cloud-based Microsoft 365 services such as Microsoft Teams, OneDrive for Business, Yammer and so on, which is suitable for the COVID-19 situation.

BIS-TG develops *JUOE* system and deploys in March 2021. This web-based system intends to support workflows related to the Joint Use of Measurement Instruments program and is expected to reduce complicated coordination works.

Major services provided by BIS-TG are the followings:

NAIS (NIFS Article Information System): accumulates information of research achievements made by NIFS staffs and the collaborators. This system is used also for an internal approval for publication/presentation. It becomes one of essential information systems supporting research activities in NIFS. The total number of registered records at the end of the fiscal year was about 17,000.

Icarus and Workshop: a web-based online service for assisting various host operation to hold international conferences and for hosting relatively small workshops/meetings, respectively. 'Workshop' system was used by 20 workshops/meetings in FY2020.

GakuNin: the academic access management federation consisting of universities and academic institutes in Japan. NIFS joined in FY 2017. The status of the service in NIFS is experimental.

Eduroam: a world-wide Wi-Fi roaming infrastructure. NIFS joined in FY 2018. BIS-TG provides a user authentication function for Eduroam.

Colid: an ID management system for collaborators of NIFS research collaboration program, which is based on SAML under Shibboleth IdP and LDAP similar to GakuNin. This service is utilized for information disclosure to collaborators via web sites.

(S. Ishiguro)